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CERAMBYCOID LARVAE OF EUROPE AND SOVIET UNION (COLEOPTERA, CERAMBYCOIDEA). PART II.

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Abstract: Part II of the monograph covers the subfamilies Apatophyseinae and Cerambycinae of the family Cerambycidae. Provided are descriptions, keys to genera and species, and short remarks on distribution, bionomics, and occasionally also taxonomic position of the taxa. Larvae of 66 genera and 177 species are included.

Key words: Cerambycidae, Apatophyseinae, Cerambycinae, morphology, keys, bionomics, taxonomy.

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The second part of the monograph includes the subfamilies Apatophyseinae and Cerambycinae of the family Cerambycidae, both written by M. L. Danilevsky. For understanding the text, particularly the morphological terms, the reader must consult Part I.

The form and extent approximately follow those of the first volume. The general chapters of the enormous subfamily Cerambycinae cover only the Palaearctic fauna to avoid laborious collecting of published world data and an unnecessary extension and complication of the text.

One pair of terms used in descriptions of the present volume requires explanation: The words "procurved" and "recurved" are used for \cup and \cap curved structures respectively.

Errata for part 1

Please correct some more important or irritating errors in the first part:

Page 3 line 15, p. 15 line 4, p. 173 line 4 from below - read GRESSITT instead of GRESSIT; p. 9 - delete line 20; p. 14 line 6 from below - read lacks instead of lack; p. 38 end of *Distenia* - read GARDNER, 1930 instead of 1930a; p. 43 bottom line - read ecdysis instead of eceysis; p. 57 - line 15 should begin as a new paragraph; p. 68 line 9 - read unusual instead of unique; p. 68 line 6 from below - read constitutes instead of constitute; p. 69 line 20 - read *Cerambyx* instead of *Cerembyx*; p. 136 distribution of *Anisarthron barbipes* - read Balkan Peninsula instead of Balcan Penninsula; p. 168 line 12 from below - read on average instead of in average; p. 174 line 15 - read KEMNER instead of KEMMER; p. 174 line 31 - read A. F. NEWTON instead of A. J. NEWTON; Fig. 3A - scale bar represents 1.5 mm, not 15 mm.

On p. 174 please insert the following citation (referred to on p. 15 first line): LINSLEY, E. G., J. A. CHEMSAK, 1972: Cerambycidae of North America. Part VI, No. 1: Taxonomy and classification of the subfamily Lepturinae. *Univ. Calif. Publ. Ent.* No. 69: 1-138, 2 pls.

One overlooked nomenclatoric error: As soon as the genus *Spondylis* was included in the Aseminae (which is undoubtedly its correct placement), the subfamily must bear the name Spondylinae SERVILLE, 1832, which name has priority over Aseminae THOMSON, 1860 (not 1864 as stated in Part I p. 127). Thus, Spondylinae of this and the following volumes of the monograph are equivalent to Aseminae sensu Part I.

According to SAMA (1988), the type species of the genus *Saphanus* should be cited as follows: *Callidium spinosum* F., 1792 = *Callidium piceum* LAICHARTING, 1784. Please correct on p. 140 bottom line.

According to SILFVERBERG (1979), *Arhopalus tristis* (F., 1787) is a synonym of *A. rusticus* (L., 1758). If this synonymy is correct (I have not seen the type material,

if existing), then the species named *Arhopalus tristis* in the first part of the present monograph should be correctly named *A. ferus* (MULSANT, 1839).

To p. 124: The genus *Ulochaetes* is not monotypic, and *Necydalis* is not the sole representative of the subfamily Necydalinae in the Old World. HOLZSCHUH (1982) described a new species of *Ulochaetes*, *U. vacca*, from Bhutan, South Asia. Also the status of the genus *Psebena* GAHAN, 1902 (with *P. brevipennis* GAHAN from Borneo) is not clear to me, since I have not seen even the adult. The genus was listed under Necydalini in AURIVILLIUS, 1912 (see References in Part I).

One particularly unpleasant error has crept into the first part: The larva obtained from the Ohio State University, determined (?by D. J. et J. N. Knull) as *Vandykea tuberculata*, on which the placement of the genus *Vandykea* in the subfamily Spondylinae (Aseminae sensu Part I) has been based, was misidentified. Although I had first suspected the larva could belong to *Atimia helenae* LINSLEY (living in the same region on the same host plant), the suspicion was finally rejected, and the original determination accepted, since the larva was so sharply different from all so far known larvae of the genus *Atimia*. In the meantime, however, I was able to examine two real larvae of *Vandykea tuberculata* (through the kindness of dr. J. A. Chemsak), and they are good Cerambycinae Methiini (as briefly characterized in Part I, pp. 67–68). Thus, the transfer of the genus *Vandykea* to the subfamily Spondylinae was erroneous. The identity of the above mentioned misidentified Spondylinae larva remains somewhat uncertain, but if it really belongs to *Atimia helenae*, then the genus *Atimia* is rather heterogeneous and should be split. Please correct in Part I on pp. 15, 68, 129–134, 176, and Fig. 26A.

In the general chapters of Part I, the shape of the main antennal sensillum was regarded as distinctive between Prioninae and Parandrinae (flat or rarely roundly convex) versus other Cerambycidae (conical). The sensillum has now been found entirely flat in the Cerambycine genus *Icosium*.

Subfamily Apatophyseinae LACORDAIRE, 1869

Larvae of one genus known and available.

Genus *Apatophysis* CHEVROLAT, 1860

Type species: *Leptura serricornis* GEBLER, 1843

Body (Fig. 1 A) cylindrical, not depressed, slightly broadened posteriorly, with short, thin, sparse setae.

Head (Figs 1 B–C) deeply retracted into prothorax. Cranium depressed (about 1.8), slightly transverse (about 1.1), widest behind middle, sides rounded; yellow with pitchy-brown or black mouthframe. Dorsal margins of epicranial halves fused behind frons and diverging just before hind cranial margin, forming a small notch. Occipital foramen ventral, divided into small anterior and large posterior portions by a very thin ligamentous tentorial arm, slightly moved into the cranium.

Frontal lines distinct, entering antennal openings, reaching anterior cranial margin. Hind extremities of frontal lines entering separately dorsal doubled region. Transfrontal line and postcondylar carina absent. Medial frontal line distinct, reaching epistomal margin. A row of 4 pairs of stout anterior frontal setae accompanied by many smaller ones. Frons almost smooth behind the row of setae, with 2 paramedian impressions and many \pm distinct small scattered setiferous pores. Front margin of frons strongly sclerotized, coarsely rugose, projecting over clypeus in large epistoma of various forms (absent in early stages). 6 epistomal setae present.

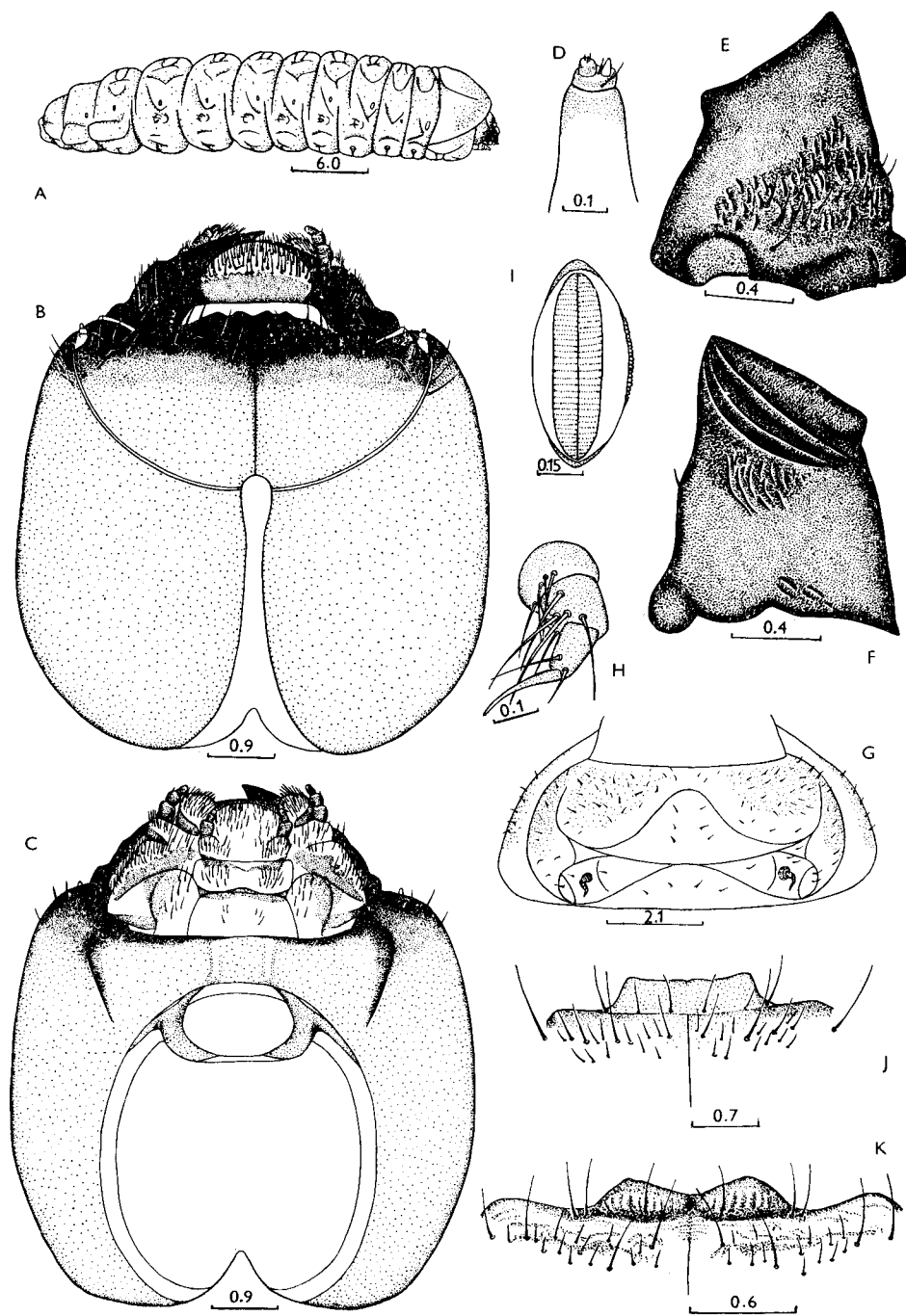
Antennae (Fig. 1 D) short, 3-segmented. 2nd segment strongly transverse, with large conical main sensillum. 3rd segment elongate. Conical main sensillum nearly as long as 3rd segment. 2nd and 3rd segments with very short setae. Upper boundary of antennal ring roundly extended.

Pleurostoma strongly raised, smooth. Gena coarsely striated, with about 3 long setae and with many small scattered setae. Dark pigmentation of gena reaching lateral long setae. Stemmata absent, but in early stages 2 dorsal stemmata present and 3 joined pigmented spots of main stemmata on each side hardly visible. Sometimes mature larva with almost inconspicuous rudimental cornea of one pair of main stemmata and one pair of dorsal stemmata. Subfossal process present.

Hypostomal lines distinct. Hypostoma large, about 5.5–6.5 times broader than length of gula, with narrowly pigmented front margin, glabrous, smooth or finely obliquely striate. Metatentorial pits \pm distinct, or indistinct. Gula subquadrate or transverse, anterior margin not pigmented. Gular lines slightly raised.

Clypeus broad, filling entire space between mandibular articulations, without setae, without pigmentation.

Labrum transverse, with rounded front margin, densely covered with short setae anteriorly and with scattered setae in the middle part, with basal sclerotization.



Mandibles (Figs 1 E, F) short, large, with oblique straight cutting edge. Dorsal and ventral angles acute. Outer surface with median transverse furrow, anteriorly nearly smooth, posteriorly coarsely rugose, with scattered setae. Inner surface with 3 oblique long and 1 short carinae, finely longitudinally striate behind them.

Labiomaxillary complex attached to cranium by more than 3 widths of gula. Maxillary palps 3-segmented, strongly sclerotized. 1st segment transverse, without process, 2nd and 3rd segments with small setae. Mala, palpiger, stipes and cardo with sclerotized bands. No connection between sclerotization of mala and of stipes. Mala very broad, with oblique anterior margin, inner and anterior surface covered with short dense stout setae. Palpiger and stipes with long scattered setae. Palpiger with conspicuous process. Stipes with two setose areas, basal small area delimited by sclerotization. Cardo without seta. Connecting lobe very large, strongly protuberant, laterally sclerotized, with numerous setae.

Mentum and praementum with narrow basal sclerotized bands. Submentum without sclerotization, with 4 setae. Mentum and praementum with two lateral groups of setae. Labial palps small, 2-segmented, much shorter than ligula. Both segments elongate. 2nd segment almost twice shorter than 1st. Ligula very broad, strongly transverse (as all parts of labium), rounded anteriorly, covered with dense setae. Palps separated by about 6 widths of their 1st segment.

Prothorax with narrow \pm bright orange band along anterior margin, broadened on alar lobes, interrupted in the middle. Notches of front margin of the band (one on pronotum and one on alar lobe) almost indiscernible. Lateral furrows of pronotum very distinct up to the orange band. Anteriorly pronotum covered with very short scattered setae, more dense along anterior margin. Posterior part of pronotum shining, slightly irregularly rugose. Postnotal fold present, may be covered with microasperities. Epipleurum fused with lateropraesternum anteriorly, slightly pigmented. Mediopraesternum small, very distinct (Fig. 1 G). Epimeron and episternum present. Laterobasisternum and coxae \pm separate. Episternum not sclerotized. Some thin membranes (around coxae, behind pronotum, along front margin of thorax, between alar lobes and epipleurum) may be covered with microasperities.

Meso- and metanotum divided by "X"-shaped furrows, but sometimes transverse furrows of metanotum not brought together, with a transverse scutum between them. Scutum-I absent. Alar lobe, epipleurum, pleurum and coxae distinct. Praesternum well visible on both segments. Transsternal lines deep. Sterna shining, slightly irregularly rugose. Many areas of thin cuticle of meso- and metathorax sometimes with microasperities. Spiracle oval, with many hardly visible marginal chambers along upper boundary.

Fig. 1: A - *Apatophysis pavlovskii*, body, lateral view. B - *A. pavlovskii*, head, dorsal view. C - *A. pavlovskii*, head, ventral view. D - *A. pavlovskii*, antenna. E - *A. pavlovskii*, mandible, outer face. F - *A. pavlovskii*, mandible, inner face. G - *A. pavlovskii*, prothorax, ventral view. H - *A. pavlovskii*, leg. I - *A. pavlovskii*, 1st abdominal spiracle. J - *A. caspica*, front margin of frons. K - *A. mongolica*, ditto.

Legs (Fig. 1 H) well developed, but short. Trochanter, femur and tibiotarsus sclerotized, with short setae. Praetarsus flagelliform, nearly unpigmented, without setae.

Abdomen with ambulatory ampullae on 7 segments. Each dorsal ampulla with 2 transverse furrows, each ventral ampulla with one. All ampullae with 2 longitudinal short lateral furrows and with a median impression, slightly protuberant, shining, without asperities or tubercles. Epipleurum protuberant on segments 7 to 9. Pleural discs absent. Abdominal segments 3 to 7 with pleural tubercles. Spiracular areas distinct. Spiracles oval (Fig. 1 I), 1st abdominal spiracle about 1.5 times shorter than thoracic spiracle. Numerous marginal chambers indistinct. Coxal lobes well developed. 9th segment short, without caudal armature. Anus triradiate.

Single Palaearctic genus *Apatophysis* is distributed in Central and South Asia and North Africa.

About 17 species are known in Palaearctic Region, larvae of 3 of them at my disposal.

- 1(2) Most part of frons and gena nearly glabrous, scattered setae very small, setiferous pores indistinct. Thoracic spiracle about twice as long as broad. Epistoma of mature larvae trapezoidal, with \pm dentate front margin. Epistoma of half-grown larva roundly convex. All segments of palps almost entirely sclerotized *pavlovskii*
2(1) Most part of frons and gena with distinct setiferous pores bearing conspicuous setae. Thoracic spiracle about 1.5 times as long as broad. About 2/3 of length of palpal segments sclerotized.
3(4) Epistoma trapezoidal, with straight or slightly emarginate anterior margin (Fig. 1 J). *caspiica*
4(3) Epistoma forming two paramedian convexities (Fig. 1 K) *mongolica*

A. pavlovskii PLAVILSHCHIKOV, 1954

Differential characters in the key. Body length up to 40 mm, width up to 9 mm.

Habits: Larvae in decaying, moist roots, capable of tunnelling through the soil. Host plants: *Ulmus*, *Crataegus*, *Juglans* and apparently other deciduous trees. Pupation in soil in earthen cocoon just below the surface. Emergence in the end of July-August.

Distribution: Mountain forests of Tadzhikistan.

Material: 29. 5. 1978, SU, Hissar Mountains, Ramit, 12/1, in roots of *Juglans*, *Ulmus*, *Crataegus*, and in soil, lgt. D, coll. IS.

A. caspiica SEMENOV, 1901

Differential characters in the key. Body length up to 32 mm, width up to 4 mm.

Habits: Larvae in roots. Host plants: *Kalidium*, *Salsola*, *Calligonum*, *Armeniaca*, *Ephedra* and apparently other desert shrubs. Emergence in spring and summer.

Distribution: Turkmenia, West Kazakhstan, South-East of European part of USSR, East Transcaucasia, North Iran, Turkey (Kars).

Material: 7. 5. 1973, SU, Turkmenia, Dzhilikum, 5/-, in roots of *Ephedra*, lgt. B. M. Mamaev, coll. IS; 24. 5. 1974, SU, Turkmenia, Bugdaily, 2/-, in roots of *Kalidium*, lgt. A. Yagdyev, coll. IS; 14. 5. 1973, SU, Turkmenia, Dzhilikum, 2/-, in roots of *Salsola richteri*, lgt. B. M. Mamaev, coll. IS; 22. 5. 1983, SU, Armenia, Vedy, 2/-, in roots of *Salsola*, lgt. M. Kalashan, coll. IS.

A. mongolica SEMENOV, 1901

Differential characters in the key. Body length up to 43 mm, width up to 6 mm.

Habits: Larvae in roots. Host plants: *Haloxylon* and apparently other shrubs. Emergence in spring and summer.

Distribution: East Kazakhstan, Mongolia, North China.

Material: 8. 8. 1971, Mongolia, South Gobi, 2/-, lgt. B. Namkhaidorz, coll. IS.

Subfamily Cerambycinae LATREILLE, 1804

General morphology

Body cylindrical, mostly not depressed, or rarely slightly depressed (some *Callidiini*); white or yellowish, always without sclerotized grains, but often with microasperities.

Head more than by half retracted into prothorax, relatively slightly depressed. Cranium white or yellowish, with \pm strongly pigmented mouthframe, transverse (width/length from 1.1 to 1.7) with only one (known to me) exception in Palaearctic fauna: cranium of *Hayashicyltus acutivittis* as wide as long. Sides of cranium strongly diverging posteriorly and cranium widest near hind margin, or \pm widely rounded near middle, rarely subparallel. Hind margin slightly emarginate or straight, rarely gently procurved. Epicranial halves totally fused dorsally, forming long doubled region, sometimes with internal crist.

Frontal lines as a rule indistinct, or distinct anteriorly behind antennal foramen in pigmented mouthframe. Medial frontal line nearly always distinct posteriorly, often entirely distinct, rarely totally invisible. Transfrontal line absent. Frons \pm smooth, sometimes rugose near anterior margin, with several (mostly 5 pairs) stable anterior setae arranged in a transverse row. In descriptions, these setae are called praefrontal, and numbered from the medial group to the lateral one (of one side), e.g. (2,2,1). Supplementary (usually shorter) frontal setae often present (Fig. 17 A). Front margin of frons mostly slightly emarginate behind labrum or widely procurved, rarely straight or even recurved, always with 4 epistomal setae (anterior pair of praefrontal setae seems to be homologous with medial pair of epistomal setae of other subfamilies); pigmented back to the row of praefrontal setae, or wider, or narrower; sometimes very narrow or almost without pigmentation, with yellowish spots near dorsal mandibular articulations; never projecting over clypeus; its upper boundary never dentate or carinate, with only one exception in Palaearctic

fauna: in *Xylotrechus rufilius* upper boundary forms two paramedian curved protuberances, pushed backwards, with two transverse depressions anteriorly (between protuberances and anterior margin), in which lies medial pair of epistomal setae (Fig. 20 A). In *Dissopachys*, front margin of frons with distinct tubercles (Fig. 5 A).

Antennal ring closed (if gena widely pigmented), or opened (if gena narrowly pigmented), its upper boundary sometimes projecting over antennal membrane. Antennae relatively very long (maximal development in the family), nearly always 3-segmented, only in some Molorchini (*Molorchus kiesenwetteri*) and Nathriini 2-segmented, with basal segment reduced. Main antennal sensillum small or large, \pm conical, but entirely flat in *Icosium*.

Three, two or one pairs of main stemmata present, rarely stemmata absent. Dorsal and ventral stemmata rarely distinct. Gena smooth or rugose, sometimes with post-stemmatal or postantennal protuberance, or carinate. Stemmata may or may not be surrounded by pigmentation of gena.

Gena with a transverse row of long setae and with more or less dense short setae which may be totally absent; or with dense long setae. Subfossal processes present or absent.

Hypostomal lines always distinct anteriorly. Hypostoma smooth or obliquely rugose, glabrous or setose, its anterior margin straight or procurved, often with two paramedian concavities near gula; \pm widely pigmented, sometimes dentate or longitudinally carinate or striate anteriorly. Gula always distinct, slightly raised, pale or \pm darkly pigmented, may or may not interrupt pigmentation of anterior margin of hypostoma. Metatentorium medially narrow, ligamentous; lies in the plane of hypostoma (medial portion slightly sunken inside cranium), dividing occipital foramen into two portions. Metatentorines indistinct.

Clypeus always glabrous, small, mostly not filling space between dorsal mandibular articulations (but relatively broader and with the lateral narrow arms shorter in some Cerambycini and Obriini). Labrum always very small, mostly slightly transverse, hemicircular, subcircular, oval or cordate, feebly pigmented posteriorly, densely setose peripherally.

Mandibles of the most specialized type in the family: short, without dorsal and ventral angles (slightly distinct only in *Plocaederus*), with rounded, spoon-like apical part; medially smooth; laterally with a transverse depression between basal and apical parts. Apical part nearly always black, glabrous, relatively smooth, with short longitudinal depression. Basal part mostly less sclerotized, brown or pale brown, but sometimes also black; often coarsely rugose, with two or more setae.

Labiomaxillary complex externally attached to cranium by little more than width of gula, or rather more (in Cerambycini), but never along whole front hypostomal margin. Cardo and stipes movable. Mala attached to stipes, subquadrate, often broadened anteriorly, with relatively straight or slightly rounded, \pm densely setose anterior margin; but in Cerambycini mala elongate, strongly rounded apically, densely setose on inner and apical margin. Maxillary palps 3-segmented, only in

Nathrius 2-segmented. Palpiger and 1st segment of palp mostly bear conspicuous lateral sensory processes, sometimes only palpiger with process, rarely even the palpiger process rather inconspicuous (in *Aromia*).

Submentum unpigmented or slightly pigmented, with two or four setae. Only in *Teratoclytus* submentum strongly sclerotized, unusually long, covers anterior margin of gula, with longitudinal carinae.

Mentum never fused with submentum, often with two basal lateral sclerites. Praementum with \pm wide basal sclerotization, often narrowed or interrupted medially. Labial palps from widely separated to nearly contiguous. In *Phoracantha semipunctata* praementum and 1st segment of labial palp with lateral processes. Ligula \pm densely setose, \pm short (shorter than labial palps), elongate; rarely large, transverse, longer than labial palps (Cerambycini), rather densely setose; sometimes very small, almost absent (Molorchini).

Prothorax with \pm bright pigmentation (from bright orange to pale yellow) on pronotum and alar lobes, sometimes small pigmented blotches present on epipleurum and near middle of lateropraesternum. In Purpuricenini, bright orange paramedian blotches present near anterior margin of lateropraesternum. Lateral furrows of pronotum well developed. Posterior half of pronotum slightly raised, mostly shining, glabrous, \pm strongly, \pm regularly longitudinally striate, with a more distinct medial stria. Sometimes posterior half of pronotum partly or entirely microasperate. Postnotum present. Sometimes there is a small triangular area ("prepostnotal fold") before hind margin of pronotum (*Dere*, Fig. 22 E).

Epipleurum entirely delimited in Cerambycini (Fig. 2 H), and also in *Bolivarita* and *Dere*; it is wide posteriorly and narrowed anteriorly. In other groups epipleurum nearly entirely fused with lateropraesternum, delimited ventrally just near posterior margin. Only in some Obriini and Clytini ventral border line of epipleurum longer, but in Clytini it is not homologous with the line of Cerambycini and Obriini, as in Clytini the "epipleurum" broadened anteriorly, including lateral portions of lateropraesternum. Mediopraesternum mostly fused with lateropraesternum, forming an undivided praesternum with two paramedian glabrous areas which may be slightly pigmented. Sometimes mediopraesternum delimited laterally (Cerambycini, Obriini). Episternum mostly fused with lateropraesternum. Coxosternum nearly always distinct, though border line between coxosternum and sternellar fold in highly derived groups may be obliterated. A distinct transverse fold situated above coxosternum, formed by fusion of epimeron and posterior part of epipleurum.

Metanotum divided by "X"-shaped groove. Often anterior part of this groove obliterated and only a curved groove distinct. Mesonotum divided by a transverse groove. Scutum-I of metathorax and parascutum of both segments often distinct. Alar lobes and three parts of epipleurum mostly distinct in both segments, but in highly derived groups alar lobes fused with anterior part of epipleurum, forming a long oblique fold. Ventral border line of epipleurum distinct only anteriorly. Pleurum and coxal lobe mostly not fused. Inner border line of coxa also mostly distinct.

Transsternal lines of meso- and metasternum always \pm distinct. Notum and sternum of meso- and metathorax irregularly rugose, rarely granulate, often microreticulate, microgranulate or microasperate. Thoracic spiracle oval, not protruding into prothorax.

Legs rather small, with flagelliform praetarsus, originally 4-segmented (counted from trochanter), but all stages of reduction occur. Trochanter may be pigmented along inner margin, mostly setose. Praetarsus always without setae, unsclerotized or feebly sclerotized. Trochanter often indistinct, sometimes only tibiotarsus and praetarsus slightly visible, or legs vestigial, in form of an unsegmented papilla (*Xylotrechus*), or legs totally absent (Molorchini, *Nathrius*, most species of *Clytus*).

Abdomen with ambulatory ampullae on segments 1 to 7. Ampullae may be irregularly rugose, granulate (rarely), microreticulate, microgranulate or microasperate (entirely or partly). Dorsal ampullae with two transverse furrows, a \pm deep medial longitudinal impression, and two lateral short longitudinal furrows. Posterior transverse furrow often obliterated. Rarely all furrows indistinct. Ventral ampullae with one transverse furrow, two lateral longitudinal furrows and a deep medial impression. Sometimes ampullae strongly convex, bilobed, abdominal segments with strongly developed intersegmental skin, so that abdomen with several wide, deep constrictions (Obriini, *Nathrius*). Parascutum mostly distinct. Epipleurum protuberant only on segments 7 (or 8) to 9. In *Obriopsis* epipleurum of segments 3 to 6 with small curved sclerites (Fig. 13 B). Abdominal segments 1 to 6 with spiracular area and epipleurum fused and divided by a deep oblique furrow. Coxal lobes mostly distinct. Pleural discs often rather distinct in some anterior abdominal segments. Often discs of 2nd segment more distinct than those of 1st segment. Sometimes pleural discs obliterated, hardly visible, or absent.

Spiracles mostly without marginal chambers, but sometimes chambers present, though very small, indistinct.

Caudal armature very rarely present. In my material only *Nadezhdiana villosa* with a protuberance on 9th abdominal tergum, bearing numerous sclerotized spines (Fig. 15 D). In *Semanotus undatus*, 7th abdominal sternum mostly with two distinct rounded lateral sclerites. Anus triradiate. In Cerambycini anus encircled by a dense fringe of short setae.

Distribution and bionomics

Cerambycinae are of worldwide distribution, it is mainly a tropical group, which is poorly represented in temperate zone of Palaearctic region, though rather abundant in Mediterranean part of Palaearctics and in the Far East.

The majority of species live in dead dry wood of trunks and branches of deciduous trees and shrubs. They are rather polyphagous. Only a few species feed in coniferous trees (*Icosium*, *Obrium brunneum*, some *Molorchus*, *Hylotrupes*, *Pronocera*, *Callidium*, *Semanotus*, *Phymatodes glabratus*, *Ph. abietinus*, *Xylotrechus altaicus*, *Clytus arietoi-*

des, *C. lama*). Rather striking for such highly derived subfamily is the capability of normal development in both coniferous and deciduous trees, known for *Leontium viride* and *Chlorophorus gracilipes*. Many species normally living in deciduous trees, sometimes as an exception may be found in coniferous ones (*Phymatodes testaceus*, *Pyrrhidium sanguineum*, *Rosalia alpina* and some others), and, from the other side, such coniferous-feeding Cerambycinae as *Molorchus minor*, *Callidium violaceum* or *Hylotrupes bajulus* were found in deciduous trees.

Development mostly begins under bark and then the larvae tunnel deep into the wood, but many species are capable of finishing their development under bark (*Pyrrhidium*, *Callidium*, many *Phymatodes*, *Molorchus*, *Plagionotus*, *Pronocera*, *Semanotus*) where pupation takes place, or they pupate in outer sapwood.

A few species can infest dry wood without bark, destroying seasoned and structural timber and causing great economic damage (*Hylotrupes bajulus*, *Chlorophorus faldermanni*, *Stromatium*).

Some species feed in wood of healthy living trees and are characterized by monophagy: *Xylotrechus altaicus* (in *Larix*), *Aromia moschata* (in *Salix*), *Chelidonium zaitzevi* (in *Acer*), *Teratoclytus plavilstshikovi* (in *Vitis*), but such species as *Aeolesthes sarta* infest living wood of various trees (*Populus*, *Salix*, *Ulmus*, *Elaeagnus*, *Pirus*, *Malus*, *Morus*, *Juglans* and many others).

In the roots of trees and shrubs feed some Hesperophanini (*Hesperophanes sericeus*, *H. heydeni*, *H. pilosus*, *Turcmenigena varentzovi*) and Cerambycini (*Dissopachys mathiesseni*). Some species live in roots of herbaceous plants (*Plocaederus scapularis*, *Plagionotus floralis*, *Chlorophorus sexguttatus*, *Ch. hungaricus* and sometimes *Ch. varius*).

Larval galleries of majority of species are filled with frass, but some species (*Chelidonium zaitzevi*, *Polyzonus fasciatus*, *Purpuricenus*, *Amarysius*) eject frass through perforations in the wall of the burrow, and the larva can rapidly move along the hollow gallery.

Larvae of Cerambycini are capable of making calcareous operculum before pupation, or even complete calcareous cocoons.

Life cycle of Cerambycinae lasts mostly about two years, rarely one year (*Gracilia*, *Nathrius*, *Phymatodes ussuricus*) and sometimes about 3 years (*Cerambyx*, *Massicus*). But larval development may be retarded and life cycle greatly prolonged under abnormal conditions such as desiccation of the wood. Species of such genera as *Hesperophanes*, *Stromatium*, *Callidium*, *Hylotrupes*, *Chlorophorus* and some others are known to be able to feed in furniture for up to 20–25 years.

In most cases mature larvae overwinter and pupation takes place in spring or in the beginning of summer. But some species pupate and transform in the late summer or autumn and imagoes remain in their pupal cells until the following spring before emergence (*Cerambyx*, *Callimus*, *Callimoxys*, often some *Molorchus*, *Paraclytus*, *Aglaophis*, *Brachyclytus*). Sometimes in *Molorchus* pupae overwinter.

Key to genera of Cerambycinae

- 1(34) 3 pairs of main stemmata present.
- 2(13) Epipleurum of prothorax not fused with lateropraesternum even in its anterior part (Fig. 2H). Abdominal ampullae distinctly tuberculate or asperate (larvae of *Plocaederus scapularis* from calcareous cocoons without tubercles or asperities). Gena pigmented behind stemmata.
- 3(4) Ampullae not tuberculate, but may be partly asperate. Hind margin of pronotum often asperate (Fig. 3 D) *Plocaederus*
- 4(3) Ampullae distinctly tuberculate. Pronotum without asperities.
- 5(8) Gena narrowly pigmented.
- 6(7) Upper boundary of antennal foramen projecting over articulating membrane in form of large tooth. Antennal ring closed *Dissopachys*
- 7(6) Upper boundary of antennal foramen not projecting over articulating membrane. Antennal ring opened *Massicus*
- 8(5) Gena broadly pigmented. Antennal ring closed.
- 9(10) Gena finely rugose *Derolus*
- 10(9) Gena coarsely rugose (Figs 2 DEF).
- 11(12) Gena with large coarsely rugose carina (Fig. 2 F) *Aeolesthes*
- 12(11) Gena without carina, or with small, slightly distinct carina (Figs 2 DE) *Cerambyx*
- 13(2) Epipleurum of prothorax fused with lateropraesternum at least in its anterior part. Abdominal ampullae neither asperate nor tuberculate, but if slightly tuberculate, then gena not pigmented behind stemmata.
- 14(27) Mouthframe broadly pigmented. Gena pigmented behind stemmata, trochanter present or antennal ring closed.
- 15(26) Trochanter present.
- 16(17) Mentum with 2 distinct sclerites (Fig. 6 B). Stemmata very small, row of stemmata about twice shorter than smallest diameter of antennal foramen *Rosalia*
- 17(16) Mentum without sclerites, or they are inconspicuous. Stemmata large, row of stemmata almost as long as diameter of antennal foramen.
- 18(19) Gena with large rugose transverse protuberance immediately behind stemmata (Fig. 2 A) *Hesperophanes*
- 19(18) Gena without protuberance behind stemmata or protuberance small and smooth.
- 20(21) Gula brown, much darker than hypostoma *Turcmenigena*
- 21(20) Gula yellowish, at most slightly darker than hypostoma.
- 22(25) Antennal ring closed, but if opened, then anterior margin of gula pigmented.
- 23(24) Pronotum densely setose (Figs 3 AB). Lateral process of 1st segment of maxillary palps indistinct or absent *Hesperoferus*
- 24(23) Pronotum sparsely setose (Fig. 3 C). Lateral process of 1st segment of maxillary palps mostly rather distinct *Trichoferus*
- 25(22) Antennal ring opened. Anterior margin of gula not pigmented *Blabinotus*
- 26(15) Trochanter absent *Plagionotus*
- 27(14) Mouthframe narrowly pigmented. Gena not pigmented behind stemmata, if with a small pigmented spot, then trochanter absent and antennal ring opened.
- 28(29) Front margin of frons and front margin of hypostoma without pigmentation . *Hylotrupes*
- 29(28) Front margin of frons and front margin of hypostoma narrowly pigmented.
- 30(31) 2nd antennal segment transverse; sides of cranium slightly diverging posteriorly (Fig. 11 C) *Stenigrinum*
- 31(30) 2nd antennal segment elongate or subquadrate; sides of cranium strongly diverging posteriorly.
- 32(33) Head transverse, about 1.5 times as wide as long (Fig. 11 A). 2nd antennal segment as wide as long (Fig. 11 D). Labrum less transverse. Asperate areas of epipharynx approached (Fig. 11 F). Trochanter absent *Hybometopia*
- 33(32) Head slightly transverse, about 1.3 times as wide as long (Fig. 11 B). 2nd antennal segment distinctly elongate (Fig. 11 E). Labrum more transverse. Asperate areas of epipharynx separate (Fig. 11 G). Small almost indiscernible trochanter present . *Axinopalpis*
- 34(1) None or less than 3 pairs of main stemmata present.
- 35(44) 2 pairs of main stemmata present.
- 36(37) Middle of front margin of frons with toothlike tubercle (Fig. 14 C). Gena with a row of 3 toothlike tubercles (Fig. 14 D) *Kurarua*
- 37(36) Frons and gena without tubercles.
- 38(39) Abdomen with wide constrictions, formed by intersegmental skin as in *Obrium* *Bolivarita*
- 39(38) Abdomen without wide constrictions.
- 40(41) Ampullae of 4th and 5th abdominal segments strongly protuberant, with large lateral tubercles (Fig. 12 B) *Delagrangues*
- 41(40) Ampullae of 4th and 5th abdominal segments as protuberant as others.
- 42(43) Pleural discs very distinct, large. Length of mature larvae about 14 mm *Deilus*
- 43(42) Pleural discs small, almost indiscernible, discs of 1st abdominal segment absent. Length of mature larvae about 22 mm *Icosium*
- 44(35) One pair of main stemmata present or stemmata indistinct.
- 45(46) Small triangular area (Fig. 22 E) at hind margin of pronotum ("prepostnotal fold") present *Dere*
- 46(45) Triangular area at hind margin of pronotum absent.
- 47(60) Ampullae of abdominal segments 3 to 5 deeply bilobed and very strongly protuberant. Abdomen with wide constrictions (Fig. 13 A).
- 48(49) Maxillary palps 2-segmented. Legs absent *Nathrius*
- 49(48) Maxillary palps 3-segmented. Legs present.
- 50(55) Pleurostoma testaceous, pigmented band at least as wide as diameter of antennal foramen.
- 51(52) Stemmata large, with black pigmented spots, entirely surrounded by pigmentation of gena *Certallum*
- 52(51) Stemmata smaller, pigmented spots indistinct or absent, not surrounded by pigmentation of gena.
- 53(54) Epipleurum of abdominal segments 3 to 6 with small curved sclerites (Fig. 13 B); anterior half of hypostoma distinctly regularly longitudinally striate *Obriopsis*
- 54(53) Epipleurum without sclerites; hypostoma almost smooth, finely obliquely striate. *Obrium*
- 55(50) Pleurostoma not pigmented, or yellowish only near mandibular articulations, or yellowish band narrower than diameter of antennal foramen.
- 56(57) Glabrous plate of pronotum slightly striate and microscopically reticulate. . *Callimoxys*
- 57(56) Glabrous plate of pronotum shining, almost entirely coarsely striate with basal part microreticulate.
- 58(59) 2nd antennal segment strongly transverse or elongate *Stenopterus*
- 59(58) 2nd antennal segment subquadrate *Callimus*
- 60(47) Ampullae of abdominal segments not strongly protuberant. Abdomen without wide constrictions.
- 61(64) Legs totally absent. Gena with very long dense setae.
- 62(63) 9th abdominal segment covered with numerous spinules (Fig. 15 D) *Nadezhdiana*
- 63(62) 9th abdominal segment without spinules *Molorchus*

- 64(61) Legs present, but may be vestigial, in form of unsegmented papilla; if totally absent, then gena without long dense setae.
- 65(74) Front margin of hypostoma with numerous (more than 4) tubercles or longitudinal carinae, or longitudinally striate, but if only 4 tubercles present, then subfossal process absent.
- 66(67) Front margin of head capsule almost not pigmented. Front margin of hypostoma with sclerotized tubercles *Siromatium*
- 67(66) Front margin of head capsule brown to pitchy.
- 68(69) Stemmata not entirely surrounded by pigmentation of gena. Front margin of hypostoma coarsely longitudinally striate (Fig. 17 B) *Pyrrhidium*
- 69(68) Stemmata entirely surrounded by pigmentation of gena.
- 70(71) Pronotum with a row of very long stout setae anteriorly (Fig. 8 C). Front margin of hypostoma with a row of longitudinal carinae (Figs 8 BD) (according to CHEREPANOV, 1982, these characters are absent or poorly developed in *Asias tuvensis*, see p. 173-4) *Asias*
- 71(70) Pronotum without a row of very long stout setae.
- 72(73) Hypostoma with about 10 small longitudinal carinae on each side (Figs 9 AB) *Amarysius*
- 73(72) Hypostoma \pm coarsely striate, or with 4-6 sclerotized tubercles or with about 5 large longitudinal carinae on each side (Fig. 7) *Purpuricenus*
- 74(65) Front margin of hypostoma flat or finely transversely striate, if dentate or carinate, then legs absent or subfossal process present.
- 75(126) Legs present, if legs in form of unsegmented papillae, then pronotum microreticulate or microasperate (*Xylotrechus*, *Neoclytus acuminatus*), or abdominal ampullae shining without microreticulation (*Chlorophorus*), or main stemmata surrounded by pigmentation of gena (*Cyrtoclytus*), or pleural discs very distinct (*Phymatodes alni*, *Ph. femoratus*).
- 76(77) Front margin of gula covered by large coarsely striate submentum (Fig. 19 C) *Teratoclytus*
- 77(76) Gula not covered by submentum.
- 78(79) Pronotum asperate or microreticulate on its posterior region. Stemmata entirely surrounded by pigmentation of gena. Legs in form of unsegmented papillae *Xylotrechus*
- 79(78) Pronotum neither asperate nor reticulate, if reticulate, then stemmata not surrounded by pigmentation of gena.
- 80(81) Dorsal abdominal ampullae finely longitudinally striate (Fig. 17 C), if not striate, then 7th abdominal sternum with two sclerotized plates (Fig. 17 D) and/or stemmata indiscernible *Semanotus*
- 81(80) Abdominal ampullae without longitudinal striae and 7th abdominal sternum without sclerotized plates, stemmata always distinct.
- 82(111) Stemmata surrounded by pigmentation of gena, if not surrounded, then mentum with basal sclerites or mandible with deep transverse constriction and its basal part pale (Fig. 10 E).
- 83(88) Cardo \pm densely setose.
- 84(85) Stemmata surrounded by pigmentation of gena; 1st segment of maxillary palp without lateral process *Aromia*
- 85(84) Stemmata without pigmentation around them.
- 86(87) Diameter of pleural discs of each abdominal segment about as long as its spiracle; setae of 2nd antennal segment short, mostly not longer (or a little longer) than 3rd antennal segment *Chloridolum*

- 87(86) Diameter of pleural discs of each abdominal segment about 3 or more times longer than its spiracle; setae of 2nd antennal segment much longer than 3rd antennal segment *Leontium*
- 88(83) Cardo glabrous, excepting lateral setae.
- 89(90) Gena very broadly pigmented, with some strongly protuberant carinae (Fig. 6 C) *Phoracantha*
- 90(89) Gena without sclerotized carinae.
- 91(104) Pleural discs of 2nd and 3rd abdominal segments rather distinct.
- 92(103) Trochanter present.
- 93(94) Basal rings of pronotal setae large and very distinct *Turanium*
- 94(93) Basal rings of pronotal setae small and poorly distinct.
- 95(96) Glabrous area of pronotum very strongly, regularly and densely striate, shining *Leioderus*
- 96(95) Glabrous area of pronotum irregularly rugose, often dull.
- 97(100) Pleural discs very large, at least the discs of 3rd abdominal segment larger than spiracle of mesothorax.
- 98(99) Gena mostly without pigmentation behind stemmata, antennal ring opened . . *Callidiellum*
- 99(98) Gena always with pigmentation behind stemmata, antennal ring closed . . *Callidium*
- 100(97) Pleural discs of 3rd abdominal segment smaller than spiracle of mesothorax.
- 101(102) Pleural discs of 3rd abdominal segment smaller than its spiracle *Ropalopus*
- 102(101) Pleural discs of 3rd abdominal segment larger than its spiracle *Pronocera*
- 103(92) Trochanter absent *Cleroclytus*
- 104(91) Pleural discs of 2nd and 3rd abdominal segments inconspicuous or absent.
- 105(110) Femur and tibiotarsus distinct, sclerotized.
- 106(107) Poststemmatal protuberance absent *Paraclytus*
- 107(106) Poststemmatal protuberance present.
- 108(109) Poststemmatal protuberance very strongly and coarsely rugose (Fig. 19 B) . . *Aglaophis*
- 109(108) Poststemmatal protuberance small and almost smooth (Fig. 19 A) *Anaglyptus*
- 110(105) Femur and tibiotarsus indistinct, but if slightly visible, then without pigmentation *Cyrtoclytus*
- 111(82) Stemmata not surrounded by pigmentation of gena. Mentum without basal sclerites and mandibles without deep transverse constriction.
- 112(113) Labiomaxillary complex very small, even palps not visible from above (Fig. 12 A) *Penichroa*
- 113(112) Labiomaxillary complex not very small, maxillary palps visible from above.
- 114(117) Pleural discs of 2nd and 3rd abdominal segments \pm distinct, if sometimes hardly visible, then conspicuous legs with pigmented segments present.
- 115(116) Pleural discs of 2nd and 3rd abdominal segments very large and distinct; abdominal ampullae shining, irregularly rugose; stemmata with black pigmented spots, pigmentation of prothorax pale *Lioderina*
- 116(115) Pleural discs small, mostly hardly visible, but if large and distinct, then abdominal ampullae regularly microgranulate (*Ph. testaceus*, *Ph. femoralis*) or microreticulate (*Ph. maaki*); in other species abdominal ampullae also microgranulate or microreticulate, but if regularly rugose (*Ph. fasciatus*, *Ph. mediofasciatus*), then prothorax with bright yellow pigmentation; stemmata mostly with greyish pigmented spots . . . *Phymatodes*
- 117(114) Pleural discs indistinct, if visible, then legs without pigmentation, mostly in form of unsegmented papillae.
- 118(121) Abdominal ampullae microreticulate.
- 119(120) Gula transverse *Gracilia*
- 120(119) Gula elongate *Neoclytus*

- 121(118) Abdominal ampullae irregularly rugose.
 122(123) Front margin of frons convex (Fig. 22 A) *Hayashiclytus*
 123(122) Front margin of frons emarginate.
 124(125) Legs very small, but distinctly segmented, tibiotarsus pigmented *Isotomus*
 125(124) Legs in form of unsegmented papillae, if tibiotarsus distinct, then without pigmentation *Chlorophorus*
 126(75) Legs totally absent, if legs present in form of unsegmented papillae, then pronotum shining, abdominal ampullae microreticulate, main stemmata not surrounded by pigmentation of gena, pleural discs diffuse (*Clytus tropicus*).
 127(128) Stemmata surrounded by very broad band of pigmentation, more than twice as broad as diameter of antennal foramen *Brachyclytus*
 128(127) Stemmata surrounded by narrow band of pigmentation, its width not more than diameter of antennal foramen *Clytus*

Genus *Hesperophanes* DEJEAN, 1835

Type species: *Callidium sericeum* F., 1787

Body with dense, short, stout setae, without asperities.

Head yellow, with strongly pigmented pitchy-brown anterior margin. Cranium transverse (1.2), with sides diverging posteriorly. Frontal lines indistinct, with groups of small setae near their anterior ends. Medial frontal line distinct only in its posterior half. Frons smooth, with a row of praefrontal setae (2,2,1). Epistomal margin very shallowly emarginate, pigmented back to the row of setae, slightly longitudinally striate.

Antennal ring closed, its upper boundary rugose. Antennae very long, 3-segmented. All segments with stout setae. 2nd segment with small conical main sensillum. 2nd and 3rd segments at least twice as long as their width.

3 pairs of small main stemmata present. Dorsal stemmata present or absent, ventral stemmata indistinct. Row of main stemmata about 1.5 times shorter than diameter of antennal ring, or about equal in length. Pigmented spots distinct, cornea convex.

Large coarsely rugose poststemmatal protuberance present (Fig. 2 A), with 3 stout setae near its hind margin. Gena narrowly pigmented behind the protuberance, very finely rugose, with some very small indistinct setae. Subfossal protuberance \pm distinct.

Hypostomal lines distinct in their anterior parts. Ventral sclerite (6) broadly pigmented. Hypostoma finely transversely striate, with groups of setae medially, anterior margin rugose. Gula transverse or slightly elongate, much darker than posterior part of hypostoma.

Labrum subcircular, slightly transverse, with wide band of long dense setae along its anterior periphery, without discal setae, with narrow basal sclerotization.

Mandibles with deep transverse furrow, apical part smooth, with median longitudinal groove diverging anteriorly, basal part very coarsely rugose, with 2 or 3 setae.

Labiomaxillary complex attached to ventral sclerite by little more than width

of gula, 1st segment of maxillary palp and palpiger each bearing conspicuous process. Mala subquadrate, with straight anterior margin, bearing numerous setae. 3rd segment of palp almost twice longer than its basal width, 2nd segment a little longer than its width or slightly transverse, 1st segment transverse, 1st segment longer than 2nd, 2nd segment longer than 3rd.

Submentum and mentum without sclerotization. Submentum with about 2 pairs of setae, mentum with a row of numerous setae. Praementum with sclerotized band. Labial palps separated by about half width of their 1st segment. Both segments elongate, 1st longer than 2nd. Ligula narrow, as wide as 1st segment of palp, with numerous short setae.

Pronotum shining, finely irregularly striated, with longitudinal median line, anteriorly with very bright orange transverse spots. Anterior setae of pronotum with large, very distinct basal rings, with many small dark spots among them. Large pigmented blotches of alar lobes anteriorly as bright as spots of pronotum. Epipleurum not delimited ventrally in its anterior part (fused with lateropraesternum). Borderline of mediopraesternum indistinct. Epipleurum feebly pigmented, lateropraesternum almost without pigmentation. Coxosternum not fused with sternellar fold. Pleurum distinctly delimited ventrally and dorsally.

Meso- and metanotum irregularly rugose, divided by "X"-shaped grooves, but anterior groove of mesonotum poorly distinct. Scutum-I of metathorax distinct, scutum-I of mesothorax fused with alar lobes. Alar lobes delimited ventrally on both segments. Epipleura and coxae distinct. Sterna with deep transverse furrows, \pm distinctly tuberculate. Spiracle large, oval, from about as long as to more than twice longer than its width. Dorsal row of numerous marginal chambers almost indiscernible.

Legs well developed. All segments sclerotized, trochanter, femur and tibiotarsus with stout setae.

Abdomen with slightly raised ampullae. Dorsal ampullae with 2 transverse furrows and 2 longitudinal lateral furrows. Ventral ampullae with 1 transverse furrow and 2 longitudinal lateral furrows, as anterior transverse furrow of ventral ampullae broadly interrupted (laterobasisternum fused with mediobasisternum), but on 7th abdominal segment it is completely defined. All ampullae irregularly rugose, without distinct tubercles. Border line between parascutum and spiracular area distinct. Anterior part of spiracular area distinctly delimited by oblique groove. Pleural discs diffuse, indistinct. Epipleurum protuberant on 8th and 9th abdominal segments. Spiracles large, oval, marginal chambers very small, indistinct, 1st abdominal spiracle about 1.5 times shorter than thoracic spiracle. Coxal lobes distinct.

Four species in Palaearctics (Mediterranean Europe, North Africa, Caucasus, Transcaucasia, Crimea, Central Asia), larvae of 2 of them at my disposal.

1(2) Row of stemmata about 1.5 times shorter than diameter of antennal ring *sericeus*

2(1) Row of stemmata as long as diameter of antennal ring *pilosus*

H. sericeus (F., 1787)

Antennal segments longer, 2nd and 3rd segments more than twice as long as broad. Gula slightly elongate. Segments of maxillary palps more slender, 2nd segment distinctly elongate. Body length up to 40 mm, width up to 10 mm.

Habits: Larvae in dead wood of large trunks and roots. Polyphagous on deciduous trees. Pupation in wood. Emergence in summer.

Distribution: North Africa, Mediterranean Europe, Crimea, Caucasus, Transcaucasia, Kopetdag.

Material: 26. 5. 1971, SU, Kopetdag, Ipai-Kala, 5/I, *Juglans*, lgt. B. M. Mamaev, coll. IS.

H. pilosus BODUNGEN, 1908

Antennal segments shorter, 2nd and 3rd segments about twice (or slightly less) as long as its width. Gula transverse. Segments of maxillary palps shorter, 2nd segment slightly transverse. Body length up to 21 mm, width up to 5 mm.

Habits: Larvae in roots of *Chenopodiaceae* gen. sp. Emergence in summer.

Distribution: Transcaucasia, Azerbaidzhan, East Gobustan.

Material: 29. 11. 1983, SU, environs of Baku, Alyat, 2/I, *Chenopodiaceae*, lgt. V. Kubáň, coll. S; 18. 6. 1984, SU, Alyat, 2/I, *Chenopodiaceae*, lgt. E. Jendek, coll. S.

H. heydeni BAECKMANN, 1923

Larvae not available. Apparently very similar to *H. sericeus*.

Habits: Larvae in large trunks and roots of *Tamarix* (KOSTIN, 1973). Emergence in late summer.

Distribution: Lower reaches of some rivers of Central Asia from Syr-Darya to Chërnyi Irtysh, Mongolia.

Genus *Trichoferus* WOLLASTON, 1854

Type species: *Cerambyx cinereus* VILLERS, 1789

Body with dense, long, stout setae, without asperities.

Head white or yellow, with strongly pigmented brown anterior margin. Cranium transverse (1.3–1.4), with sides rounded or diverging posteriorly, widest behind middle or near hind margin which is almost straight. Frontal lines indistinct, with a few (or numerous) small setae near its anterior ends. Medial frontal line distinct only near its posterior end. Frons smooth, with a row of praefrontal setae (2, 2, 1), glabrous behind them. Epistomal margin smooth, shallowly emarginate, pigmented back to first pair of medial praefrontal setae.

Antennal ring closed or opened, its upper boundary smooth, not projecting over

articulating membrane. Antennae very long, 3-segmented. All segments with long stout setae. Main sensillum of 2nd segment very small.

3 pairs of main stemmata present. Dorsal and ventral stemmata inconspicuous, but rarely distinct (*T. cinereus*). Pigmented spots distinct (seldom inconspicuous), corneae convex.

Poststemmatal protuberance absent or rarely slightly visible. Gena broadly or narrowly pigmented behind stemmata, bearing a row of 3 long setae and some very small setae behind them, finely striate. Subfossal processes absent.

Hypostomal lines distinct near their anterior ends. Ventral sclerite (12–16) glabrous, or with 4 setae, finely obliquely striate. Anterior margin ± smooth, rarely coarsely rugose (*T. bergeri*), narrowly pigmented. Gula transverse, slightly darker than hypostoma, rarely (*T. bergeri*, *T. cinereus*) elongate.

Labrum subcircular, transverse, with dense or scattered setae along anterior periphery, without discal setae, with very narrow basal sclerotization.

Mandibles posteriorly slightly rugose, with a few setae.

Labiomaxillary complex attached to ventral sclerite by little more than width of gula. 1st segment of maxillary palp and palpiger bear conspicuous processes. Mala subquadrate, broadened apically, with straight anterior margin, bearing short setae. Segments of palps, palpiger, mala, stipes and cardo with sclerotized bands. 1st and 2nd segments of palps, palpiger, stipes and connecting lobe with long stout setae.

Submentum and mentum without sclerotization, but rarely mentum with two slightly visible lateral sclerites (*T. campestris*, *T. bergeri*). Submentum with about two pairs of setae, mentum with a row of numerous setae. Praementum with sclerotized band, latter may be rarely interrupted medially. Ligula elongate.

Thorax as in *Hesperophanes*, but pleurum of prothorax not delimited dorsally, and epipleurum of meso- and metathorax divided into two parts. Pigmented blotches of pronotum without small dark spots among basal rings of setae.

Abdomen as in *Hesperophanes*.

About 10 species in South Palaearctics, larvae of 6 of them at my disposal.

- 1(2) Antennal ring as a rule opened. Stemmata very large, with black pigmented spots that are always distinct. Pigmentation of gena behind stemmata very narrow, often as wide as diameter of stemma (Fig. 2 B) *griseus*
- 2(1) Antennal ring closed (very rarely opened). Stemmata smaller, pigmented spots often indistinct or slightly visible. Pigmentation of gena behind stemmata broad, 2 or more times as wide as diameter of stemma.
- 3(8) Gula strongly transverse.
- 4(5) Mentum with two laterobasal yellow sclerites *campestris*
- 5(4) Mentum without sclerites.
- 6(7) Stemmata very small. Row of stemmata much shorter than diameter of antennal ring (Fig. 2 C) *pallidus*
- 7(6) Stemmata large. Row of stemmata nearly as long as diameter of antennal ring. *preissi*

- 8(3) Gula elongate.
 9(10) Mentum without sclerites *cinereus*
 10(9) Mentum with two laterobasal pale yellow sclerites *bergeri*

T. griseus (F., 1792)

Main distinguishing characters in the key.

Cranium (1.3) widest near hind margin, with sides diverging posteriorly. 2nd antennal segment about 1.5 times as long as its width; 3rd segment at least twice shorter than 2nd. Dorsal and ventral stemmata absent. Poststemmatal protuberance absent. Ventral sclerite (16) glabrous, its anterior margin smooth. Gula transverse. Labrum with scattered setae along anterior periphery. 2nd and 3rd segments of maxillary palps about equal in length and about 1.5 times shorter than 1st. Mentum without sclerotization. Sclerotized band of praementum broad. Labial palps separated by about 0.25 width of their 1st segment. Both palpal segments nearly equal in length. Body length up to 22 mm, width up to 5 mm.

Habits: Polyphagous on deciduous trees. Larvae under bark and in wood of dry, dead branches and boles. Life period about 1 year and more. Adults emerge from July to August. Pupation in wood in the beginning of summer.

Distribution: Mediterranean region, Turkey, Iran, South Ukraine, including Crimea, Caucasus, Transcaucasia.

Material: 26. 9. 1973, SU, Crimea, Sudak, 8/I, *Ficus carica*, lgt. G. B. Titkova, coll. IS; 20. 6. 1983, SU, Azerbaidzhan, Gobustan, 3/I, *Rosa* sp., lgt. et coll. S; 28. 6. 1983, SU, Azerbaidzhan, Mingechaur, 4/I, *Pistacia* sp., lgt. et coll. S.

T. campestris (FALDERMANN, 1825)

Main distinguishing characters in the key.

Cranium (1.4) widest behind middle, with sides rounded. 2nd antennal segment about 1.5–2 times as long as its width. 3rd segment as long as width of 2nd segment. Pigmented spots of main stemmata inconspicuous. Dorsal and ventral stemmata absent. Pigmentation of gena behind stemmata 3 or more times as wide as diameter of stemma. Poststemmatal protuberance feebly developed. Ventral sclerite (14) glabrous, its anterior margin smooth. Gula strongly transverse. Labrum with dense setae along anterior periphery. 3rd segment of maxillary palps slightly shorter than 2nd, 2nd slightly shorter than 1st. Sclerotized band of praementum broad, not interrupted medially. Labial palps separated by about basal width of 1st segment. 1st segment slightly longer than 2nd. Body length up to 32 mm, width up to 7 mm.

Habits: Polyphagous on deciduous trees, and according to KOSTIN (1973) on coniferous ones (*Picea*, *Pinus*). Larvae under bark and in wood of dead dry boles. Life cycle about two years and more. Pupation in wood in the beginning of summer. Adults emerge from July to August.

Distribution: East Asia, Mongolia, North China, Soviet Central Asia, South East of European part of USSR, Armenia.

Material: 16. 6. 1965, SU, Amur region, Kundur, 2/I, *Populus*, lgt. D. coll. IS; 29. 6. 1980, SU, Ussuri region, Lazovskii nature reserve, 3/I, *Acer*, lgt. S. Murzin, coll. IS.

T. pallidus (OLIVIER, 1790)

Main distinguishing characters in the key.

Cranium (1.3) widest behind middle, with sides rounded. 2nd antennal segment about 1.5 times as long as its width. 3rd segment as long as width of 2nd segment. Pigmented spots of main stemmata distinct or rarely inconspicuous. Dorsal and

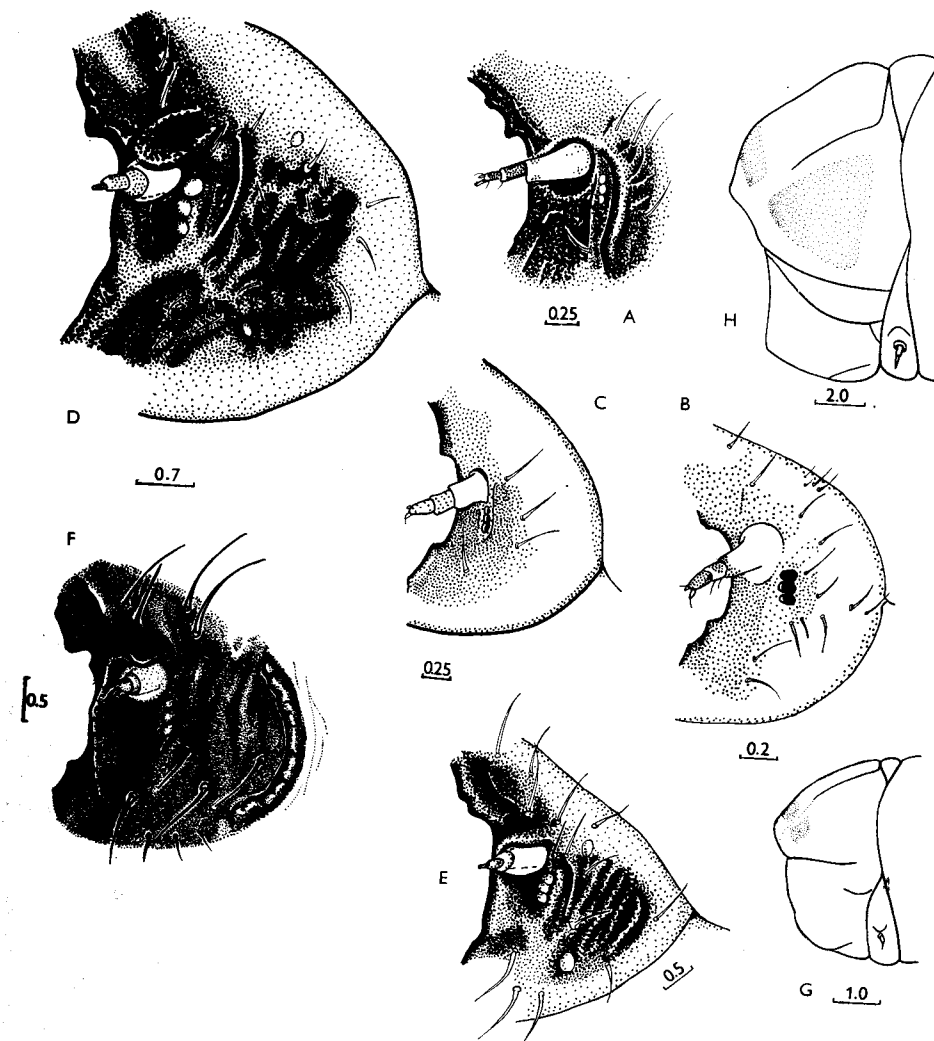


Fig. 2: A – *Hesperophanes sericeus*, pleurostoma and gena. B – *Trichoferus griseus*, dtto. C – *T. pallidus*, dtto. D – *Cerambyx cerdo*, dtto. E – *C. scopoli*, dtto. F – *Aeolesthes sarta*, dtto. G – *Trichoferus pallidus*, prothorax, lateral view. H – *Cerambyx cerdo*, dtto.

ventral stemmata absent. Pigmentation of gena behind stemmata 3 or more times wider than diameter of stemma (Fig. 2 C). Poststemmatal protuberance feebly developed. Ventral sclerite (10) glabrous, its anterior margin smooth. Labrum with scattered setae along anterior periphery. Segments of maxillary palps almost equal in length, or 3rd segment slightly longer than others. Sclerotized band of praementum broad, not interrupted medially. Labial palps separated by about basal width of their 1st segment. 1st segment of labial palps about equal in length to 2nd. Body length up to 25 mm, width up to 9 mm.

1st instar larvae with slightly pigmented mouthframe, pigmentation interrupted beneath antennae. 3 pairs of large main stemmata with dark black pigmented spots present. Poststemmatal protuberance absent. Pigmentation of antennae, labiomaxillary complex, gula, pronotum and legs inconspicuous. No armature of body segments present. Body length 2.0 mm, width 0.8 mm.

Habits: Larvae prefer *Quercus*, rarely feed in *Tilia*, but also in *Fagus* and other deciduous trees, live under bark of dead dry boles and large branches. Adults emerge from July to August.

Distribution: Centre and South of West Europe, Crimea, North Caucasus.

Material: 7. 7. 1970, SU, Caucasus, Ubinskaya, 12/I, *Quercus*, lgt. D, coll. IS; 1976–1979, CS, Moravia m., Lednice, 11/I, *Quercus*, lgt. and coll. S; 1977, ibid., 2 first instar larvae ex ovo, lgt. and coll. S.

T. preissi HEYDEN, 1894

Main distinguishing characters in the key.

Cranium (1.5) widest near hind margin, with sides slightly rounded. 2nd antennal segment about 1.5 times as long as its width. 3rd segment shorter than width of 2nd segment. Pigmented spots of main stemmata present or absent. Row of stemmata 1.5 times shorter than largest diameter of antennal foramen or almost equal in length. Dorsal and ventral stemmata absent. Pigmentation of gena behind stemmata 3 or more times wider than diameter of stemma. Poststemmatal protuberance feebly developed, finely rugose. Ventral sclerite (11) glabrous, its anterior margin finely rugose. 1st segment of maxillary palps longer than 2nd, 2nd longer than 3rd. Sclerotized band of praementum broad, not interrupted medially. Labial palps separated by about one width of their 1st segment. 1st segment slightly longer than 2nd. Body length up to 20 mm, width up to 6 mm.

Habits: Larvae feed in *Ficus carica* and apparently in other deciduous trees, in dead dry wood.

Distribution: Syria, Turkey.

Material: Turkey, Anamur, 2/I, *Ficus carica*, lgt. P. Schurmann, coll. G. Sama.

T. cinereus (VILLERS, 1789).

Main distinguishing characters in the key.

2nd antennal segment twice longer than its width. 3rd segment slightly shorter than width of 2nd. Pigmented spots of main stemmata distinct. Row of stemmata about 1.5 times shorter than longest diameter of antennal foramen. Dorsal stemmata distinct, pigmented spots slightly visible, ventral stemmata inconspicuous, without pigmented spots. Poststemmatal protuberance feebly developed, with small convexities. Pigmentation of gena behind main stemmata about 4 times broader than diameter of stemma. Ventral sclerite (6) with 3 setae on each side, smooth. Labrum with dense setae along anterior periphery. 1st segment of maxillary palps longer than 2nd, 2nd longer than 3rd. Sclerotized band of praementum broad, not interrupted medially. Labial palps separated by about 1.5 width of 1st segment. Both segments almost equal in length. Body length 25 mm, width 6.5 mm.

Habits: Polyphagous on deciduous trees. Larvae under bark and in wood of dry boles and branches. Emergence from June to August.

Distribution: West Europe, North Africa, Turkey, Iran, Crimea, Caucasus, Transcaucasia.

Material: Italia, Castrocaro, 1/I, in *Robinia pseudoacacia*, lgt. G. Sama, coll. S.

T. bergeri HOLZSCHUH, 1981

Main distinguishing characters in the key.

Cranium transverse (1.3), with sides diverging posteriorly, widest near hind margin. 2nd antennal segment twice longer than its width. 3rd segment a little shorter than width of 2nd. Row of main stemmata shorter than maximal diameter of antennal foramen. Pigmented spots slightly visible. Dorsal stemmata distinct, ventral stemmata inconspicuous. Pigmented spots nearly absent. Poststemmatal protuberance feebly developed, with small convexities. Pigmentation of gena behind main stemmata about twice broader than diameter of stemma. Ventral sclerite (9) smooth, with some setae. Labrum with dense setae along anterior periphery. 2nd segment of maxillary palps equal in length to 3rd and shorter than 1st. Sclerotized band of praementum broad, may be interrupted medially. Labial palps separated by about one width of 1st segment. 1st segment longer than 2nd. Body length up to 30 mm, width up to 8 mm.

Habits: Apparently polyphagous on deciduous trees, as known host plants are: *Ceratonia siliqua* and *Quercus*. Larvae in dead wood.

Distribution: Crete.

Material: 12. 6. 1981, Crete, Meskla, 3/I, in *Ceratonia siliqua*, lgt. and coll. M. Sláma.

Genus *Hesperoferus* DEMELT, 1971

Type species: *Hesperophanes roridus* BRULLÉ, 1838

Very similar to larvae of *Trichoferus*.

Body covered with dense short setae.

Cranium (1.2) yellow at anterior one-third, with sides slightly diverging posteriorly, nearly parallel, widest near almost straight hind margin. Frons smooth, widely pigmented back to second pair of medial praefrontal setae (2,2,1), with some small scattered setae. Anterior margin distinctly notched behind labrum. Medial frontal line distinct.

Antennal ring closed, its upper boundary not projecting over articulating membrane. Antennae long, 3rd segment without setae. Main sensillum of 2nd segment inconspicuous.

3 pairs of main stemmata present. Cornea convex, pigmented spots distinct. Row of stemmata about as long as diameter of antennal foramen. Dorsal and ventral stemmata indistinct or rather distinct. Main stemmata of one aberrant larva of *H. roridus* reduced, pigmented spots diffuse. Cornea indistinct.

Poststemmatal protuberance absent. Gena almost smooth, finely rugose, with a row of stout setae and with some scattered small setae behind them. Pigmentation of gena behind stemmata as wide as diameter of antennal foramen (*H. roridus*) or narrower (*H. machadoi*). Subfossal processes absent. Pleurostoma also nearly smooth.

Ventral sclerite (13) glabrous, nearly smooth, finely obliquely rugose, slightly procurved anteriorly. Hypostomal lines distinct in anterior half. Front margin of hypostoma widely pigmented. Gula entirely pale, strongly transverse.

Labrum transversely oval, with strong basal and pale medial sclerotization, with some long peripheral setae.

Basal part of mandibles coarsely rugose, dark brown, with few short setae.

Labiomaxillary complex attached to ventral sclerite by about two widths of gula. Maxillary palpiger with conspicuous lateral process. Process of 1st palpal segment rather small or often indistinct. 1st segment transverse, 2nd about as long as wide, 3rd - elongate. Mala transverse, with rounded anterior margin, bearing some long setae.

Submentum without pigmentation, bearing two setae. Mentum without lateral sclerites. Praementum with wide basal sclerotization. Ligula narrow and rather small, bearing some short setae. Labial palps separated by about one width of their 1st segment. Both palpal segments about equal in length. 1st segment transverse, 2nd elongate.

Thorax and abdomen as in *Hesperophanes*. Pigmented blotches of prothorax bright orange. Spiracles about 1.5 times longer than wide. Row of about 8-15 small marginal chambers distinct.

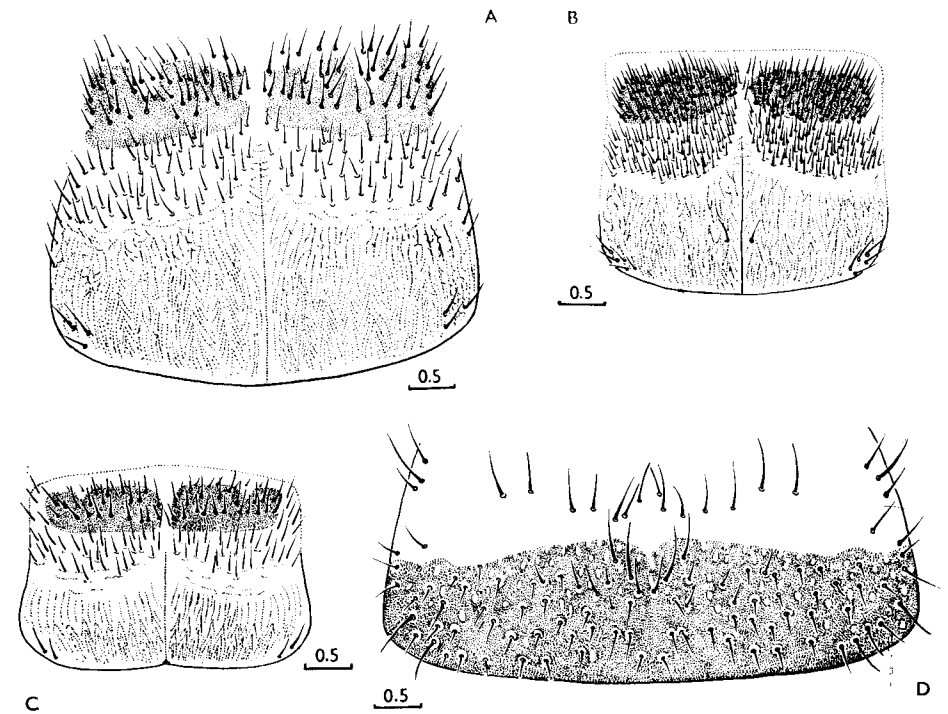


Fig. 3: A - *Hesperoferus roridus*, pronotum, dorsal view. B - *H. machadoi*, dtto. C - *Trichoferus griseus*, dtto. D - *Plocaederus scapularis*, dtto.

Two species in Canary Isls.

- 1(2) Setose area of pronotum about as long as glabrous area (Fig. 3 A). Dorsal and ventral stemmata absent *roridus*
 2(1) Setose area of pronotum rather longer than glabrous area (Fig. 3 B). Dorsal and ventral stemmata present *machadoi*

H. roridus (BRULLÉ, 1838)

Main distinguishing characters in the key.

1st antennal segment about 1.5 times longer than wide, about as long as basal width of 2nd segment. 1st segment of maxillary palp longer than 2nd, 2nd longer than 3rd. Praementum with wide basal sclerotization. Pigmented blotches of prothorax with distinct basal rings of setae and some small dark spots among them. Body length up to 40 mm, width up to 7 mm.

Habits: Larvae in stems and roots of *Adenocarpus viscosus*, *Spartocytisus nubigenus*, *Lotus campylocladus* (DEMELT, 1974). Pupation in host plants in the end of spring. Emergence in late summer.

Distribution: Canary Isls.

Material: Canary Isls, Tenerife, Canadas, 1/I, in *Adenocarpus viscosus*, lgt. P. Schurmann, coll. M. Sláma; *ibid.*, 6/I, lgt. P. Schurmann, coll. IS.

H. machadoi (SAMA et SCHURMANN, 1983)

Main distinguishing characters in the key.

2nd antennal segment slightly elongate, 3rd - about 1.5 times longer than wide, shorter than width of 2nd. 3rd segment of maxillary palp longer than 2nd, shorter than 1st. Basal rings of pronotal setae hardly visible. Small dark spots of prothoracic pigmented blotches indistinct. Praementum with narrow basal sclerotization. Body length up to 26 mm, width up to 5 mm.

Habits: Larvae in *Chrysanthemum* and *Artemisia*.

Distribution: Canary Isls.

Material: Canary Isls, Tenerife, 3/I, in *Chrysanthemum*, lgt. P. Schurmann, coll. IS.

Genus *Turcmenigena* MELGUNOV, 1894

Type species: *T. varentzovi* MELGUNOV, 1894

Body with dense short setae, without microasperities.

Head yellow, with strongly pigmented pitchy-brown mouthframe. Cranium (1.1) with sides diverging posteriorly, widest near straight hind margin. Frontal lines indistinct, with groups of small setae near its anterior ends. Medial frontal line pale, indistinct anteriorly. Frons smooth, with a row of praefrontal setae (3, 2, 1), glabrous behind them. Epistomal margin shallowly emarginate, finely obliquely striate, broadly pigmented.

Antennal ring closed, its upper boundary and pleurostoma slightly striate. Antennae long. Antennal segments with stout setae. 2nd segment elongate, strongly broadened apically, bearing small main sensillum.

3 pairs of main stemmata present. Cornea convex, pigmented spots may be visible. Row of stemmata shorter than diameter of antennal foramen. Dorsal and ventral stemmata absent.

Poststemmatal protuberance almost indistinct. Gena nearly smooth, finely rugose, with some scattered setae. Pigmentation of gena wider than diameter of antennal ring, entirely surrounds stemmata. Subfossal processes absent.

Hypostomal lines distinct in anterior half. Ventral sclerite (9) finely transversely striate, with inconspicuous setae. Gula strongly transverse, darkly pigmented.

Labrum subcircular, \pm transverse, with wide band of short dense setae along its anterior periphery, without discal setae, without basal sclerotization.

Mandible posteriorly slightly rugose, with group of small setae.

Labiomaxillary complex attached to ventral sclerite by little more than width of gula. 1st segment of maxillary palp and palpiger bear conspicuous processes. Mala subquadrate, with straight anterior margin, bearing numerous setae. 3rd palpal segment twice longer than wide, 2nd segment about 1.5 times longer than

wide, 1st segment transverse. 1st segment longer than 2nd, 2nd segment longer than 3rd.

Submentum and mentum without sclerotization. Submentum with about 4 pairs of setae. Mentum and praementum with 2 groups of long setae. Praementum with sclerotized band. Labial palps separated by about 2 basal widths of their 1st segment. Ligula transverse or slightly elongate. Both segments of palp elongate. 1st segment longer than 2nd.

Pronotum shining, finely irregularly striated, with distinct medial line, anteriorly with very bright orange spots. Anterior setae of pronotum with large very distinct basal rings. Epipleurum delimited ventrally only near its posterior margin. Border line of mediopraesternum indistinct. Epipleurum feebly pigmented. Lateropraesternum without pigmentation. Coxosternum not fused with sternellar fold. Pleurum distinctly delimited ventrally and dorsally.

Meso- and metanotum shining, divided by "X"-shaped grooves. Parascutum of mesothorax distinct, scutum-I indistinct on both segments. Alar lobes delimited ventrally on both segments. Epipleurum divided by oblique grooves into 2 parts, anteriorly delimited ventrally. Pleurum and coxae distinct. Sterna with transverse furrows, irregularly rugose. Spiracles large, oval, about 1.5–2 times longer than their width. Dorsal row of several marginal chambers distinct.

Legs well developed. All parts sclerotized, trochanter, femur and tibiotarsus with stout setae.

Abdomen with strongly raised ampullae. Dorsal ampullae with 2 transverse furrows and 2 longitudinal lateral furrows. Ventral ampullae with 1 transverse furrow and 2 longitudinal lateral furrows. All ampullae irregularly rugose, without distinct tubercles. Border line between parascutum and spiracular area distinct. Spiracular area divided by oblique groove. Pleural discs diffuse. Epipleurum protuberant on 8th and 9th abdominal segments. Spiracles large, \pm oval, marginal chambers very small, indistinct. 1st abdominal spiracle about 1.5 times longer than its width, about 1.5 times shorter than thoracic spiracle. Coxal lobes distinct. Body length up to 30 mm, width up to 9 mm.

One species in the genus.

T. varentzovi MELGUNOV, 1894

Habits: Larvae in living wood of roots and in the base of trunks of *Haloxylon aphyllum* and *H. persicum*. Pupation in wood. Emergence in July-August. Life cycle lasts three years.

Distribution: Deserts of Soviet Central Asia.

Material: 15. 5. 1973, SU, Karakum, Dzhalikum, 3/-, *Haloxylon persicum*, lgt. B. M. Mamaev, coll. IS.

Type species: *Callidium barbatum* F., 1775

Body with dense short setae, without asperities.

Head white, with feebly pigmented mouthframe, pale testaceous along epistomal margin, at mandibular articulations and at anterior ends of hypostomal lines. Cranium transverse (1.4), with sides diverging posteriorly, widest near hind margin, which is almost straight, feebly notched medially. Frons with numerous small setae near anterior angles. Medial frontal line distinct in its posterior half. Frons smooth, with a row of praefrontal setae (2, 2, +) and with numerous short scattered setae in anterior half. Epistomal margin with conspicuous bilateral notches and with small medial convexity.

Antennal ring opened, its upper boundary slightly pigmented. Antennae long, 2nd segment with very small main sensillum (4 times shorter than 3rd segment). 3rd and 2nd segments with short setae. 2nd segment twice as long as wide. 3rd segment 4 times as long as wide.

One pair of large main stemmata present. Corneae convex, contiguous with antennal ring. Dorsal stemmata present, but often inconspicuous. Pigmented spots of main and dorsal stemmata feebly developed or absent.

Gena finely rugose, with some small setae. Subfossal processes absent.

Hypostomal lines pale testaceous, distinct back to postoccipital suture. Ventral sclerite (7) with few small setae, finely obliquely rugose anteriorly, with a row of sharp pigmented teeth along front margin (Fig. 4). Gula elongate, gular lines raised, almost parallel.

Labrum circular, slightly wider than long, with very narrow basal sclerotization, bearing long dense setae along its periphery, without discal setae.

Basal part of mandibles testaceous, smooth, with some small setae.

Labiomaxillary complex attached to ventral sclerite by little more than width of gula. Mala subquadrate, rounded anteriorly, with numerous short setae. 1st segment of maxillary palp and palpiger bearing conspicuous processes. 1st segment transverse, 2nd and 3rd elongate. 2nd segment longer than 3rd, 1st longer than 2nd.

Submentum feebly pigmented basally, with two setae. Mentum with two lateral sclerites. Praementum with wide sclerotized medially interrupted band. Ligula wide, with numerous short setae. Labial palps separated by about one width of their 1st segment or more. 1st segment transverse, shorter than ligula. 2nd segment elongate, both segments about equal in length.

Pronotum shining, sharply longitudinally striate, with deep median line, anteriorly with testaceous spots. Setae of pronotum with rather inconspicuous basal rings. Pigmented blotch of alar lobe pale testaceous. Epipleurum fused with lateropraesternum in anterior half. Border line of mediopraesternum indistinct. Epipleurum and lateropraesternum almost without pigmentation. Episternum fused with latero-

praesternum. Coxosternum not fused with sternellar fold. Epimeron distinctly delimited ventrally and dorsally.

Meso- and metanotum irregularly rugose. Mesonotum divided by "X"-shaped groove. Metanotum divided by transverse groove which is almost completely obliterated. Scutum-I of metathorax distinct. Scutum-I of mesothorax fused with alar lobes. Alar lobes delimited ventrally on both segments. Two anterior parts of mesothoracic epipleurum fused, all parts of metathoracic epipleurum fused. Epipleurum of both segments delimited ventrally in its anterior part. Border line of coxae and sternal transverse furrows slightly defined. Sterna irregularly rugose. Spiracles large, oval, about 1.5 times longer than wide. Marginal chambers absent.

Legs well developed, femur and tibiotarsus slightly sclerotized, trochanter almost without sclerotization. Praetarsus without sclerotization.

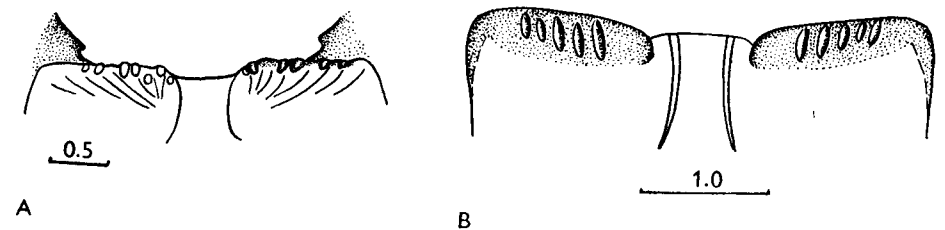


Fig. 4: A - *Stromatium fulvum*, ventral cranial sclerite. B - *S. longicorne*, dtto (DUFFY, 1968).

Abdomen with ampullae slightly raised. Dorsal and ventral ampullae irregularly rugose, shining, with transverse furrows almost obliterated, only one \pm visible on each ampulla. Two lateral longitudinal furrows present on all ampullae. Border line between parascutum and spiracular area distinct. Spiracular area distinctly divided by oblique groove, pleural discs diffuse. Epipleurum protuberant on segments 8-9. Spiracle large, oval. Marginal chambers absent. 1st abdominal spiracle about twice shorter than thoracic one. Coxal lobes distinct. Body length up to 30 mm, width up to 7 mm.

Two species in Palaearctics, larvae of *S. fulvum* at my disposal.

S. fulvum (VILLERS, 1789)

Habits: Infests dead dry wood of various trees, preferring deciduous trees. This species is one of the most serious insect pests of timber. It attacks seasoned timber, furniture, wooden structures. Pupation in wood. Life cycle about 3 years or more. Emergence from May to August.

Distribution: West Europe, Crimea, Caucasus, Transcaucasia, North Africa, Near East, Iran; introduced in many countries of various continents.

Material: 18. 4. 1979, SU, Talysh, Avrora, 15/I, *Quercus*, lgt. D, coll. IS; 26. 8. 1976, Bulgaria, Ropotamo, 9/I, *Celtis australis*, lgt. and coll. S.

S. longicorne (NEWMAN, 1842)

According to DUFFY (1968), front margin of hypostoma "with four to six widely spaced longitudinal carinae on each side of gula" (Fig. 4 B). Body length up to 31.2 mm, width up to 9.6 mm.

Habits: Polyphagous on deciduous trees. It is also an extremely important wood pest, prefers dry wood of wooden constructions. Life cycle 1 year or more.

Distribution: Middle and South China, South Japan, East and South of Asia, introduced in Australia.

No material available.

Genus *Icosium* LUCAS, 1854

Type species: *I. tomentosum* LUCAS, 1854

Body with not very dense, short setae, without asperities.

Head white, with feebly pigmented testaceous mouthframe. Cranium (1.4) with strongly rounded sides, widest near middle, posteriorly feebly emarginate. Frontal lines inconspicuous. Medial frontal line slightly visible along its whole length. Frons smooth, without sculpture, with a row of praefrontal setae (2, 2, +) and with some small setae among them. Anterior margin of frons pigmented back to the row of praefrontal setae, without medial emargination.

Antennal ring widely opened, its upper boundary smooth. Antennae long, main sensillum indistinct, \pm flat, 2nd segment with some long setae, 3rd segment with one seta. 2nd segment 1.6 times as long as 3rd and 1.6 times longer than wide. 3rd segment about twice longer than wide.

2 pairs of large main stemmata present, corneae convex, pigmented spots black, very distinct. Dorsal and ventral stemmata absent.

Narrow pigmentation of gena not surrounding stemmata. Poststemmatal protuberance absent. Gena finely rugose, with some long stout setae. Subfossal process absent.

Hypostomal lines testaceous, \pm distinct up to the postoccipital line. Ventral sclerite (11) flat, smooth, with some small setae. Narrow pigmentation of its anterior margin widely interrupted by gula. Gula white, strongly transverse. Gular lines testaceous, strongly diverging posteriorly.

Labrum broadly oval, about twice as broad as long, with some scattered long setae along its periphery.

Mandibles pitchy-brown apically and testaceous basally, smooth, with some short setae.

Labiomaxillary complex attached to ventral sclerite by slightly more than width of gula. Mala subquadrate, with almost straight anterior margin, bearing numerous short setae. Palpiger and 1st segment of maxillary palp bearing large lateral processes.

1st segment transverse, 2nd subquadrate, 3rd elongate. All segments about equal in length.

Submentum without pigmentation, with two setae. Mentum with two small lateral sclerites. Praementum with wide sclerotized band interrupted medially. Labial palpigers almost contiguous, palps separated by about half width of 1st segment, 2nd segment longer than 1st. Ligula very small, hardly visible from below.

Pronotum shining, sharply longitudinally striate, with deep median line, anteriorly with pale yellow spots. Setae of pronotum with small basal rings. Pigmented blotches of alar lobes inconspicuous. Epipleurum not completely fused with lateropraesternum. Lateral border line of mediopraesternum distinct. Coxosternum not fused with sternellar fold. Pleurum distinctly delimited ventrally and dorsally.

Meso- and metanotum smooth. Mesonotum divided by "A"-shaped groove, metanotum divided by "X"-shaped groove. Scutum-I slightly distinct on both segments. Alar lobes distinctly delimited dorsally, but ventrally alar lobes of metathorax fused with anterior part of epipleurum, so that lateral area of metathorax divided by one oblique furrow. Alar lobes of mesothorax distinctly delimited ventrally. Two anterior areas of epipleurum on both segments fused. Epipleurum distinctly delimited ventrally. Border line of coxae and sternal transverse lines distinct. Sterna shining, irregularly rugose. Thoracic spiracle about 1.4 times as long as wide. Marginal chambers indistinct.

Legs well developed. Femur and tibitarsus strongly sclerotized. Trochanter distinct, but very small, without setae, without sclerotization. Praetarsus without sclerotization.

Abdomen with ampullae slightly raised. Each ampulla with two rows of distinct tubercles, two short lateral longitudinal furrows and one transverse furrow present. Dorsal ampullae with deep median impression. Ventral ampullae with shallow median impression. Border line between parascutum and spiracular area distinct. Spiracular area divided by oblique furrow. Pleural discs diffuse. Epipleurum protuberant on segments 8-9. Spiracles oval or subcircular. Marginal chambers indistinct. 1st abdominal spiracle about 1.2 times shorter than thoracic one. Coxal lobes distinct. Body length up to 21 mm, width up to 4 mm.

One species in the genus.

I. tomentosum LUCAS, 1854

Habits: Larvae in dead wood of *Juniperus*, *Cupressus*, *Thuja*, *Callitrix* and apparently other Cupressaceae. Emergence in June-July.

Distribution: Mediterranean region including North Africa.

Material: 6. 1982, Tunisia, Matova, 7/I, *Cupressus*, lgt. et coll. M. Sláma; Italia, Puglia, Binosa, 1/I, *Thuja*, lgt. G. Sama, coll. S; 24. 5. 1985, Morocco, Mrirt, 5/I, *Juniperus*, lgt. G. Sama, coll. G. Sama and S.

Genus *Blabinotus* WOLLASTON, 1854

Type species: *B. spinicollis* WOLLASTON, 1854

Body with not very dense short setae, without asperities.

Head yellow, with narrowly pigmented brown mouthframe. Cranium transverse (1.6), with sides strongly rounded, widest near middle, posteriorly with wide shallow emargination. Frontal lines indistinct, with group of small setae near anterior ends. Medial frontal line distinct. Frons smooth, with a row of praefrontal setae (2, 2, 1). Epistomal margin with wide, shallow emargination, pigmented back to the row of praefrontal setae.

Antennal ring widely opened, its upper boundary smooth. All segments of antennae bearing many short setae. 2nd segment as long as wide, with very small inconspicuous main sensillum. 3rd segment twice longer than wide, slightly shorter than 2nd.

3 pairs of large main stemmata present. Corneae convex, pigmented spots intensively black. Row of stemmata slightly shorter than maximal diameter of antennal foramen. Dorsal and ventral stemmata present, their pigmented spots indistinct.

Gena behind stemmata smooth, with some setae. Poststemmatal protuberance absent. Narrow pigmentation of gena partly surrounding row of main stemmata. Subfossal process absent.

Hypostomal lines distinct in anterior half. Ventral sclerite (7.5) flat, smooth, with some scattered setae. Narrow pigmentation of anterior margin widely interrupted by gula. Gular lines not raised, not pigmented, strongly diverging posteriorly. Gula about as long as wide.

Labrum transversely oval, about 1.7 times wider than long, with narrow basal sclerotization, bearing long scattered setae along its periphery, without discal setae.

Mandibles basally smooth, testaceous, with some short setae, apically pitchy brown.

Labiomaxillary complex attached to ventral sclerite by about 3 widths of gula. 1st segment of maxillary palp and palpiger bearing conspicuous processes. Mala subquadrate, rounded apically, with some short setae. 1st segment of maxillary palp transverse, 2nd subquadrate, 3rd segment elongate. All segments about equal in length.

Submentum with two long setae, feebly sclerotized. Mentum with two lateral sclerites. Praementum with wide basal sclerotized band constricted medially. Palpigers almost contiguous. Palps separated by about half width of their 1st segment. 2nd segment slightly longer than 1st. Ligula very small, hardly visible from below.

Pronotum dull, sharply longitudinally striate, with deep median line, anteriorly with bright yellow spots. Setae of pronotum with small basal rings. Pigmented blotches of alar lobes also bright yellow. Epipleurum anteriorly fused with lateropraesternum. Epipleurum and lateropraesternum very feebly sclerotized. Mediopraesternum delimited laterally. Coxosternum not fused with sternellar fold. Pleurum distinctly delimited ventrally and dorsally.

Meso- and metanotum shining, smooth, divided by "X"-shaped furrows. Scutum-I of mesonotum indistinct, of metanotum distinct. Alar lobes distinct on both segments, but ventral border lines on metathorax obliterated. Lateral part of metathorax divided by one oblique furrow. Two anterior parts of epipleurum on both segments fused. Epipleurum distinctly delimited ventrally. Border line of coxae and sternal transverse lines distinct. Sterna shining, irregularly finely rugose. Spiracle broadly oval, about 1.4 times as long as wide, with short row of distinct marginal chambers along upper boundary.

Legs well developed. Femur, tibiotarsus and praetarsus strongly sclerotized. Trochanter feebly sclerotized, but distinct, with two setae.

Abdomen with ampullae slightly raised. Each ampulla with shallow median impression, without tubercles, irregularly rugose, with two short lateral furrows. Each dorsal ampulla with two transverse furrows, but 2nd furrow obliterated medially. Each ventral ampulla with one transverse furrow. Border line between parascutum and spiracular area distinct. Spiracular area divided by oblique furrow. Pleural discs diffuse. Epipleurum protuberant on segmentes 8-9. Spiracles oval, with about 8 distinct large marginal chambers. 1st abdominal spiracle about 1.6 times shorter than thoracic spiracle. Coxal lobes distinct. Body length up to 28 mm, width up to 5 mm.

One species in the genus.

B. spinicollis WOLLASTON, 1854

Habits: Apparently polyphagous on deciduous trees, as known host plants are: *Laurus* and *Salix*. Larvae in dead wood.

Distribution: Canary Isls.

Material: 1. 9. 1966, Tenerife, Las Mercedes, 2/I, *Laurus*, lgt. Th. Palm, coll. S; *ibid.*, 1/I, *Laurus*, lgt. P. Schurmann, coll. M. Sláma; *ibid.*, 6/I, *Laurus acorica*, lgt. P. Schurmann, coll. IS.

Genus *Cerambyx* L., 1758

Type species: *C. cerdo* L., 1758

Body with dense short setae, without asperities.

Head yellow, with widely pigmented and strongly sclerotized black or pitchy brown mouthframe. Cranium transverse (1.3), with almost parallel sides, widest near hind margin which is almost straight. Frons finely rugose, with wide black coarsely rugose anterior margin, bearing praefrontal setae (2,2,1) and some small setae among them. Pigmentation of frons covers about 1/3 of its length. Epistomal margin with wide shallow emargination or almost straight. Its upper edge strongly marked and may be cariniform and slightly dentate. Frontal lines indistinct. Medial frontal line distinct.

Antennal ring closed. Its upper boundary projecting over articulating membrane in form of large tooth. 2nd antennal segment about 1.4 times longer than wide (or subquadrate, or transverse), with some short setae. Main sensillum very small, inconspicuous. 3rd segment small, elongate, about 2 or 3 times shorter than 2nd.

3 pairs of main stemmata present. Row of stemmata little shorter or slightly longer than diameter of antennal foramen. Corneae convex, pigmented spots slightly visible or absent. Dorsal and ventral stemmata present. Corneae convex, pigmented spots indistinct.

Poststemmatal carina more or less distinct. Gena and pleurostoma very coarsely rugose and widely pigmented, black, with some deep furrows, bearing some short setae. Pigmentation of gena behind stemmata more than twice broader than diameter of antennal foramen (Figs 2D, E). Subfossal process absent or poorly developed.

Hypostomal lines distinct, their posterior ends inconspicuous. Ventral sclerite (11) finely rugose, with some small setae, procurved anteriorly. Its anterior part very coarsely rugose, strongly sclerotized, black or pitchy brown. Gula raised, also strongly pigmented, black or pitchy brown, longitudinally striate, anteriorly almost parallel, widely diverging posteriorly, transverse or subquadrate.

Labrum broadly oval, about 1.5 times as broad as long, without basal sclerotization, with dense short setae along its periphery.

Mandibles black, basally coarsely rugose and with some small setae.

Labiomaxillary complex attached to ventral sclerite by about 5 widths of gula (almost along whole length of anterior margin of ventral sclerite). Maxillary palpiger and 1st palpal segment with conspicuous processes. 1st palpal segment transverse, 2nd and 3rd elongate. 1st segment about 1.5 times longer than 2nd. 3rd segment about half length of 2nd. Mala elongate, strongly rounded anteriorly, with dense short setae on inner and anterior margin.

Submentum feebly sclerotized, with many short setae. Mentum without lateral sclerites but with very narrow basal sclerotization. Praementum with large medially broadened sclerotized band. Labial palpigers widely separated. Palps separated by about 3 widths of their 1st segment. 1st segment broadened anteriorly, about 1.4 times longer than wide. 2nd segment small, about half length of 1st. Ligula very large, longer than labial palps, with very dense short setae.

Pronotum and alar lobes anteriorly covered with short dense setae, with bright orange pigmented spots. Posteriorly pronotum shining, irregularly rugose, with deep median line. Basal rings of setae distinct but small. Epipleurum not fused with lateropraesternum (Fig. 2 H), completely delimited, with small pigmented blotch. Lateropraesternum without pigmentation. Mediopraesternum delimited laterally. Episternum not fused with lateropraesternum. Epimeron distinctly delimited ventrally and dorsally. Coxosternum not fused with sternellar fold.

Meso- and metanotum shining. Mesonotum divided by "Λ" shaped furrow, irregularly rugose. Metanotum divided by two transverse furrows, distinctly tuberculate. Alar lobes completely delimited on both segments. Three parts of epipleurum

distinctly separate on both segments. Ventrally epipleurum delimited only in its anterior part. Pleurum not fused with coxae. Sterna with deep transverse furrow, distinctly tuberculate. Spiracle large, oval, more than twice as long as broad, with numerous very small marginal chambers.

Legs well developed. Femur, tibiotarsus, apical part of praetarsus and inner part of trochanter sclerotized. Trochanter with about 6 strong setae.

Abdominal ampullae slightly raised. Each ampulla distinctly tuberculate. Dorsal ampullae with 4 rows of tubercles, ventral ampullae with two rows. Each dorsal ampulla with two transverse furrows and two short longitudinal lateral furrows. Spiracular area and epipleurum divided by a deep furrow. Pleural discs of first three abdominal segments very distinct. Coxal lobes distinctly delimited dorsally. Epipleurum protuberant on segments 7–9. Spiracles large, oval, with many small marginal chambers. 1st abdominal spiracle about 1.3 times shorter than thoracic spiracle. Anal lobes encircled by a fringe of short setae.

Nine species in Palaearctics, larvae of 3 of them at my disposal.

1(2) Head without transverse carina delimiting posteriorly sclerotization of gena (Fig. 2 D).

Row of stemmata shorter than maximal diameter of antennal foramen *cerdo*

2(1) Head with distinct transverse carina delimiting posteriorly sclerotization of gena (Fig. 2 E).

Row of stemmata longer than maximal diameter of antennal foramen. *scopoli, multiplicatus*

C. cerdo L., 1758

Epistomal margin of frons with shallow emargination. Its upper edge slightly marked. 2nd antennal segment about 1.4 times longer than wide, 3rd segment about 3 times shorter than 2nd. Pleurostoma with small carina. Poststemmatal carinae poorly developed. Subfossal process absent. Labrum may be without basal sclerotization. Body length up to 80 mm, width up to 20 mm.

Habits: Polyphagous on deciduous trees, preferring *Quercus*. Larvae initially under bark, then in wood of living trees. Life cycle about 3 years. Pupation in August, adults hatch in autumn and overwinter in pupal cells. Emergence next spring. Pupal cells with calcareous operculum.

Distribution: Europe, Caucasus, Transcaucasia, North Africa, Near East, Iran.

Material: 6. 1980, SU, Talysh, Avrorra, +/I, *Quercus*, lgt. D, coll. IS; 8. 7. 1977, CS, Moravia mer., Lednice, +/I, *Quercus*, lgt. and coll. S.

C. scopoli FUESSLIN, 1775

Epistomal margin of frons almost straight, its upper edge strongly marked, often cariniform, dentate. Pleurostoma with large carina. 2nd antennal segment subquadrate or transverse. 3rd segment about twice shorter than 2nd. Poststemmatal carina distinct. Subfossal process poorly developed. Labrum with distinct basal sclerotization. Body length up to 50 mm, width up to 7.5 mm.

Habits: Polyphagous on deciduous trees. Larvae under bark, then in wood of dead trees. Life cycle about 2–3 years. Pupation in the end of summer, adults hatch in autumn and overwinter in pupal cells. Emergence the following spring. Pupal cells with calcareous operculum.

Distribution: Europe, Caucasus, Transcaucasia, North Africa, Near East.

Material: 14. 7. 19, CS, Slovakia, Štúrovo, 3/I, *Juglans*, lgt. and coll. S; 16. 7. 1978, CS Slovakia, Plešivec, 2/I, *Quercus*, lgt. and coll. S; 22. 7. 1978, CS, Slovakia, Gbelce, 1/I, *Prunus*, lgt. and coll. S; 13. 2. 1977, Moravia, Pavlov, 2/I, *Prunus*, lgt. and coll. S; 7. 5. 1978, Hungaria, Mesceknádasd, 2/I, *Prunus*, lgt. and coll. S.

C. multiplicatus MOTSCHULSKY, 1859

Very similar to *C. scopoli*.

Habits as in *C. scopoli*. (It may be a subspecies of the previous species.)

Material: 6. 1980, SU, Talysh, Avrora, +/I, *Ficus*, *Carpinus*, *Zelkova*, *Acer*, *Pterocarya*, *Juglans*, *Tilia*, *Vitis*, *Malus*, lgt. D, coll. IS.

Distribution: East Caucasus and East Transcaucasia, Talysh, North Iran.

Genus *Aeolesthes* GAHAN, 1890

Type species: *Hammaticherus aurifaber* WHITE, 1853

Body with dense short setae, without asperities.

Head yellow, with strongly sclerotized and widely pigmented black mouthframe. Cranium transverse (1.4), with almost parallel sides, widest near hind margin which is slightly emarginate medially. Frontal lines indistinct, medial frontal line distinct. Frons flat, smooth. Black band of anterior margin wider than 1/3 of length of frons, with a row of praefrontal setae (2,2,1) and some \pm small setae among them. Epistomal margin almost straight, coarsely transversely or obliquely striate. Its upper edge distinctly marked, feebly dentate.

Antennal ring closed, its upper boundary projecting over articulating membrane as a large tooth. 2nd antennal segment strongly transverse, with very small inconspicuous main sensillum. 3rd segment slightly shorter than 2nd, about 3 times longer than wide.

3 pairs of main stemmata present. Corneae convex, pigmented spots distinct. Row of stemmata slightly longer than diameter of antennal foramen. Dorsal and ventral stemmata present, but hardly visible. Gena behind stemmata widely pigmented and coarsely transversely striate, with some short setae. Poststemmatal carina present. Sclerotization of gena delimited posteriorly by a long, coarsely tuberculate carina (Fig. 2F). Pleurostoma also with a sharp carina. Subfossal process absent.

Hypostomal lines distinct, black, posteriorly inconspicuous. Ventral sclerite (7) flat, finely obliquely striate, with some short setae. Its anterior margin widely pigmented, black, coarsely rugose, with two lateral tooth-like tubercles. Pigmentation not interrupted by gula. Gula partly or completely black, subquadrate, strongly raised.

Labrum and mouthparts as in *Cerambyx*.

Thorax and abdomen similar to those in *Cerambyx*, but terga of meso- and metanotum and hind margin of mediopraesternum with some tubercles. Prothorax with pale yellow pigmentation. Thoracic spiracle more than 3 times longer than wide, marginal chambers indistinct. Tubercles of abdominal ampullae strongly raised. Spiracle of 1st abdominal segment about 3 times longer than wide, 1.2 times shorter than thoracic spiracle, without marginal chambers. Body length up to 80 mm, width up to 13 mm.

About 20 species in Oriental Region. One species in Palaearctics, larvae of which at my disposal.

A. sarta (SOLSKY, 1871)

Habits: Polyphagous on deciduous trees. Larvae under bark, then in wood of living trees. One of the most important insect pests of trees in Central Asia. Life cycle as in *Cerambyx*. Pupal cell also with calcareous operculum.

Distribution: Soviet Central Asia, North India, North Afghanistan.

Material: April-June, 1978–1984, SU, Turkmenia, Tadjikistan, +/I, *Populus*, *Ulmus*, *Pirus*, *Malus*, *Elaeagnus*, lgt. D, coll. IS.

Genus *Dissopachys* REITTER, 1886

Type species: *D. pulvinata* REITTER, 1886

Body with sparse short setae, without microasperities.

Head yellow in anterior half, white posteriorly; with black mouthframe. Cranium transverse (1.2–1.3), with sides diverging anteriorly and almost parallel posteriorly, widest near middle. Hind margin with small emargination. Anterior part of frons strongly pigmented and coarsely rugose in first third, bearing a row of praefrontal setae (2, 2, 1) and some small setae among them. Front margin of frons with 4 or 5 distinct tubercles (medial tubercle may or may not be present) (Fig. 5A), with two postcondylar tubercles. Medial frontal line hardly visible.

Antennal ring closed, with upper boundary projecting over articulating membrane in form of large tooth. 2nd antennal segment about as long as wide, 3rd segment elongate, nearly equal in length to 2nd, both bearing some short setae. Main sensillum rather small, inconspicuous.

3 pairs of main stemmata present, corneae convex, pigmented spots distinct. Row of stemmata about as long as diameter of antennal foramen. Two pairs of dorsal stemmata and one of ventral stemmata slightly visible.

Wide coarse sclerotization of gena absent. Pigmentation of gena behind stemmata about twice broader than diameter of stemma. Gena finely rugose, almost glabrous. Pleurostoma coarsely rugose, with strong carina. Subfossal process absent.

Hypostomal lines distinct, their posterior ends inconspicuous. Anterior half of

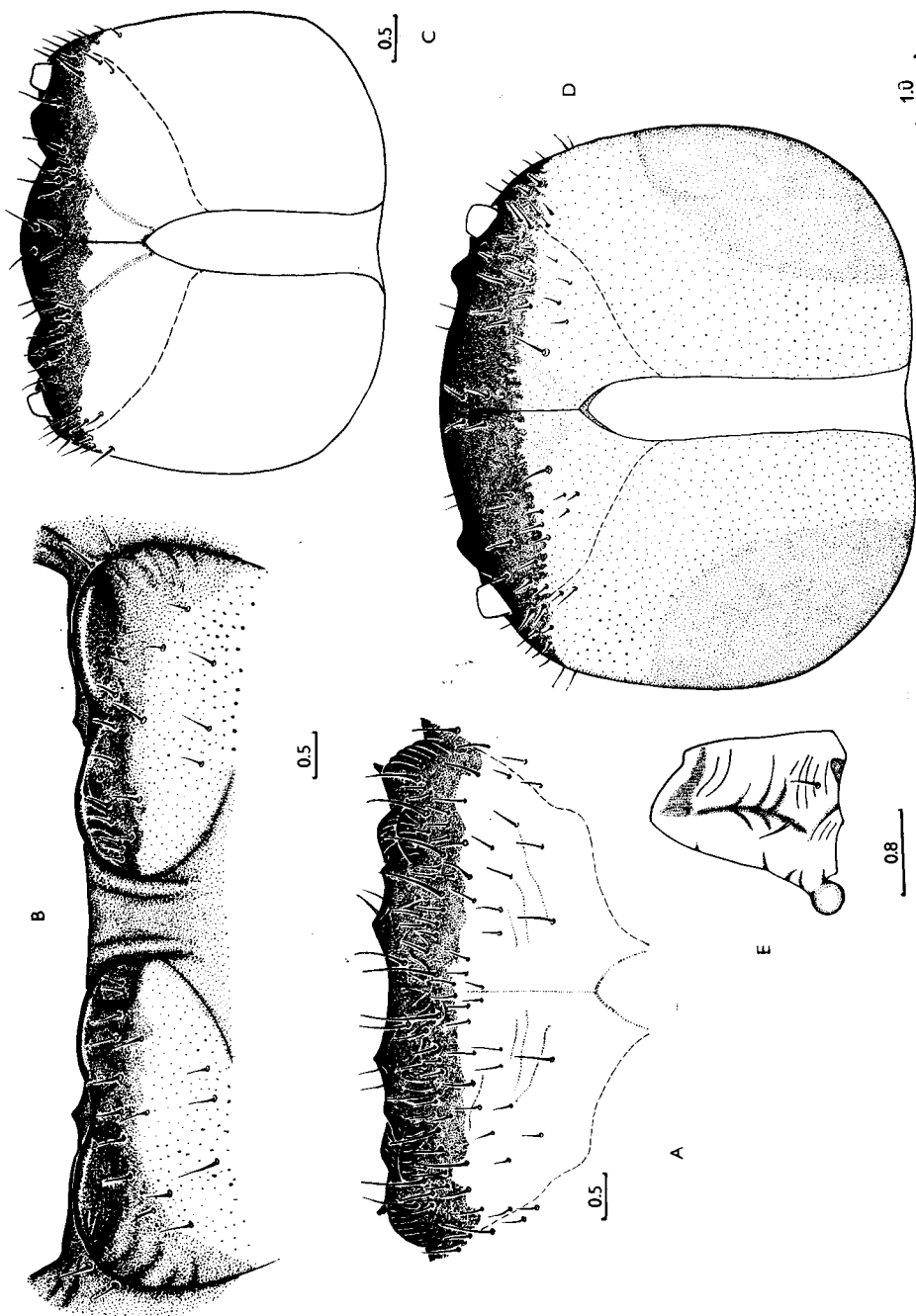


Fig. 5: A — *Dissopachys matthiesseni*, frons. B — *D. matthiesseni*, ventral cranial sclerite. C — *Plocaederus scapularis*, cranium, dorsal view. D — *P. scapularis*, mature larva from calcareous cocoon, dtto. E — *P. scapularis*, mandible, outer view.

ventral sclerite (6.3) dark brown, very coarsely rugose, with some small setae, with four wide tubercles (Fig. 5 B). Gula raised, darker than hypostoma, subquadrate.

Labrum about twice wider than long, with narrow basal sclerotization, bearing dense long setae.

Mandibles black, with spoon-like apical part, cutting edge slightly oblique; apically smooth, basally very coarsely rugose, with some short setae.

Labiomaxillary complex as in *Cerambyx*.

Thorax and abdomen as in *Cerambyx*, but pigmentation of prothorax pale and basal rings of setae inconspicuous.

Legs well developed and strongly sclerotized, but relatively shorter than in *Cerambyx*. Marginal chambers of spiracles very distinct, 1st abdominal spiracle with about 15 marginal chambers. Pleural discs of 1st abdominal segment small, discs of 2nd and 3rd segments very large and distinct. Setal fringe of anal lobes rather dense and wide. Body length of available larvae up to 30 mm, width up to 10 mm, but obviously may be up to about 90 mm in length.

Two species in Central Asia, larvae of one of them at my disposal.

D. matthiesseni REITTER, 1907

Habits: Larvae in dead roots of *Amygdalus*, and maybe in *Pistacia*, as well as in other xerophytic plants.

Distribution: South Tadzhikistan, South Turkmenia (Badkhyz, Kopetdag), Iran, Afghanistan.

Material: 8. 1985, SU, Kopetdag, Kara-Kala, 2/—, roots of *Amygdalus*, lgt. S. Murzin, coll. IS.

Genus *Plocaederus* J. THOMSON, 1860

Type species: *P. cyanipennis* J. THOMSON, 1860

Body with dense short setae, usually with asperities.

Head yellow, with widely pigmented black mouthframe. Cranium transverse (1.3), with rounded sides, widest near middle, hind margin slightly emarginate, almost straight. Frontal lines indistinct. Medial frontal line distinct. Frons finely irregularly striate, with two paramedian impressions diverging anteriorly (Fig. 5 C). Black band of anterior margin very broad, reaching about half of medial line, with a row of praefrontal setae (2, 2, 1) and numerous small setae among them. Epistomal margin strongly roundly convex, coarsely striate, with two paramedian pits, its upper edge feebly marked, neither dentate nor carinate.

Antennal ring closed, its upper boundary not projecting over articulating membrane. Antennae short, 2nd segment strongly transverse. Main sensillum very small, indistinct. 3rd segment very small, about 1.5 times longer than wide. Both segments with short setae.

Three pairs of small main stemmata present. Corneae convex. Pigmented spots distinct. Row of stemmata about as long as diameter of antennal ring. Dorsal and ventral stemmata absent. Subfossal process present.

Pigmentation of gena behind stemmata as wide as 2 diameters of antennal ring. Gena and pleurostoma \pm finely rugose, not carinate. Poststemmatal carina absent.

Hypostomal lines distinct, black, posteriorly inconspicuous. Ventral sclerite (5.3) completely pitchy brown excepting its posterolateral angles, finely obliquely striate, with some small setae. Its anterior margin straight, with two lateral convexities, black, coarsely rugose. Gula hardly visible, black, slightly raised.

Clypeus wide, almost filling space between dorsal mandibular articulations.

Labrum transverse, about 1.5 times wider than long, with dense short setae along anterior periphery, without discal setae, with distinct basal sclerotization.

Mandibles of primitive type, cutting edge with dorsal and ventral teeth \pm present though rather short and rounded, medially without furrows, laterally relatively smooth, with some short setae (Fig. 5E). Transverse and longitudinal furrows very shallow, inconspicuous.

Ventral mouth parts similar to those of *Cerambyx*, but 1st segment of maxillary palp without lateral process, 1st and 2nd segments transverse. Labial palps separated by more than 3 widths of their 1st segment.

Thorax and abdomen similar to those of *Cerambyx*. Prothorax with pale yellow pigmented band. Pronotum without longitudinal striae, but finely irregularly striate; terga and sterna of thorax and abdominal ampullae without tubercles, finely irregularly striate. Basal part of pronotum, partly alar lobes, partly epipleurum, partly coxosternum, partly terga and sterna of mesothorax and metathorax, and all abdominal ampullae covered with microasperities. Praetarsus strongly sclerotized apically. Pleural discs of first three abdominal segments large, distinct. Spiracles without marginal chambers. Thoracic spiracle about 2.2 times longer than wide and about 1.4 times longer than 1st abdominal spiracle. Anal lobes encircled by very dense fringe of short setae. Body length of available larvae up to 55 mm, width up to 13 mm.

I have larvae of *P. scapularis* from calcareous cocoons which were found in water after filling the Nurek-reservoir. These larvae rather differ from mature larvae from roots of *Ferula*. Body short and very thick. Cranium less transverse (1.2), with strongly darkened posterolateral angles (Fig. 5D). Frons flat, smooth. 2nd antennal segment slightly elongate or transverse. 3rd segment about half length of 2nd, about twice longer than wide. Row of stemmata about 1.5 times shorter than maximal diameter of antennal foramen. Sclerotization of gena surrounding stemmata, as wide as diameter of antennal foramen. Basal area of pronotum and other body areas without microasperities. Ambulatory ampullae shining. Thoracic spiracle 3 times longer than wide, and 1.5 times longer than 1st abdominal spiracle. Body length up to 40 mm, width up to 15 mm.

About 40 species in Oriental and Ethiopian regions. Two species in Palaearctics, larvae of one of them at my disposal.

P. scapularis (FISCHER, 1821)

Habits: Larvae initially in stem, then in roots of living *Ferula* and apparently *Scorodosma*. Life cycle about two years. Emergence at the end of May to July. Pupation in soil in calcareous cocoons.

Distribution: West Kazakhstan and South of Soviet Central Asia, North Afghanistan, North Iran.

Material: 3. 10. 1961, SU, Bukhara, 2/—, in stems of *Ferula*, lgt. B. M. Mamaev, coll. IS; 25. 9. 1976, SU, Tadzhikistan, shore of Nurek-sea, 2/I, lgt. M. Abdurakhmanov, coll. IS.

Genus *Derolus* GAHAN, 1891

Type species: *Hammaticherus mauritanicus* BUQUET, 1840

Very similar to small larvae of *Cerambyx cerdo*.

Body with short sparse setae, without asperities.

Head yellow, darkened posterolaterally, with widely pigmented brown anterior margin. Cranium transverse (1.4), with sides slightly rounded, widest near middle, hind margin slightly emarginate. Frontal lines indistinct. Medial frontal line distinct. Frons smooth. Brown band of anterior margin not very broad, about 1/4 length of medial line, with a row of praefrontal setae (2,2,1) and with some small setae among them. Epistomal margin also smooth, procurved, its upper boundary not marked.

Antennal ring closed, its upper boundary feebly roundly projecting over articulating membrane. Antennae short, 2nd segment strongly transverse, with very small inconspicuous main sensillum. 3rd segment elongate, almost as long as 2nd, about twice longer than wide.

3 pairs of main stemmata present. Row of stemmata about equal in length to diameter of antennal foramen. One aberrant larva with four main stemmata on right side of head. Corneae convex. Pigmented spots distinct. Dorsal and ventral stemmata distinct, their pigmented spots inconspicuous.

Poststemmatal carina present. Pleurostoma distinctly dentate, with two or three conical teeth. Gena rugose, widely pigmented behind stemmata, wider than three diameters of antennal foramen, with some short setae. Subfossal process absent.

Hypostoma and gula very similar to those of *Cerambyx cerdo*.

Labrum broadly oval, with a row of very dense long setae along anterior margin, with wide basal sclerotization.

Mouth parts very similar to those of *Cerambyx cerdo*, but segments of palps relatively longer, especially apical ones.

Thorax and abdomen similar to those of *C. cerdo*, but anal lobes not encircled by a fringe of short setae. Body length up to 25 mm, width up to 6 mm.

About 20 species in Ethiopian and Oriental regions. In Palaearctics 1 species, larvae of which at my disposal.

D. mauritanicus (BUQUET, 1840)

Habits: Larvae in stems of living *Nerium oleander*. Pupation in autumn, adults hatch also in autumn and overwinter in pupal cells. Emergence next spring. Pupal cells with calcareous operculum.

Distribution: North Africa, Near East.

Material: 12. 6. 1982, Algeria, Bouira, 2/J, in *Nerium oleander*, lgt. G. Sama, coll. S; 3. 6. 1985, Morocco, Tizi n'Test, 1/I, *N. oleander*, lgt. et coll. M. Sláma.

Genus *Massicus* PASCOE, 1867

Type species: *Cerambyx pascoei* THOMSON, 1857

Body with short dense setae, without asperities.

Head yellow, with widely pigmented black mouthframe. Frontal lines indistinct. Medial frontal line distinct. Frons finely rugose, with a row of praefrontal setae (2,2,+), with many \pm long setae among them. Black band of anterior margin as wide as length of labrum. Epistomal margin slightly emarginate medially, very coarsely rugose, with two paramedian convexities and medial depression between them.

Antennal ring opened, its upper boundary not projecting over articulating membrane. Antennae short. 2nd segment transverse, with very small main sensillum, 3rd segment twice longer than wide, slightly shorter than 2nd. Both segments bearing short setae.

3 pairs of main stemmata present. Corneae convex, pigmented spots distinct. Row of stemmata longer than diameter of antennal foramen. Dorsal and ventral stemmata absent.

Gena and pleurostoma without carinae, finely rugose. Pigmentation of gena behind stemmata very narrow, about as wide as 2 diameters of stemma. Poststemmatal protuberance absent. Subfossal process absent. Gena with many short setae.

Hypostomal lines distinct. Ventral sclerite (5.7) brown, coarsely rugose, especially on its anterior margin which is almost straight (slightly procurved), bearing many small setae. Gular lines strongly raised. Gula elongate.

Labrum transverse, about 1.5 times wider than long, with dense short setae, medially glabrous, with wide basal sclerotization.

Mandibles as in *Cerambyx*.

Labiomaxillary complex attached to ventral sclerite by about 5 widths of gula. Maxillary palpiger with lateral process, process of 1st palpal segment inconspicuous. 1st segment of maxillary palp as long as wide, 2nd and 3rd segments elongate, 2nd shorter than 1st, 3rd shorter than 2nd. Mala elongate, strongly rounded anteriorly, with dense stout setae on inner and anterior margin.

Submentum without sclerotization, with many stout setae. Mentum without lateral sclerites, bearing 4 setae. Praementum with large sclerotized band, broadened medially.

Labial palpigers widely separated. Palps separated by about 3 widths of their 1st segment. 1st segment broadened anteriorly, about 1.7 times longer than wide. 2nd segment about half length of 1st. Ligula not very large, much shorter than labial palps, with dense short setae.

Thorax similar to *Cerambyx*, but pigmentation of prothorax not very bright, pale yellow. Spiracles without marginal chambers.

Legs feebly sclerotized. Trochanter without sclerotization, bearing numerous setae.

Abdomen similar to *Cerambyx*, but tubercles of ampullae poorly developed and spiracles without marginal chambers. Body length up to 80 mm, width up to 15 mm.

One species in Palaearctics.

M. raddei (BLESSIG et SOLSKY, 1872)

Habits: Polyphagous on deciduous trees (*Quercus*, *Castanea*, *Fraxinus*, *Passania* and others). Larvae under bark, then in wood of living trees. Pupation in wood. Imago in July and August. Life cycle apparently about two years.

Distribution: Soviet Far East, North and Central China, Korea, Japan.

Material: 10. 1964, Japan, 1/?, lgt. Kojima, coll. S. Nakamura.

Genus *Rosalia* SERVILLE, 1833

Type species: *Cerambyx alpinus* L., 1758

Body with short not very dense setae, without asperities.

Head white, with widely pigmented pitchy-brown mouthframe. Cranium transverse (1.4), widest near hind margin which is roundly procurved. Frontal lines indistinct. Medial frontal line distinct only in its basal part. Frons smooth, with a row of small praefrontal setae (2,2,1) and with some very small setae among them. Its anterior margin with small emargination behind labrum, pigmented up to second medial pair of praefrontal setae. Pigmented region finely rugose.

Antennal ring closed, its upper boundary not projecting over articulating membrane. Antennae \pm long. Main sensillum of 2nd segment very small. 2nd and 3rd segments elongate, bearing some small setae. 3rd segment about 1.5 times shorter than 2nd. 2nd segment about twice longer than wide.

3 pairs of very small main stemmata present, corneae convex, pigmented spots distinct. Dorsal and ventral stemmata absent, but sometimes one dorsal and one ventral stemma visible. Row of main stemmata about 2 or more times shorter than diameter of antennal foramen.

Pigmentation of gena behind stemmata about equal in width to antennal foramen (Fig. 6 A). Poststemmatal protuberance nearly absent. Gena very finely rugose, with some small setae. Pleurostoma without carina, very finely rugose. Subfossal process absent.

Hypostomal lines distinct in their anterior half. Ventral sclerite (14) finely transversely rugose. Its anterior margin procurved, narrowly pigmented, with many short setae. Gula transverse, slightly raised, darker than hypostoma.

Labrum round, about as long as broad, with dense short setae, glabrous medially, without basal sclerotization.

Mandibles with black basal part, without coarse sculpture, bearing some small setae.

Labiomaxillary complex attached to ventral sclerite by about 3.5 widths of gula. Mala subquadrate, with nearly straight anterior margin, covered with dense setae. 1st segment of maxillary palp and palpiger bearing inconspicuous processes. 1st segment subquadrate, 2nd and 3rd elongate. 2nd segment longer than 3rd, 1st segment longer than 2nd.

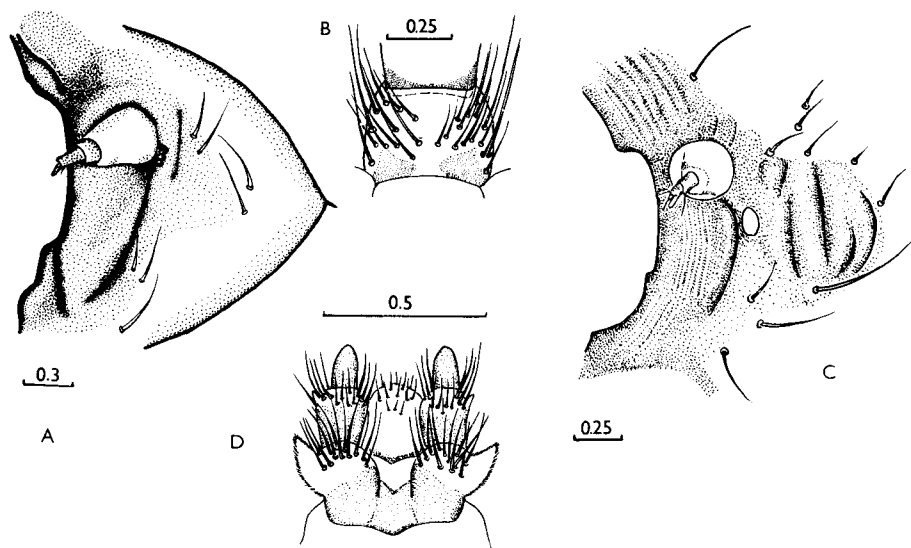


Fig. 6: A — *Rosalia alpina*, pleurostoma and gena. B — *R. alpina*, mentum. C — *Phoracantha semipunctata*, pleurostoma and gena. D — *P. semipunctata*, praelabium.

Submentum without pigmentation, bearing 2 setae. Mentum (Fig. 6 B) with two lateral sclerites, bearing numerous setae. Praementum with wide sclerotized band not broadened medially. Ligula narrow, with numerous short setae. Labial palps separated by about one width of their 1st segment. Both segments elongate, 2nd segment slightly shorter than 1st.

Pronotum shining, irregularly longitudinally striate, with deep median line, anteriorly with bright orange spots. Setae of pronotum with rather inconspicuous basal rings. Pigmented blotches of alar lobes bright orange. Epipleurum fused with lateropraesternum anteriorly. Border line of mediopraesternum indistinct. Epipleu-

rum and lateropraesternum without pigmentation. Coxosternum not fused with sternellar fold. Episternum fused with lateropraesternum. Epimeron distinctly delimited ventrally and dorsally.

Tergum and sternum of meso- and metathorax with regular network of rugae, and microreticulate. Terga divided by "X"-shaped grooves. Scutum-I of metathorax distinct, scutum-I of mesothorax fused with alar lobes. Alar lobes distinctly delimited ventrally and dorsally on both segments. Three parts of epipleurum distinctly defined on both segments. Ventrally epipleurum delimited only in its anterior part. Pleurum not fused with coxae. Sterna with transverse furrows. Spiracle more than twice longer than wide. Marginal chambers present.

Legs well developed. Inner part of trochanter sclerotized, with numerous setae. Praetarsus almost without sclerotization.

Abdomen with strongly raised ampullae. All ampullae microreticulate, with regular network of rugae, with deep median impression. Each dorsal ampulla with two lateral longitudinal furrows and two transverse furrows, but second transverse furrow widely interrupted. Each ventral ampulla with one transverse and two longitudinal furrows. Spiracular area and epipleurum divided by a deep furrow. Border line between parascutum and spiracular area distinct. Pleural discs diffuse. Spiracle oval, about 1.3 times longer than wide. Marginal chambers present. 1st abdominal spiracle twice shorter than thoracic one. Coxal lobes distinct.

Five or six species in Palaearctics, larvae of 2 of them at my disposal.

- 1(2) Marginal chambers of spiracles inconspicuous, body length up to 40 mm, width up to 9 mm *alpina*
 2(1) Marginal chambers of spiracles very distinct; body length up to 35 mm, width up to 8 mm *coelestis*

R. alpina (L., 1758)

Habits: Polyphagous on deciduous trees, preferring *Fagus* and *Ulmus*, but also *Carpinus*, *Tilia*, *Castanea*, *Fraxinus*, *Juglans*, *Quercus* and others. Larvae in dead wood. Life cycle seems to be 2 or 3 years. Larvae of final instar overwinter. Pupation at the beginning of summer. Adults from June to August.

Distribution: Europe, Caucasus, Transcaucasia, Near East.

Material: 5. 7. 1964, SU, Voronezh, Tellerman, 2/I, in *Ulmus*, lgt. G. V. Lindemann, coll. IS; 6. 1964, CS, Slovakia, Nitranské Rudno, 9/I, in *Fagus*, lgt. and coll. M. Sláma; 2. 7. 1969 France, Aiquines, 1/I, in *Fagus*, lgt. et coll. M. Sláma.

R. coelestis SEMENOV, 1911

Habits: Larvae in dead wood of *Acer* and *Ulmus* (as far as known), but apparently in other deciduous trees, too. According to CHEREPANOV (1981), life cycle seems to be two or three years. Larvae of final instar overwinter. Pupation during June and July. Adults from July to August.

Distribution: South of Soviet Far East, North China, Korea.

Material: 17. 5. 1967, SU, Ussuri region, Suputinskii reserve, 6/I, in *Acer*, lgt. B. M. Maev, coll. IS.

Genus *Purpuricenus* GERMAR, 1824

Type species: *Cerambyx desfontainei* F., 1792

Body with long, not very dense setae, without asperities.

Head white, with strongly pigmented pitchy-brown mouthframe. Cranium (1.3) with sides diverging posteriorly, rounded behind middle. Hind margin roundly procurved. Frontal lines indistinct. Medial frontal line distinct. Frons smooth, with a row of praefrontal setae (2,2,1), and with some small setae in its anterior angles. Anterior margin of frons pigmented back to the row of setae, finely obliquely rugose, with deep narrow emargination behind labrum.

Antennal ring closed, or sometimes opened in halfgrown larvae (*P. temmincki*). Upper boundary of antennal ring not projecting over articulating membrane. Antennae long. 3rd and 2nd segments elongate, with short setae. Main sensillum very small, inconspicuous.

One pair of large main stemmata present. Pigmented spots indistinct, corneae convex, contiguous to antennal foramen. Dorsal and ventral stemmata absent, but sometimes visible.

Gena and pleurostoma smooth, without carinae or raised areas. Gena with some short setae, \pm broadly pigmented behind stemmata. Subfossal process absent.

Hypostomal lines distinct anteriorly, slightly converging posteriorly. Front margin of hypostoma slightly procurved. Hypostoma bearing scattered small setae, anteriorly broadly pigmented and here with characteristic structures: strongly regularly longitudinally striate, or with some sharp teeth. Gula transverse or subquadrate, slightly raised, darker than hypostoma, often with median pale line, or of same colour as hypostoma.

Labrum round, about as long as broad or slightly elongate, without basal sclerotization, with some small scattered setae.

Mandibles without coarse basal sculpture, bearing some small setae near base. Basal part of mandible pale.

Labiomaxillary complex attached to ventral sclerite by about two widths of gula. 1st segment of maxillary palp and palpiger with conspicuous processes. Mala subquadrate, anteriorly broadly rounded, with dense short setae.

Submentum may be feebly sclerotized, bearing two setae. Mentum bearing numerous setae, with two \pm distinct lateral sclerites. Praementum with basal sclerotized band, occasionally interrupted medially. Ligula short and narrow, bearing short setae.

Basal part of pronotum shining, regularly longitudinally striate, with deep median line. Anterior part of pronotum and alar lobes with bright orange spots. Setae of

pronotum with distinct basal rings. Epipleurum fused with lateropraesternum anteriorly, but its ventral border line rather long. Lateropraesternum may have two pigmented blotches, epipleurum may have two pale pigmented spots. Border line of mediopraesternum indistinct. Coxosternum not fused with sternellar fold. Episternum fused with lateropraesternum. Epimeron distinctly delimited ventrally and dorsally.

Mesothorax dorsally divided by "X"-shaped furrow, mesothorax ventrally and metathorax dorsally and ventrally divided by transverse furrows. Cuticle near furrows microreticulate or irregularly rugose. Scutum-I of metathorax distinct, scutum-I of mesothorax fused with alar lobes. Alar lobes distinctly delimited ventrally and dorsally on both segments. Three parts of epipleurum distinctly defined on both segments. Ventrally epipleurum delimited only in its anterior part. Pleurum not fused with coxae. Marginal chambers of all spiracles indistinct.

Legs well developed. Inner part of trochanter bearing numerous setae but may lack sclerotization. Praetarsus sclerotized apically.

Abdomen with strongly raised ampullae. Dorsal ampullae with one or two transverse furrows, and ventral ampullae with one transverse furrow. Each ampulla with two longitudinal lateral furrows and a deep median impression. Cuticle near furrows may be microreticulate or irregularly rugose. Border line between parascutum and spiracular area distinct. Pleural discs \pm diffuse. Coxal lobes distinct.

About 30 species in Palaearctics. Larvae of 6 of them at my disposal. One undetermined larva from Bulgaria available, it has been tentatively associated with *P. dalmatinus*.

- 1(4) Anterior part of hypostoma with several strong teeth (Fig. 7A) (usually from 4 to 8).
- 2(3) Lateropraesternum of prothorax without pigmentation; basal area of pronotum finely striate *temmincki*
- 3(2) Lateropraesternum of prothorax with orange blotches; basal area of pronotum coarsely longitudinally rugose *desfontainei*
- 4(1) Anterior part of hypostoma regularly longitudinally striate or carinate, at least 14 carinae present (Fig. 7 B).
- 5(6) Hypostoma carinate, each side of hypostoma with 7 strong carinae and with some obliterated carinae *dalmatinus*
- 6(5) Hypostoma finely longitudinally striate, each side of hypostoma with more than 20 striae.
- 7(10) Sternellar fold smooth. Cuticle near furrows of ambulatory ampullae microreticulate.
- 8(9) Labrum elongate; basal rings of prothoracic setae hardly visible (especially on pigmented blotches of lateropraesternum); striae of hypostoma poorly developed, almost obliterated *budensis*
- 9(8) Labrum round, about as long as wide, basal rings of prothoracic setae very distinct, striae of hypostoma well developed *kaehlerii*
- 10(7) Sternellar fold with two distinct (and some slightly distinct) tubercles. Cuticle near furrows of ampullae (especially near dorsal furrows) without microreticulation, rugose *barbarus*

P. temmincki (GUÉRIN-MÉNÈVILLE, 1844)

Main distinguishing characters in the key.

At least half-grown larvae with opened antennal ring. Pigmentation of gena behind stemma very narrow, not wider than its diameter. Dorsal and ventral stemmata absent. 2nd antennal segment about twice as long as wide. 3rd antennal segment more than twice longer than its width and as long as width of 2nd segment. Gula transverse, much darker than posterior part of hypostoma. Labrum subcircular, about as long as broad. 1st segment of maxillary palp subquadrate, almost as long as 3rd, 2nd segment slightly shorter. Submentum without sclerotization. Lateral sclerites of mentum distinct. Basal sclerite of praementum continuous medially. Labial palps separated by more than one width of their 1st segment. 1st segment of labial palps slightly shorter than 2nd.

Setae of pronotum with inconspicuous basal rings. Epipleurum and lateropraesternum of prothorax without pigmentation. Ambullatory ampullae near furrows microreticulate. Second transverse furrow on dorsal abdominal ampullae rather distinct. Thoracic spiracle about twice as long as broad, 1.5 times longer than 1st abdominal spiracle. Legs with feebly sclerotized trochanter. Body length up to 34 mm, width up to 7 mm.

Habits: Larvae in *Phyllostachys*, *Zizyphus* (GRESSITT, 1951), *Bambusa* (DUFFY, 1968).

Distribution: China, Korea, Japan.

Material: 8. 1. 1954, Japan, Hiwa, Hiroshima Pref., 3/? , S. Nakamura coll.

P. dalmatinus STURM, 1843

Main distinguishing characters in the key.

Antennal ring closed. Pigmentation of gena behind stemmata about as wide as diameter of antennal ring. One dorsal and one ventral stemmata visible. Gula slightly darker than hypostoma, with pale median line, subquadrate. Labrum subcircular, about as long as wide. 1st segment of maxillary palp transverse, almost as long as 3rd. 2nd segment slightly shorter. Submentum without sclerotization. Mentum with distinct lateral sclerites. Praementum with wide basal sclerotization. Labial palps separated by about one width of their 1st segment.

Posterior area of prothorax coarsely longitudinally striate. Prothoracic setae with very distinct basal rings. Lateropraesternum of prothorax with two distinct orange blotches. Epipleurum pale. Legs with strongly pigmented trochanter. Dorsal abdominal ampullae with only one transverse furrow. Cuticle near furrows irregularly rugose. Thoracic spiracle about twice as long as broad, 1st abdominal spiracle 1.5 times shorter than thoracic one. Body length 19 mm, width 5 mm.

Habits: Larvae in *Prunus*, and apparently in *Quercus* and in other deciduous trees. The larva was found in a thin fresh girdled twig (diam. about 1 cm) of *Prunus spinosa*.

Distribution: Yugoslavia, Bulgaria, Greece, Near East.

Material: 22. 8. 1976, Bulgaria, Ropotamo, Arkutino, 1/ - , in *Prunus*, lgt. et coll. S.

P. desfontainei (F., 1792)

Main distinguishing characters in the key.

Antennal ring closed. Pigmentation of gena behind stemmata as wide as diameter of stemma. Dorsal and ventral stemmata present, but hardly visible. Gula transverse, darker than basal part of hypostoma, with pale median line. Labrum elongate. 2nd antennal segment about twice as long as wide. 3rd segment as long as width of 2nd segment and more than twice longer than wide. 1st segment of maxillary palp transverse, 2nd subquadrate, 3rd elongate. 1st segment about equal in length to 3rd, 2nd segment slightly shorter. Submentum finely sclerotized, mentum with inconspicuous lateral sclerites. Sclerotization of praementum interrupted medially. Labial palps separated by about one width of their 1st segment. Both segments about equal in length.

Setae of pronotum with distinct basal rings. Epipleurum pale. Legs with feebly sclerotized trochanters. Dorsal abdominal ampullae with only one transverse furrow. Cuticle near furrows irregularly rugose in mature larvae, or microreticulate in half-grown larvae. Thoracic spiracle less than twice longer than its width and about 1.5 times longer than 1st abdominal spiracle. Body length up to 36 mm, width up to 7 mm.

Habits: Larvae in *Ceratonia siliqua* (as far as known). Imago from April to July.

Distribution: Greece, Turkey, Near East, North Africa.

Material: 6. 1982, Tunisia, Msaken, 2/ - , in *Ceratonia siliqua*, lgt. and coll. M. Sláma.

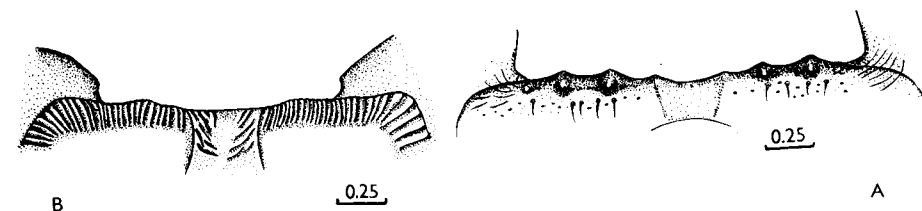


Fig. 7: A - *Purpuricenus desfontainei*, ventral cranial sclerite. B - *P. kaehlerii*, ditto.

P. kaehlerii (L., 1758)

Main distinguishing characters in the key.

Antennal ring closed. Pigmentation of gena behind stemmata about as wide as, or somewhat wider than diameter of antennal foramen. Dorsal and ventral stemmata indistinct. 2nd antennal segment about 1.5 times longer than wide. 3rd antennal segment more than twice longer than wide, about as long as width of 2nd segment. Hypostoma about 6.7 times wider than length of gula. Gula subquadrate, darker

Type species: *Cerambyx halodendri* PALLAS, 1776

Body slender, with long and dense setae, with rather long terminal (8th and 9th) abdominal segments.

Head similar to that of *Purpuricenus*, but front margin of frons almost straight, without emargination behind labrum.

Antennal ring closed. Antennae not very long. 2nd segment slightly longer than wide, almost quadrate, bearing some short setae and very small but distinct main sensillum. 3rd segment about 3 times longer than wide.

One pair of large stemmata present. Corneae convex, contiguous to antennal foramen. Pigmented spots indistinct. Dorsal and ventral stemmata absent.

Pigmentation of gena behind stemmata about as wide as diameter of antennal foramen. Gena slightly protuberant, rugose, bearing long setae. Subfossal process absent.

Ventral sclerite (11) glabrous. Hypostomal lines distinct anteriorly. Front margin of hypostoma brown, bearing from 4 to 12 longitudinal carinae on each side (poorly developed in *A. tuvensis*). Gula subquadrate, from slightly transverse to slightly elongate, as dark as hypostoma. Gular lines raised.

Labrum elongate, with a few short setae.

Mandible with pale basal part bearing numerous very long stout setae (some of them reach apex of mandible, Fig. 8 A).

Labiomaxillary complex attached to ventral sclerite by more than two widths of gula. 1st segment of maxillary palp and palpiger with conspicuous lateral processes. 1st palpal segment transverse, 2nd subquadrate, 3rd elongate. 3rd segment about equal in length to 1st, 2nd slightly shorter. Mala subquadrate, with some short setae apically.

Submentum slightly sclerotized, with 2 setae. Mentum with lateral sclerites inconspicuous; bearing numerous long setae. Praementum with wide medially narrowed basal sclerotization. Labial palps separated by about half width of their 1st segment. 1st segment transverse, 2nd elongate, longer than 1st. Ligula very short and narrow, not longer than 1st palpal segment.

Basal area of pronotum longitudinally rugose, with distinct median line, shining. Anterior area of pronotum, alar lobes and lateropraesternum with bright orange blotches. Setae of pronotum with distinct basal rings. Anterior part of pronotum (Fig. 8 C) with a row of very long stout setae (absent in *A. tuvensis*). Epipleurum almost entirely delimited dorsally.

Thorax and abdomen similar to those of *Purpuricenus*, but ampullae more strongly raised. Mesothorax dorsally divided by "Λ"-shaped groove. Metathorax dorsally and both pterothoracic segments ventrally divided by transverse grooves. Each abdominal ampulla with only one transverse furrow and two lateral longitudinal

than basal part of hypostoma, with pale median line. Labrum subquadrate, about as long as wide. 1st segment of maxillary palps transverse, 2nd segment subquadrate, 3rd elongate. 2nd segment shorter than 1st and about equal in length to 3rd. Submentum feebly sclerotized. Mentum with lateral sclerites moderately distinct. Praementum with wide basal sclerotization narrowed medially. Labial palps separated by about half width of their 1st segment. Both segments elongate, 2nd segment longer than 1st. Ligula very short and narrow.

Basal part of pronotum coarsely longitudinally striate. Basal rings of pronotal setae very distinct. Lateropraesternum with 2 bright orange spots. Epipleurum pale testaceous. Legs with feebly sclerotized trochanters. Each dorsal abdominal ampulla with one transverse furrow. Cuticle near the furrow microreticulate. Thoracic spiracle less than twice longer than wide. 1st abdominal spiracle about 1,5 times shorter than thoracic one. Body length up to 32 mm, width up to 6 mm.

Habits: Polyphagous on deciduous trees, preferring ± thin dead branches. Life cycle about 2 or 3 years. Larvae overwinter. Pupation from May to June. Imago from May to August.

Distribution: Europe, Caucasus, Transcaucasia, Turkey, North Iran.

Material: 14. 5. 1980, SU, Talysh, Avrora, 2/I, *Paliurus spina-christi*, lgt. D, coll. IS; 25. 8. 1976, Bulgaria, Ropotamo, 1/I, in *Ulmus*, lgt. and coll. S; 20. 8. 1976, Bulgaria, Ropotamo, 1/I, in *Paliurus spina-christi*, lgt. and coll. S.

P. budensis (GÖTZ, 1783).

Larvae rather similar to those of *P. kaehleri*. Preliminary distinguishing characters in the key. Body length of available larva 16 mm.

Habits: Polyphagous on deciduous trees. Bionomics similar to those of *P. kaehleri*.

Distribution: Europe, Caucasus, Transcaucasia, Near East, Turkey, North Iran, (?) North Africa.

Material: 8. 7. 1981, CS, Slovakia, Kamenin, 1/—, in *Prunus*, lgt. and coll. S.

P. barbarus LUCAS, 1849

Larvae very similar to those of *P. kaehleri*. Distinguishing characters in the key. Body length up to 30 mm, width up to 5 mm (but only one full-grown larva available).

Habits: Apparently similar to those of *P. kaehleri*; polyphagous on deciduous trees, as known host plants are *Quercus ilex* and *Pistacia lentiscus*.

Distribution: North Africa (Algeria, Morocco, Tunisia).

Material: 28. 5. 1985, Morocco, Haut Atlas, Tizi n'Test, 4/I, in *Quercus ilex*, lgt. G. Sama, coll. G. Sama and S.

furrows, with deep median impression. Cuticle near furrows microreticulate. Legs well developed. Trochanter feebly sclerotized, with two setae. Praetarsus almost without sclerotization. Pleural discs diffuse. Thoracic spiracle broadly oval, about 1.5 times longer than wide, 1st abdominal spiracle about 1.5 times shorter than thoracic one. Body length up to 23 mm, width up to 4 mm.

About 5 species in East Palaearctics and apparently one in West Europe (HEYROVSKÝ, 1967); larvae of two of them at my disposal.

- 1(2) Pronotum without row of long stout setae on anterior margin (according to CHEREPANOV, 1982) *tuvensis*
 2(1) Pronotum with distinct row of long stout setae along anterior margin (Fig. 8 C).
 3(4) Hypostoma with many small carinae, about 10–12 carinae on each side (Fig. 8 B) . . . *ephippium*
 4(3) Hypostoma with a few strong carinae, from 4 to 6 on each side (Fig. 8 D) . . . *halodendri*

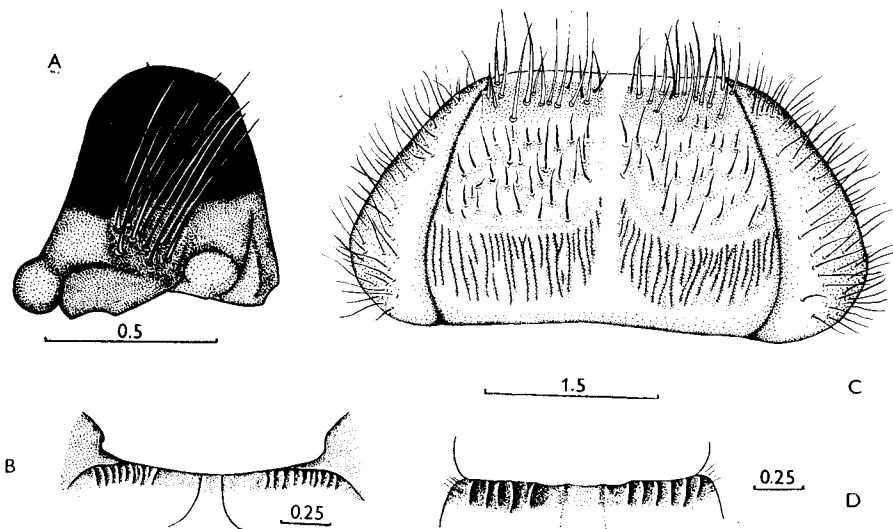


Fig. 8: A – *Asias ephippium*, mandible, outer view. B – *A. ephippium*, ventral cranial sclerite. C – *A. ephippium*, prothorax, dorsal view. D – *A. halodendri*, ventral cranial sclerite.

A. ephippium (STEVEN et DALMAN, 1817)

Distinguishing characters in the key.

Habits: Polyphagous on deciduous trees (*Elaeagnus, Lonicera, Caragana, Ulmus, Salix, Morus, Prunus, Rosa* and others). Larvae in wood of dead thin branches. Life cycle about 2 years. Mature larvae overwinter. Pupation in the end of spring. Adults from May to August.

Distribution: South-East Europe, North-East Caucasus, North Kazakhstan, South of Siberia and apparently East Siberia, Far East, Mongolia.

Material: 6. 1964, SU, Kazakhstan, Dzhanlybek, 2/–, in *Morus*, lgt. G. V. Lindemann, coll. IS.

A. halodendri (PALLAS, 1776)

Distinguishing characters in the key.

Habits: Polyphagous on deciduous trees (*Caragana, Quercus, Salix, Fraxinus, Lespedeza* and others). Bionomics similar to those of *A. ephippium*.

Distribution: Siberia from Far East to Altai and maybe to South Ural, Korea, China, Mongolia.

Material: 26. 5. 1972, SU, Amur region, Pashkovo, 2/–, in *Quercus*, lgt. S. Murzin, coll. IS.

A. tuvensis CHEREPANOV, 1978

Distinguishing characters in the key.

Habits: According to CHEREPANOV (1982), larvae in thin stems of *Nanophyton erinaceum*. Life cycle about 3 years. Adults in July.

Distribution: Tuva.

No material available.

Genus *Amarysius* FAIRMAIRE, 1888

Type species: *A. dilatatus* FAIRMAIRE, 1888 = *Anoplistes sanguinipennis* BLESSIG, 1872

Body robust, with numerous (*A. altaiensis*) or very numerous (*A. sanguinipennis*) more (*A. s.*) or less (*A. a.*) stout setae which may be very dense (*A. s.*) caudally.

Head white, but may be yellow at middle of frons. Mouthframe brown or nearly black. Cranium transverse (1.3 - *A. s.*, or 1.5 - *A. a.*), slightly emarginate posteriorly (*A. s.*) or nearly straight (*A. a.*), with sides rounded at middle (*A. s.*) or behind middle (*A. a.*). Medial frontal line posteriorly distinct. Frontal lines indistinct. Frons smooth, with a row of main praefrontal setae (2, 3, 1), praefrontal setae may be very long and numerous (at least in mature larvae of *A. s.*). Front margin of frons almost straight (*A. a.*) or slightly emarginate behind labrum (*A. s.*), pigmented back to the row of praefrontal setae.

Antennal ring closed, its upper boundary not projecting over antennal membrane. Antennae short, 2nd segment subquadrate (*A. s.*) or slightly elongate (*A. a.*). Main sensillum small but distinct. 3rd segment elongate, nearly as long as 2nd segment (*A. s.*) or about 1.5 times shorter (*A. a.*). Both segments bearing some short setae.

Dorsal and ventral stemmata absent. One pair of main stemmata present, corneae large (*A. a.*) or small (*A. s.*), convex, pigmented spots indistinct.

Pleurostoma smooth, gena finely rugose, with numerous long (*A. s.*) or short (*A. a.*) setae; pigmentation behind stemmata as wide as diameter of antennal ring. Poststemmatal protuberance absent. Subfossal process present.

Hypostomal lines anteriorly distinct, converging posteriorly. Ventral sclerite (8 - *A. s.*, or 11 - *A. a.*) with anterior margin almost straight, widely pigmented,

bearing a row of strong longitudinal carinae (or longitudinally striated), with some short setae. Gula transverse, darker than hypostoma (*A. s.*), or subquadrate and pale (*A. a.*). Gular lines raised.

Labrum subcircular, about as long as broad (*A. a.*), or slightly longer than broad (*A. s.*), bearing numerous short setae, with fine basal sclerotization.

Mandibles with pale basal part, bearing a few more (*A. a.*) or less (*A. s.*) short setae.

Labiomaxillary complex attached to ventral sclerite by about 2 or 3 widths of gula. Lateral process of maxillary palpiger indistinct. 1st palpal segment transverse, 2nd subquadrate, 3rd elongate. 2nd segment about equal in length to 3rd and slightly shorter than 1st. Mala elongate, rounded apically, bearing some short setae.

Submentum without sclerotization, bearing two setae. Mentum with two lateral sclerites, bearing a few long setae (*A. s.*), or without lateral sclerites and bearing numerous shorter setae; praementum with wide basal sclerotization not interrupted medially. Labial palps separated by less than one width of their 1st segment. Both palpal segments about equal in length. 1st segment subquadrate, 2nd elongate. Ligula very small and narrow, slightly longer than 1st segment of labial palps.

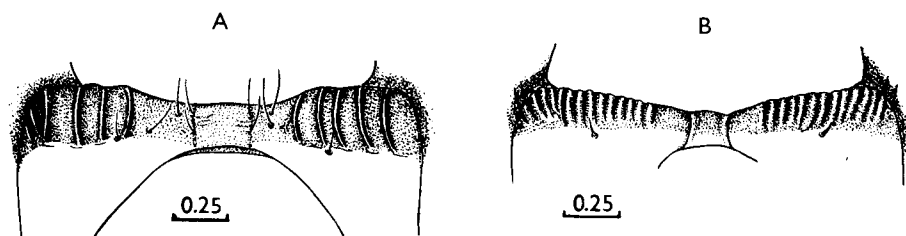


Fig. 9: A – *Amarysius sanguinipennis*, ventral cranial sclerite. B – *A. altajensis*, dtdo.

Hind area of pronotum strongly longitudinally striate, with deep median line. Anterior area of pronotum, alar lobes and lateropraesternum with bright orange spots, covered with very long (*A. s.*) or shorter (*A. a.*) setae. Basal rings of setae very distinct, especially in *A. sanguinipennis*. Epipleurum fused with lateropraesternum anteriorly. Border line of mediopraesternum indistinct. Coxosternum not fused with sternellar fold. Episternum fused with lateropraesternum. Epimeron distinctly delimited ventrally and dorsally.

Meso-, metathorax and abdomen similar to those of *Purpuricenus*. Cuticle along dorsal and ventral furrows microreticulate. Trochanter slightly sclerotized, bearing some setae. Each dorsal abdominal ampulla with one transverse furrow but hind ampullae may have two transverse furrows. Thoracic spiracle about 1.5 times longer than wide. 1st abdominal spiracle about 1.5 times shorter than thoracic spiracle.

Four species in the genus (in East Palaearctics), larvae of two of them at my disposal.

- 1(2) Anterior margin of hypostoma with about 8 very strong longitudinal carinae (Fig. 9 A); body length up to 25 mm, width up to 4.5 mm *sanguinipennis*
- 2(1) Anterior margin of hypostoma with about 20 small longitudinal carinae, or finely longitudinally striate.
- 3(4) Anterior margin of hypostoma with distinct longitudinal carinae (Fig. 9 B); body length up to 18 mm, width up to 4 mm *altajensis*
- 4(3) Anterior margin of hypostoma finely longitudinally striate (according to CHEREPANOV, 1982); body length up to 20 mm, width up to 3 mm *duplicatus*

A. sanguinipennis (BLESSIG, 1872)

Distinguishing characters in the key and in the generic description.

Habits: Larvae in wood of thin branches of *Quercus*, *Acer*, *Betula*, *Lespedeza*, *Corylus* (CHEREKANOV, 1982) and apparently other deciduous trees. Life cycle about 2 years. Mature larvae overwinter. Pupation from May to June. Imago from June to August.

Distribution: East and South Siberia (Altai), Mongolia (?), North China, Korea, Japan. Material: 22. 11. 1973, Japan, 5/?, coll. S. Nakamura.

A. altajensis (LAXMANN, 1770)

Distinguishing characters in the generic description and in the key.

Habits: Polyphagous on deciduous trees (*Acer*, *Lespedeza*, *Crataegus*, *Quercus*, *Juglans*, *Fraxinus*, *Corylus*, *Maackia*, *Salix*, *Rosa*, *Padus*, *Hippophae*, *Armeniaca*, *Tilia* and others). Larvae in wood of thin branches. Mature larvae overwinter. Pupation from May to June. Imago from May to August. Life cycle about 3 years (CHEREKANOV, 1982).

Distribution: Siberia from Altai to Far East, Mongolia, North China, Korea. Material: SU, Ussuri region, Sokolchi, 4/–, in *Juglans*, lgt. S. Murzin, coll. IS.

A. duplicatus CHEREKANOV, 1980

Distinguishing characters in the key (according to CHEREKANOV, 1982).

Habits: Larvae in stems of *Spiraea*. Mature larvae overwinter. Pupation from May to June. Imago from June to July. Life cycle about 3 years.

Distribution: Altai, Tuva. No material available.

GENUS *Aromia* SERVILLE, 1833

Type species: *Cerambyx moschatus* L., 1758

Body (Figs 10 AB) with very short and very dense setae. Mature larvae without asperities. Half-grown larvae with some lateral parts of body covered with microasperities.

Head yellow, with strongly pigmented black mouthframe. Cranium transverse (1.4), with sides diverging posteriorly, widest near hind margin which is procurved. Frontal lines slightly visible anteriorly. Frons smooth, slightly darker than epicranial halves. Front margin of frons nearly straight, pigmented, as wide as length of labrum, bearing many short praefrontal setae (2, +, +) and many small setae behind them. Black pigmentation of frons delimited laterally by frontal lines. Medial frontal line very distinct along whole length.

Antennal ring widely opened, its upper boundary not projecting over antennal membrane. Antennae short. 2nd segment slightly longer than wide, bearing some short setae and very small main sensillum. 3rd segment elongate, more than twice shorter than 2nd, with a long seta.

Dorsal and ventral stemmata indistinct. One pair of main stemmata present. Corneae convex, pigmented spots distinct.

Pigmentation of gena behind stemmata about as wide as diameter of stemma, or sometimes gena without pigmentation behind stemmata (in half-grown larvae always so). Pleurostoma rugose, gena very finely rugose, with some short setae. Subfossal process and poststemmatal protuberance absent.

Hypostomal lines distinct in anterior two-thirds, almost parallel. Ventral sclerite (6.5) smooth, with some short setae. Its anterior margin narrowly pigmented, nearly straight. Gular lines raised. Gula slightly elongate, pale, its anterior margin without pigmentation.

Labrum subcircular, about as long as broad, with dense short setae along anterior and lateral margins, without discal setae, with distinct basal sclerotization.

Mandibles entirely black, bearing a few small setae.

Labiomaxillary complex attached to ventral sclerite by slightly more than width of gula. Cardo with many small setae. Mala about as long as broad, rounded apically, bearing many dense short setae. Palpiger with small lateral process. 1st segment of palp without lateral process, strongly transverse. 2nd and 3rd segments elongate. 3rd segment shorter than 2nd, 2nd shorter than 1st.

Submentum slightly sclerotized, with two long and some short setae. Mentum with two lateral sclerites and some short setae. Praementum with wide basal sclerotization. Labial palps separated by about one width of 1st segment. 1st segment subquadrate, 2nd segment elongate, shorter than 1st. Ligula very short and narrow.

Posterior area of pronotum shining, irregularly finely striate. Anterior part of pronotum and alar lobes with bright orange spots, bearing setae with small basal rings. Lateropraesternum without pigmentation. Epipleurum ventrally delimited only near hind margin, anteriorly fused with lateropraesternum. Episternum fused with lateropraesternum. Epimeron fused with sternellar fold. Border line of medio-praesternum indistinct.

Meso- and metanotum shining, divided by "X"-shaped grooves. Scutum-I indistinct on both segments. Parascutum, alar lobes, three parts of epipleurum, pleurum and coxal lobes very distinct on both segments. Sterna of meso- and metathorax divided

by transverse furrows, shining. Spiracle more than twice longer than wide. Marginal chambers absent.

Legs well developed. Trochanter feebly sclerotized but bears numerous setae. Praetarsus sclerotized apically.

Abdomen with ampullae moderately raised. Dorsal ampullae with 2 transverse furrows, ventral ones with one (but may be also with two in half-grown larvae); all ampullae slightly irregularly rugose, with shallow medial impressions. Border line between parascutum and spiracular area distinct. Spiracular area divided by an oblique groove. Pleural discs large and very distinct from 1st to 5th abdominal segments. Coxal lobes distinct. 1st abdominal spiracle more than twice longer than wide. Marginal chambers indistinct. Body length up to 45 mm, width up to 9 mm.

It seems that normally the final larval form rather differs from the preceding instars (which were described above and named as form "a" by DUFFY, 1949). This form (named as form "b" by DUFFY) rather shorter, cylindrical (Fig. 10B), with very pale cuticle, bearing fine sparse setae. Head and prothorax almost without pigmentation. Narrow pigmentation present around mouthframe and broadened

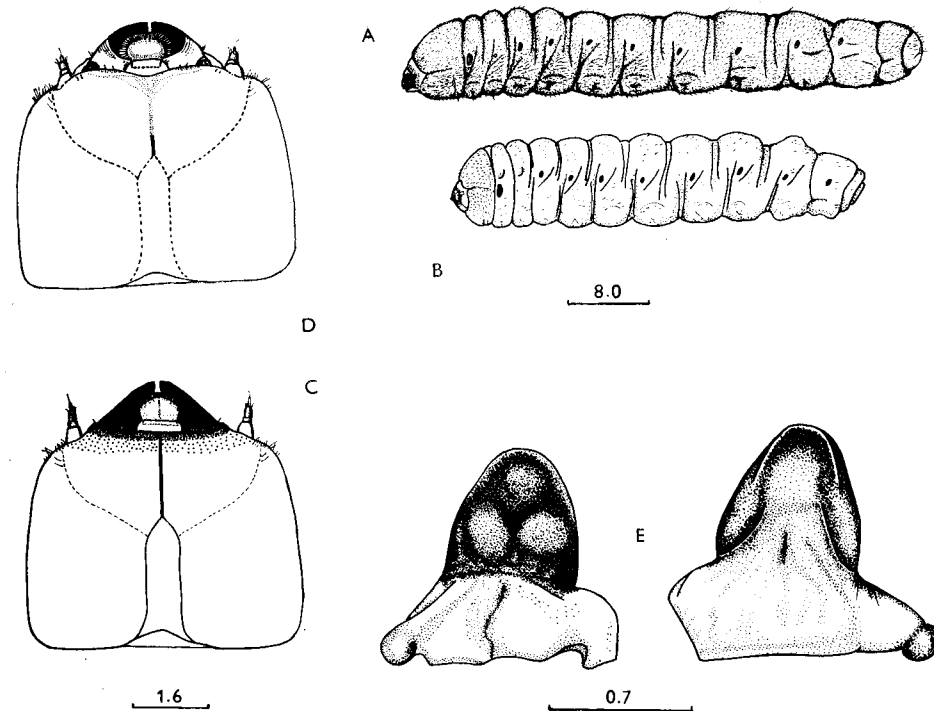


Fig. 10: A - *Aromia moschata*, body, form "a", lateral view. B - *A. moschata*, body, form "b", lateral view. C - *A. moschata*, head, form "a", dorsal view (DUFFY, 1953). D - *A. moschata*, head, form "b", dorsal view (DUFFY, 1953). E - *A. moschata*, mandible, form "b", outer (left) and inner (right) views.

near mandibular articulations. Cranium (Fig. 10 D) strongly transverse. Epistomal margin of frons rugose. Antennae shorter, with 1st and 2nd segments strongly transverse. Mandible with pale basal part, strongly tapering apically, with deep transverse impression (Fig. 10 E). Segments of palps relatively shorter. Alar lobes of meta- and mesothorax may have sclerotized callosities. Legs shorter, with strongly transverse segments. Abdomen with pleural discs slightly distinct on segments 1–3. This prepupal instar apparently unable to feed.

About 6 species in Palaearctics, larvae of 2 of them at my disposal (both forms of *A. moschata* and form "b" of *A. pruinosa*).

- 1(2) Cranium of form "b" strongly transverse (1.5); front margin of frons and gena finely rugose; pigmented spots of stemmata distinct, medial frontal line distinct; pronotum finely striate, thoracic spiracle narrow, about 2.5 times longer than wide; furrows of abdominal ampullae shallow; body length up to 35 mm, width up to 10 mm *moschata*
- 2(1) Cranium of form "b" less transverse (1.4), front margin of frons and gena coarsely rugose; pigmented spots of stemmata indistinct; medial frontal line indistinct (pale); pronotum coarsely striate; thoracic spiracle wider, about twice longer than wide; furrows of abdominal ampullae deep; body length up to 30 mm, width up to 8 mm *pruinosa*

A. moschata (L., 1758)

Distinguishing characters in the key.

Habits: Larvae in living wood of *Salix*, sometimes *Populus*, and very rarely in other trees (as, for example, *Acer*). Mature larvae overwinter. Pupation from April to June. Imago from June to September. Life cycle at least 3 years.

Distribution: Palaearctic Region from Europe and North Africa to Japan, Mongolia, Korea, North China.

Material: 1. 8. 1970, SU, Krasnodar region, Ubinskaya, 3/–, in *Salix*, lgt. B. M. Mamaev, coll. IS; 23. 7. 1982, SU, Talysh, Avrora, 6/I, in *Salix*, lgt. D, coll. IS; 7. 1980, SU, Talysh, Avrora, 12/–, in *Salix*, lgt. D, coll. IS; 5. 3. 1977, CS, Praha, 6/–, in *Salix*, lgt. and coll. S.

A. pruinosa REITTER, 1903

Distinguishing characters in the key.

Habits: Larvae in living wood of *Salix*. Adults from July to August.

Distribution: Kazakhstan, Chinese Dzhungaria.

Material: 27. 9. 1976, SU, Kazakhstan, Chilik, 3/I, in *Salix*, lgt. B. M. Mamaev, coll. IS.

Genus *Chloridolum* J. THOMSON, 1864

Type species: *Callichroma bivittata* WHITE, 1853

Rather similar to larvae of *Aromia*, but differ as follows:

Form "a": Body setae rather longer. Head slightly sclerotized. 1st and 2nd antennal segments bearing numerous setae. 2nd antennal segment elongate. Setae of

labiomaxillary complex more numerous. 1st segment of maxillary palp with small lateral process. Posterior area of pronotum coarsely striate. Sterna and terga of meso- and metathorax and abdominal ampullae with regular network of striae, microreticulate and macroreticulate (dull), half-grown larvae with ampullae finely asperate. Pleural discs small but distinct on segments 1 to 4. Thoracic spiracle about 2.2 times longer than wide, and about 1.7 times longer than 1st abdominal spiracle. Body length up to 42 mm, width up to 8 mm.

Form "b": Cranium and labiomaxillary complex entirely without pigmentation. Abdominal ampullae shining but coarsely rugose. Body length 27 mm, width 7 mm.

About 3 species in East Palaearctics, larvae of one of them at my disposal.

Ch. sieversi (GANGLBAUER, 1886)

Habits: Larvae in wood of stems and thick branches of *Juglans manshurica*. Pupation from July to August. Adults from July to September. Life cycle about 2 years.

Distribution: Ussuri region of USSR; Korea, North-East China.

Material: 14. 10. 1964, SU, Ussuri region, Kedrovaya Pad', 3/–, in dead wood of *J. manshurica*, lgt. B. M. Mamaev, coll. IS; 4. 9. 1974, SU, Kedrovaya Pad', 3/–, in dead wood of *J. manshurica*, lgt. D, coll. IS.

Genus *Leontium* J. THOMSON, 1864

Type species: *L. viride* J. THOMSON, 1864

Two forms of larvae also present, "a" and "b", as in *Aromia*, but only larvae of form "a" available.

Very similar to half-grown larvae of *Aromia*.

Body with short, dense setae, without microasperities.

Head rather pale, with more slender setae. Cranium transverse (1.4). Sclerotization of mouthframe narrow, testaceous. Frontal lines indistinct, medial frontal line distinct. Front margin of frons straight (or slightly emarginate behind labrum), smooth, with a row of praefrontal setae (2, 3, +) and some scattered setae behind them.

Antennae long. 2nd segment elongate, bearing some stout setae. Main sensillum small but distinct. 3rd segment elongate, about as long as width of 2nd segment, with apical setae.

Dorsal and ventral stemmata absent. 1 pair of large main stemmata present. Corneae convex, pigmented spots distinct.

Gena behind and around stemmata without pigmentation, bearing dense stout setae, smooth. Pleurostoma smooth.

Gula pale, transverse. Ventral sclerite (10.7) with rather inconspicuous setae.

Labrum subcircular, about as long as broad, with pale basal sclerotization and long dense slender setae along its periphery.

Mandible black, with dark brown basal part bearing few short setae.

Labiomaxillary complex as in *Aromia*, but 1st segment of maxillary palp and palpiger with long lateral processes.

Submentum with two setae. Segments of labial palps elongate, about equal in length. Ligula very short and narrow, about as long as (or shorter than) 1st segment of labial palp.

Pigmentation of pronotum yellow. Basal rings of setae indistinct. Posterior area of pronotum shining, coarsely striate.

Trochanter without pigmentation, with some setae.

Terga and sterna of meso- and metathorax with almost obliterated network of striae and distinctly microreticulate, as well as abdominal ampullae. Pleural discs very large and distinct on abdominal segments 1–6. Body length of available larvae up to 25 mm, width up to 4 mm, but larvae may be undoubtedly rather longer.

Two exuviae of larval form "b" available. Head entirely without pigmentation; mandible strongly constricted medially, with pale yellow basal part.

Several species in South-East Asia, one species in East Palaearctics, larvae of which at my disposal.

L. viride J. THOMSON, 1864

Habits: Very polyphagous in Japan, as known host plants are: *Abies*, *Pinus*, *Quercus*, *Castanea*, *Cornus*. But in Sakhalin and Kurile Islands it seems to be oligophagous, feeding only in coniferous trees: *Picea*, *Abies*, *Larix*. Larvae in dead (but fresh) branches, often in lower dead branches of living trees. Mature larvae overwinter. Pupation from May to June. Life cycle about 2 years.

Distribution: South Sakhalin, South Kurile Islands, Korea, North China, Japan.

Material: 6. 5. 1961, Japan, 1/?, in dead wood of *Quercus*, coll. S. Nakamura; 29. 5. 1985, Sakhalin, Nevelsk, 4/I, *Abies*, lgt. D, coll. IS; 10. 6. 1985, SU, Sakhalin, Kuznetsovo, 2/I, *Larix*, lgt. D, coll. IS.

Genus *Phoracantha* NEWMAN, 1840

Type species: *Ph. synonyma* NEWMAN, 1840

Body with dense short setae, intersegmental skin of mature larvae covered with microasperities.

Head white or pale yellow, with strongly pigmented dark brown mouthframe. Frontal lines and medial frontal line indistinct. Frons nearly smooth. Front margin of frons slightly procurved, pigmented back to row of praefrontal setae (2, 2, 1), finely transversely striate.

Antennal ring closed, not projecting over antennal membrane. Antennae long. All segments elongate, each bearing some short setae. Main sensillum small but distinct. 3rd segment about as long as width of 2nd. 2nd segment 1.3 times longer than wide.

Dorsal and ventral stemmata absent. One pair of main stemmata present. Corneae small but convex, pigmented spots indistinct.

Very large strongly pigmented poststemmatal protuberance present, with some deep transverse furrows (Fig. 6 C). Pleurostoma coarsely rugose. Subfossal process absent.

Hypostomal lines distinct anteriorly. Ventral sclerite (8.5) finely transversely striate, with a few very small setae, with narrowly pigmented slightly procurved anterior margin. Gula pale, transverse, its anterior margin pigmented, as dark as anterior margin of hypostoma.

Labrum subcircular, about as long as broad, covered with short dense setae, with pale basal sclerotization.

Mandibles black, with brown smooth basal part, bearing very small setae.

Labiomaxillary complex attached to ventral sclerite by about 2 widths of gula. Cardo glabrous (with only one lateral seta). Mala elongate, broadened anteriorly, with sparse setae along straight front margin. Palpiger and 1st segment of maxillary palps with large lateral processes. 1st segment about as long as broad. 2nd and 3rd segments elongate. 3rd segment shorter than 2nd, 2nd shorter than 1st.

Submentum without sclerotization, bearing two setae. Mentum with distinct lateral sclerites. Praementum with wide basal sclerotization. Labial palps separated by about one width of 1st segment. Praementum and 1st segment of labial palp with large, very distinct lateral process (Fig. 6D; a unique character!). Both palpal segments elongate, 2nd segment about 1.5 times shorter than 1st. Ligula very small and narrow.

Posterior area of pronotum shining, finely but very regularly striate. Anterior part of pronotum and alar lobes very pale, almost without pigmentation. Basal rings of setae indistinct. Epipleurum delimited ventrally only near hind margin. Episternum fused with lateropraesternum. Epimeron distinctly delimited dorsally. Coxosternum fused with epimeron and with sternellar fold.

Terga of meso- and metathorax microreticulate. Parascutum, alar lobes, epipleurum and pleurum distinct on both segments. Sterna of meso- and metathorax with very fine network of striae. Spiracle about twice longer than wide.

Legs small. Coxal lobes poorly defined. Femur, tibiotarsus and trochanter very distinct and sclerotized. Trochanter with 2 setae.

Abdominal ampullae strongly raised. Dorsal ampullae with two transverse furrows, but hind furrow incomplete, ventral ampullae with one. Cuticle of ampullae with very fine regular network of striae. Border line between parascutum and spiracular area absent. Spiracular area divided by an oblique groove. Pleural discs large, very distinct on abdominal segments 2–5. Pleural discs of 1st abdominal segment small. Epipleurum distinctly delimited ventrally. 1st abdominal spiracle about twice longer than wide and about twice shorter than thoracic spiracle. Marginal chambers absent. Body length up to 32 mm, width up to 10.5 mm.

An Australian genus, but some species introduced in other continents; larvae of one of them at my disposal.

P. semipunctata (F., 1775)

Habits: Monophagous on *Eucalyptus*. According to DUFFY (1968), larvae feed for about 4 to 6 months subcortically. Pupation in wood. (Under optimum conditions it is possible for three generations of this species to be reared in one year.) Oviposition takes place on dead or sickly trees.

Distribution: Species of Australian origin, but now introduced in North, East and South Africa, South America, Near East (Cyprus, Palestine, Israel, Turkey) and South Europe.

Material: 6. 1982, Tunisia, Hafous, 2/I, in *Eucalyptus*, lgt. and coll. M. Slâma.

Genus *Hybometopia* GANGLBAUER, 1889

Type species: *H. starki* GANGLBAUER, 1889

Body without microasperities, with sparse long setae.

Head pale yellow, almost white, with strongly but narrowly pigmented mouthframe. Cranium strongly transverse (1.5), with sides diverging posteriorly, broadest near hind margin which is shallowly emarginate (Fig. 11 A). Frontal lines indistinct. Medial frontal line distinct (or indistinct). Frons smooth, with a row of praefrontal setae (2, 2, 1). Anterior margin of frons pigmented back to the row, smooth, with deep wide emargination.

Antennal ring opened. Its upper boundary not projecting over antennal membrane. Antennae (Fig. 11 D) long, 3-segmented. 2nd segment about as long as broad. 3rd segment elongate but short, about 1.5 times shorter than width of 2nd segment. Main sensillum large and distinct. 2nd and 3rd segments bear some short setae.

Dorsal and ventral stemmata absent, 3 pairs of main stemmata present. Corneae large, convex, pigmented spots intensively black, but sometimes only two pairs of pigmented spots distinct.

Gena very finely rugose, without pigmentation behind stemmata, or very narrowly pigmented, bearing sparse setae. Pleurostoma smooth, rather weakly pigmented. Subfossal process absent.

Hypostomal lines distinct nearly along their whole length. Ventral sclerite (9) smooth, glabrous, almost straight anteriorly. Narrow pigmentation of front margin interrupted by white transverse gula.

Labrum transverse, about 1.5 times wider than long, bearing long peripheral setae, with narrow basal sclerotization. Asperate areas of epipharynx approached (Fig. 11 F).

Mandibles black, with brown basal part, bearing some short setae.

Labiomaxillary complex attached to ventral sclerite by about two widths of gula. Mala slightly longer than wide, with almost straight front margin, bearing sparse short setae. Palpiger and 1st segment of maxillary palp bearing conspicuous processes, 3rd segment about as long as 1st, 2nd segment slightly shorter than 1st. 1st and 2nd segments transverse, 3rd elongate.

Submentum and mentum without pigmentation. Submentum with two setae. Praementum with two lateral sclerites. Labial palps separated by less than half width of 1st segment. Both segments of labial palps elongate. 1st shorter than 2nd. Ligula very short and narrow, almost lacking.

Prothorax with pale yellow pigmentation on alar lobes and anterior area of pronotum. Posterior area of pronotum regularly finely striate. Basal rings of setae indistinct. Epipleurum delimited ventrally only near hind margin. Episternum fused with lateropraesternum. Border line of mediopraesternum indistinct. Epimeron delimited ventrally and dorsally. Coxosternum not fused with sternellar fold.

Meso- and metathorax dorsally divided by "X"-shaped grooves, microreticulate, ventrally divided by transverse grooves, irregularly rugose. Alar lobes, pleural and coxal lobes distinctly delimited on both segments. Spiracle about 1.5 times longer than wide. Marginal chambers hardly visible.

Legs short but distinct. Trochanter indistinct. Femur and tibiotarsus pigmented. Femur with two setae.

Abdominal ampullae moderately raised, each ampulla with one transverse and 2 longitudinal furrows and a deep medial impression, finely rugose or microreticulate, without tubercles. Pleural discs diffuse. Coxal lobes not defined. 1st abdominal spiracle about 1.5 times shorter than thoracic one and 1.5 times longer than wide. Body length up to 16 mm, width up to 2.5 mm.

One species in the genus.

H. starki GANGLBAUER, 1889

Habits: Polyphagous on deciduous trees (*Juglans*, *Corylus*, *Carpinus*, *Castanea* and apparently others). Larvae in dead wood of thick branches and stems. Pupation in August; adults hatch in autumn and overwinter in pupal cells. Emergence from February to March. Life cycle about 2 years.

Distribution: West Caucasus and West Transcaucasia, Turkey.

Material: 8. 1971, SU, Krasnaya Polyana, 1/I, in *Castanea*, lgt. B. M. Mamaev, coll. IS; 13.3. 1980, SU, Dzhubga, +/I, in *Corylus*, lgt. A. I. Miroshnikov, coll. IS; 4. 4. 1981, SU, Gruzia, Kintrish, 3/I, in *Castanea*, lgt. D, coll. IS.

Genus *Axinopalpis* DEJEAN, 1835

Type species: *Obrium gracilis* KRYNICKI, 1832

Very similar to larvae of *Hybometopia*, differs as follows: Cranium (Fig. 11 B) less transverse (1.3); 2nd antennal segment (Fig. 11 E) elongate. Asperate areas of epipharynx widely separated by more than 1/3 of their width (Fig. 11 G). Labrum more transverse. Praementum with wide basal sclerotization. Trochanter more or less distinct but without setae. Abdominal ampullae slightly tuberculate. Body length up to 13 mm, width up to 2 mm.

One species in the genus.

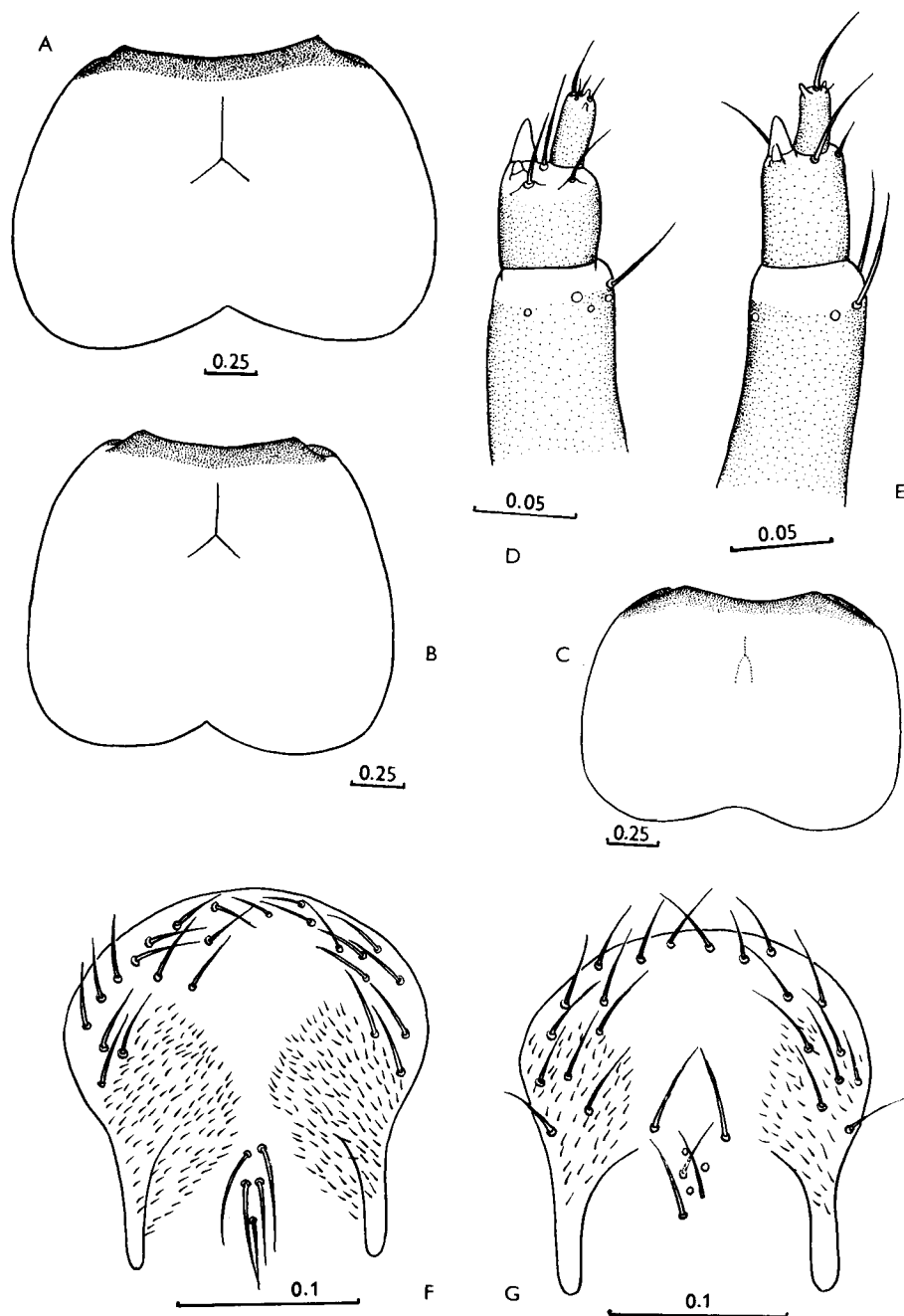


Fig. 11: A — *Hybometopia starki*, cranium, dorsal view. B — *Axinopalpis gracilis*, dtto. C — *Stenigrinum quadrinotatum*, dtto. D — *Hybometopia starki*, antenna. E — *Axinopalpis gracilis*, dtto. F — *Hybometopia starki*, epipharynx. G — *Axinopalpis gracilis*, dtto.

A. gracilis (KRYNICKI, 1832)

Habits: Polyphagous on deciduous trees (*Quercus*, *Juglans*, *Castanea*, *Prunus*, *Rosa*, *Rubus*, *Amygdalus* and others). Larvae in dead twigs. Life cycle about 2 years. Adults from April to June.

Distribution: West Caucasus, South of European part of USSR, West Europe, Near East.

Material: 5. 1978, Hungaria, Mecsek, 2/1, in *Castanea* and *Rubus*, lgt. and coll. S; 5. 1981, Hungaria, Balatonfüred, 1/1 (ex ovo), from *Amygdalus*, lgt. J. Hála, coll. S; 1984, CS, Moravia m., Perná, 1/1 (ex ovo), *Juglans*, lgt. M. Nikodým, coll. S.

Genus *Stenigrinum* BATES, 1873

Type species: *S. quadrinotatum* BATES, 1873

Larvae almost indistinguishable from *Axinopalpis*, but cranium with sides less strongly diverging posteriorly (Fig. 11 C), antennae seem to be shorter, with transverse 2nd segment; gena with very narrow yellow band behind stemmata. Body length of available larvae up to 9.5, width up to 2.6 mm.

One species in the genus.

S. quadrinotatum BATES, 1873

Habits: Larvae feed in wood of dead dry branches of young trees of *Quercus*. Pupation in autumn, adults hatch in October (some perhaps in the next spring) and overwinter in pupal cells. Emergence in spring.

Distribution: South of Ussuri Region, Japan, China, Korea, South-East Asia.

Material: 15. 8. 1985, SU, Ussuri Region, Khasan, 2/—, and 1 exuvia, in *Quercus*, lgt. D, coll. IS.

Genus *Penichroa* STEPHENS, 1839

Type species: *Callidium fasciatum* STEPHENS, 1831

Body robust, with long sparse setae, without microasperities.

Head white, with feebly sclerotized mouthframe. Cranium transverse (1.3), with sides slightly diverging posteriorly, rounded behind middle, hind margin slightly emarginate. Frontal lines and medial frontal line indistinct. Frons smooth, with a row of praefrontal setae (2, 2, 1), anterior margin slightly procurved, very narrowly sclerotized.

Antennal ring widely opened. Its upper boundary not projecting over antennal membrane. Antennae long, 2nd and 3rd segments elongate, bearing very short setae. 2nd segment about twice longer than wide, with distinct main sensillum. 3rd segment shorter than width of 2nd.

Dorsal and ventral stemmata absent. One pair of main stemmata present. Corneae large, convex, pigmented spots greyish.

Gena very finely striated, without pigmentation behind stemmata, bearing sparse short setae. Poststemmatal protuberance absent. Pleurostoma smooth, subfossal process absent.

Hypostomal lines distinct nearly along its whole length, almost parallel or converging posteriorly. Ventral sclerite (8) smooth, with fine short setae, its anterior margin almost straight, very narrowly pigmented. Gula about as long as broad, or slightly elongate, pale, its anterior margin without pigmentation.

Labrum strongly transverse, with sparse peripheral setae, basal sclerotization indistinct.

Mandibles black, with brown basal part; outer face smooth, bearing some short setae.

Labiomaxillary complex attached to ventral sclerite by about 3 widths of gula, relatively small (Fig. 12 A): maxillary palps not visible from above. Mala about as long as broad, with some apical setae. Palpiger and 1st palpal segment with conspicuous processes. 1st and 2nd segments transverse, 3rd elongate. 1st segment longer than 2nd, 3rd longer than 1st.

Submentum and mentum without pigmentation. Submentum with two setae. Basal pigmentation of praementum distinct. 2nd segment of labial palps longer than 1st. Ligula small, almost invisible from below. Labial palps separated by less than one width of 1st segment.

Thorax very similar to that of *Hybometopia*, but posterior part of glabrous plate of pronotum dull, microreticulate, without striae. Anterior part shining, regularly striate. Terga and sterna of meso- and metathorax microreticulate.

Legs very small. Trochanter distinct, with 2 setae and narrow basal pigmentation.

Abdomen similar to that of *Hybometopia*, but transverse furrows of ampullae obliterated. Cuticle of ampullae microreticulate. Pleural discs distinct on abdominal segments 2–3. Body length up to 13 mm, width up to 3 mm.

One species in the genus.

P. fasciata (STEPHENS, 1831)

Habits: Polyphagous on deciduous trees. Larvae in dead, dry wood. Adults from June to August.

Distribution: West Europe, North Africa, Near East, Iran, Crimea, Caucasus, Transcaucasia.

Material: 21. 7. 1972, SU, Talysh, Avrorra, 6/I, in *Ficus carica*, lgt. D, coll. IS; Italy, Sicily, Castelbuono, 1/?, in *Cerantonis siliqua*, lgt. G. Sama, coll. S.

Genus *Gracilia* SERVILLE, 1834

Type species: *Callidium pygmaeum* F. 1792 = *Saperda minuta* F., 1781

Similar to larvae of *Penichroa*, but differs as follows: cranium strongly transverse (1.7), with sides strongly diverging posteriorly, widest near hind margin. 2nd antennal

segment about as long as wide. Pigmented spots of stemmata black, very large and distinct. Gena bearing long dense setae. Hypostomal lines diverging posteriorly. Gula strongly transverse. Labiomaxillary complex of normal size. Maxillary palps visible from above.

Legs very small, but distinct. Trochanter indistinct. Each abdominal ampulla with one transverse furrow. Pleural discs almost indiscernible. Body length up to 9 mm, width up to 1.5 mm.

One species in the genus.

G. minuta (F., 1781)

Habits: Polyphagous on deciduous trees, preferring thin dry twigs. Life cycle about 1 or 2 years. Adults from May to August. Often damaging wickerwork.

Distribution: Almost whole Palaearctic Region, North America.

Material: 17. 5. 1980, SU, Talysh, Avrorra, 6/I, in dry stems of *Rubus*, lgt. D, coll. IS; 30. 9. 1980, CS, Bohemia, Málnice, +/I, in dry *Salix* twigs (basket), lgt. M. Knižek, coll. S.

Genus *Deilus* SERVILLE, 1834

Type species: *Callidium fugax* OLIVIER, 1790

Body slender, with sparse long setae, without microasperities.

Head white, with narrowly pigmented brown mouthframe. Cranium transverse (1.6), with sides strongly diverging posteriorly, widest near hind margin which is shallowly emarginate. Frontal lines indiscernible. Medial frontal line distinct posteriorly. Anterior margin of frons almost straight, widely pigmented back to row of dense long praefrontal setae (2, +, +). Frons smooth.

Antennal ring opened. Antennae short, 2nd segment about as long as wide, with distinct main sensillum. 3rd segment slightly elongate, very short. Both segments bearing short setae.

Dorsal and ventral stemmata absent. 2 pairs of large main stemmata present. Corneae convex, pigmented spots black.

Gena without poststemmatal protuberance, without pigmentation behind stemmata, smooth, bearing many stout setae. Pleurostoma smooth. Subfossal process absent.

Hypostomal lines distinct almost along their whole length, diverging posteriorly. Ventral sclerite (9) smooth, bearing small setae, with almost straight widely pigmented anterior margin. Gula about as long as wide, strongly raised, without pigmentation, but gular lines widely pigmented.

Labrum transverse, semicircular, bearing long sparse setae. Basal pigmentation indistinct.

Mandibles black, with brown basal part bearing some short setae.

Labiomaxillary complex attached to ventral sclerite by about two widths of gula.

Mala about as wide as long, with rounded anterior margin bearing some short setae. 1st segment of maxillary palp and palpiger with conspicuous processes. 1st and 2nd segments transverse, 3rd elongate. 3rd segment longer than 1st, 1st longer than 2nd.

Submentum and mentum without pigmentation. Submentum with 2 or 4 setae. Praementum with narrow basal pigmentation. Labial palps separated by less than width of their 1st segment. 1st segment transverse, 2nd elongate, longer than 1st. Ligula indistinct.

Thorax similar to that of *Hybometopia*, but hind margin of glabrous area of pronotum microreticulate. Basal rings of pronotal setae large, very distinct. Lateral border lines of mediopraesternum distinct. Microreticulation of meso- and meta-thorax obliterated.

Abdomen similar to that of *Hybometopia* but ampullae not raised, each with a deep transverse furrow with small poorly developed shining tubercles. Pleural discs large, very distinct on abdominal segments 2–6. Marginal chambers of spiracles indistinct. Body length up to 13 mm, width up to 2 mm.

One species in the genus.

D. fugax (OLIVIER, 1790)

Habits: Larvae under bark and in dry wood of *Cytisus*, *Sarothamnus*, *Spartium*, *Calicotoma*, *Genista* and apparently other shrubs. Adults hatch from August to September and overwinter in pupal cells. Emergence next spring. Life cycle about 2 years.

Distribution: Europe, North Africa, Turkey.

Material: 12. 1979, CS, Moravia, Znojmo, 6/I, in dry twigs of *Sarothamnus*, lgt. J. Hála, coll. S; 8. 1974, CS, Moravia, Znojmo, 2/I, in *Sarothamnus*, lgt. and coll. M. Sláma.

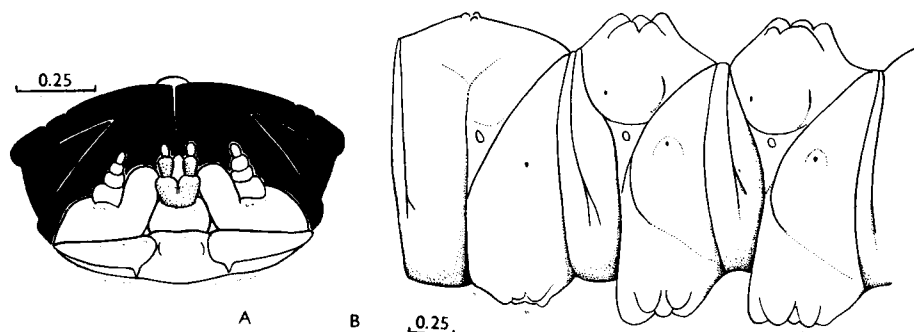


Fig. 12: A – *Penichroa fasciata*, mouthparts, ventral view. B – *Delagrangeus angustissimus*, 4th and 5th abdominal segments, lateral view.

Genus *Delagrangeus* PIC, 1892

Type species: *D. angustissimus* PIC, 1892

Larvae very similar to those of *Deilus*, but ampullae of abdominal segments 4–5 very strongly raised and deeply bilobed, each with large shining tubercles (Fig. 12 B). Ampullae of neighbouring segments not strongly prominent, ampullae of 1st and 7th abdominal segments not raised at all. Pleural discs diffuse. Abdominal spiracles from slightly oval to subcircular. Body length 12 mm, width 2 mm.

One species in the genus.

D. angustissimus PIC, 1892

Habits: Larvae in *Juniperus*.

Distribution: Near East.

Material: Turkey, Namrun, 1/I, in *Juniperus* sp., lgt. P. Schurmann, coll. M. Sláma.

Genus *Certallum* SERVILLE, 1834

Type species: *Callidium ruficolle* F., 1781 = *Cerambyx ebulinus* L., 1767

Body slender, with short sparse setae, with several wide constrictions between strongly raised ambulatory ampullae (as in *Obrium*).

Head white, with broadly pigmented black mouthframe and yellow blotches on posterolateral sides, widely rounded behind middle, with slightly emarginate hind margin. Frontal lines indistinct. Medial frontal line distinct. Frons smooth. Front margin of frons widely pigmented back to row of praefrontal setae (2,2,2), deeply emarginate behind labrum.

Antennal ring closed. Antennae very short. 2nd segment transverse, with conspicuous main sensillum. 3rd segment very small, subquadrate. Both segments bearing short setae.

Dorsal and ventral stemmata absent. One pair of main stemmata present. Cornea large, convex, pigmented spots black.

Gena smooth, with narrow, rarely rather wide, pigmentation behind stemmata, bearing some short setae. Half-grown larvae without pigmentation behind stemmata. Pleurostoma smooth. Subfossal process absent.

Hypostomal lines distinct almost along their whole length, strongly diverging posteriorly. Ventral sclerite (10) coarsely obliquely striate, bearing some short setae. Anterior margin of hypostoma widely pigmented, with two paramedian depressions near gula and two convexities lateral to them. Gular lines raised, brown. Gula about as long as broad (or transverse). Front margin of hypostoma darker than margin of gula.

Labrum semicircular, with some long setae. Basal sclerotization indistinct.

Mandibles black, with dark brown basal part, bearing several short setae.

Labiomaxillary complex attached to ventral sclerite by about 3 widths of gula. Mala about as long as broad, apically rounded, with some short setae. Lateral processes of palpiger and 1st palpal segment indistinct. 1st and 2nd segments transverse, 3rd elongate, 3rd and 1st segments about equal in length, 2nd slightly shorter.

Submentum feebly sclerotized, or without sclerotization, with two setae. Mentum with large lateral sclerites. Praementum with wide basal sclerotization. 1st segment of labial palp subquadrate, 2nd elongate. Both segments about equal in length. Ligula indistinct.

Prothorax with bright yellow spots of pronotum and alar lobes. Basal rings of setae indistinct. Posterior part of pronotum microreticulate and striate. Ventral border line of epipleurum indistinct. Episternum fused with lateropraesternum. Border line of mediopraesternum distinct. Coxosternum fused with neither sternellar fold nor epimeron.

Meso- and metathorax and abdomen similar to those of *Obrium*. However, microreticulation of ambulatory ampullae almost or entirely obliterated, and transverse furrows rather distinct, though often interrupted medially. Spiracles oval, very narrow. Marginal chambers absent. Pleural discs diffuse.

Legs very small but distinct. Only tibiotarsus pigmented. Femur indistinct, with a seta; trochanter absent.

Body length up to 15 mm, width up to 3 mm.

Two species in the genus. Larvae of one of them at my disposal.

C. ebulinum (L., 1767)

Habits: Larvae in roots and stems of Daucaceae, Lamiaceae, Brassicaceae and apparently other herbaceous plants. Life cycle about 2 years (or more). Adults from April to July.

Distribution: North Africa, South Europe, Near East, Iran, Caucasus, Transcaucasia.

Material: 18. 6. 1983, SU, Gobustan, 4/I, in roots of *Marrubium* sp., lgt. and coll. S; 16. 9. 1984, SU, Talysh, Gosmalyan, 3/I, in dry roots of Daucaceae, lgt. D, coll. IS.

Genus *Bolivarita* ESCALERA, 1914

Type species: *B. oculata* ESCALERA, 1914

Body rather slender, covered with dense short setae, without microasperities.

Head feebly sclerotized, white, with narrowly pigmented, testaceous mouthframe. Cranium (1.1) feebly pigmented posterolaterally, with sides slightly diverging posteriorly, widest behind middle, with almost straight hind margin. Frons smooth, pigmented back to row of praefrontal setae (2, 2, 1), with anterior margin deeply emarginate behind labrum. Frontal lines and medial frontal line indistinct.

Antennae long. 2nd antennal segment strongly transverse, bearing some short setae and conspicuous main sensillum. 3rd segment strongly elongate, about 3 times

longer than wide, much longer than 2nd segment, with one long and some short setae apically.

Two pairs of main stemmata present. Corneae convex, pigmented spots black. Sometimes pigmented spots of one pair of dorsal stemmata distinct.

Gena and pleurostoma smooth, without pigmentation, so that antennal ring widely opened. Gena with a row of long setae. Poststemmatal protuberance absent. Subfossal process absent.

Ventral sclerite (11) smooth, glabrous, without pigmentation, with procurved anterior margin. Hypostomal lines indistinct. Gular lines raised. Gula subquadrate.

Labrum transversely oval, with long peripheral setae, without pigmentation.

Mandibles with black apical part. Basal part pale yellow, smooth, with two setae.

Labiomaxillary complex attached to ventral sclerite by about 3 widths of gula, feebly sclerotized. 1st and 2nd segments of maxillary palp transverse, 3rd elongate. 3rd segment longer than 1st, 1st longer than 2nd. Lateral processes of palpiger and 1st segment rather inconspicuous. Mala short, transverse, with almost straight anterior margin, bearing some short setae.

Submentum with 2 setae. Lateral sclerites of mentum inconspicuous, basal sclerotization of praementum hardly visible. Ligula indistinct. Labial palps separated by about half width of their 1st segment. 1st segment transverse, 2nd elongate, longer than 1st.

Prothorax almost without pigmentation. Basal rings of setae indistinct. Glabrous area of pronotum strongly densely regularly striated. Epipleurum not fused with lateropraesternum, distinctly delimited ventrally (as in *Cerambycini*). Mediopraesternum also rather distinct.

Legs small, but distinct, without pigmentation. Tibiotarsus and femur present. Other regions of thorax and abdomen as in *Obrium*. Body with several wide constrictions and ampullae rather protuberant on segments 3–6. However, cuticle of ampullae shining, without microreticulation. Pleural discs of 1st and 2nd abdominal segments distinct. Spiracles without pigmentation and hardly visible. Body length up to 16 mm, width up to 2.3 mm.

One species in the genus.

B. oculata ESCALERA, 1914

Habits: Larvae in *Argania spinosa* (Sapotaceae). Adults from July to August.

Distribution: North Africa (Morocco).

Material: 30. 5. 1985, Morocco, Anti Atlas, Bonizakarne, 3/I, in *Argania spinosa*, lgt. G. Sama, coll. G. Sama and S.

Type species: *Cerambyx cantharinus* L., 1767

Body slender, with short sparse setae, with several wide constrictions between strongly raised ambulatory ampullae, without microasperities (Fig. 13 A).

Head white, with rather narrowly pigmented brown mouthframe and yellowish posterolateral blotches. Cranium transverse (1.5, or 1.2 in *O. brevicorne*), with sides slightly diverging posteriorly, widest behind middle, with almost straight hind margin. Frontal lines inconspicuous. Medial frontal line indistinct. Frons smooth. Front margin of frons slightly procurved, with a row of praefrontal setae (2,2,4). Pigmentation of front margin narrow, reaching the row of setae only behind mandibular articulations.

Antennal ring widely opened. Antennae long or short, 2nd and 3rd segments elongate (rarely 2nd subquadrate or transverse), with a few setae. 2nd segment with distinct main sensillum.

Dorsal and ventral stemmata absent. One pair of large main stemmata present. Corneae convex, pigmented spots greyish, indistinct.

Gena without pigmentation around stemmata, without poststemmatal protuberance, bearing many long stout setae. Subfossal process absent.

Hypostomal lines distinct anteriorly, \pm strongly diverging posteriorly. Ventral sclerite (8) glabrous, smooth, very finely obliquely striate; anterior margin almost straight, with two paramedian depressions, narrowly sclerotized. Gula transverse or subquadrate, without pigmentation.

Labrum strongly transverse, bearing short sparse setae and two long discal setae.

Mandibles black, with dark brown basal part, bearing several short setae.

Labiomaxillary complex attached to ventral sclerite by about three widths of gula. Mala subquadrate, with rounded anterior margin, bearing some short setae. Palpiger and 1st segment of maxillary palp with long lateral processes. 1st and 2nd segments transverse, 3rd elongate. 1st segment almost equal in length to 3rd, 2nd segment slightly shorter.

Submentum with two setae. Mentum and submentum without pigmentation. Praementum with wide basal pigmentation. Labial palps separated by less than one width of their 1st segment. 2nd segment elongate, longer than 1st. Ligula indistinct.

Prothorax with pale yellowish spots of pronotum and alar lobes. Basal rings of setae indistinct. Posterior area of pronotum shining, irregularly longitudinally rugose, microreticulate along hind margin. Ventral border line of epipleurum indistinct. Episternum fused with lateropraesternum. Coxosternum not fused with sternellar fold, fused with epimeron. Lateral border lines of mediopraesternum distinct.

Mesothorax dorsally divided by "Λ"-shaped groove. Dorsal and ventral transverse grooves of metathorax and ventral transverse groove of mesothorax indistinct.

Both pterothoracic segments often microreticulate ventrally and dorsally. Parascutum distinctly separate. Alar lobes distinctly delimited ventrally and dorsally. Epipleurum ventrally delimited in its posterior half. Outer and inner border lines of coxal lobes distinct. Spiracle oval, without marginal chambers.

Legs very small, indistinct, without pigmentation, without setae. Only tibiotarsus and short rounded praetarsus slightly visible.

Abdomen with strongly raised deeply bilobed ampullae on four segments (3 to 6). Each ampulla of these segments with deep lateral longitudinal furrows, without transverse furrows, shining, irregularly rugose, its microreticulation obliterated. Intersegmental skin between these segments (3 to 6) very large, forming four wide constrictions. Ampullae of abdominal segments 1 to 2 and 7 not so strongly raised, microreticulate. Spiracular areas of two first abdominal segments with deep oblique grooves. Epipleurum delimited ventrally in its posterior half. This border line very deep, forming, together with oblique grooves of spiracular area, large "X"-shaped grooves on lateral sides of the segments. Pleural discs diffuse. Abdominal spiracles moderately oval, subcircular.

About 10 species in Palaearctic Region, larvae of 3 of them at my disposal.

- 1(2) Antennae short, 2nd segment transverse or subquadrate *brevicorne*
- 2(1) Antennae long, 2nd segment elongate.
- 3(4) Antennae shorter, 2nd segment slightly longer than wide; cranium about 1.4 times wider than long *brunneum*
- 4(3) Antennae longer, 2nd segment about 1.5 times longer than wide; cranium about 1.5 times wider than long *cantharinum*

O. cantharinum (L., 1767)

Cranium about 1.5 times wider than long. 2nd and 3rd antennal segments strongly elongate. 2nd segment about 1.5 times longer than wide. 3rd segment about as long as width of 2nd segment, about 4 times longer than wide. Pigmented spots of stemmata greyish, distinct. Body length up to 17 mm, width up to 3 mm.

Habits: Polyphagous on deciduous trees but preferring *Populus*. Larvae feed subcortically, in branches and boles of dead trees. Pupation in the sapwood from May to June, emergence in June-July. Life cycle lasts about one year (DUFFY, 1953) or two years (CHEREPANOV, 1981).

Distribution: Europe, Siberia from Ural to Ussuri region, Caucasus, Transcaucasia, Turkey.

Material: 17. 5. 1969, SU, Ussuri region, Suputinskii reserve, 12/I, in bark of *Populus tremula*, lgt. B. M. Mamaev, coll. IS; 31. 8. 1977, CS, Bohemia c., Řevnice, 1/I, under bark of *P. tremula*, lgt. and coll. S; 14. 2. 1977, CS, Moravia m., Lednice, 1/I, under bark of *P. alba*, lgt. and coll. S; 13. 3. 1965, CS, Slovakia or., Snina, 3/I, under bark of *P. tremula*, lgt. and coll. M. Sláma.

O. brunneum (F., 1792)

Cranium about 1.4 times wider than long. 2nd antennal segment slightly longer than wide (about 1.2), 3rd segment about twice longer than wide, shorter than width

of 2nd. Pigmented spots of stemmata greyish, indistinct. Body length up to 13 mm, width up to 2.2 mm.

Habits: Polyphagous on coniferous trees. Adults from May to August. Larvae under thinner bark, pupation in the wood.

Distribution: Europe, Caucasus, Transcaucasia, Turkey, Iran.

Material: 4. 8. 1977, CS, Bohemia c., Benešov, 11/I, under bark of *Picea* branches, lgt. and coll. S.

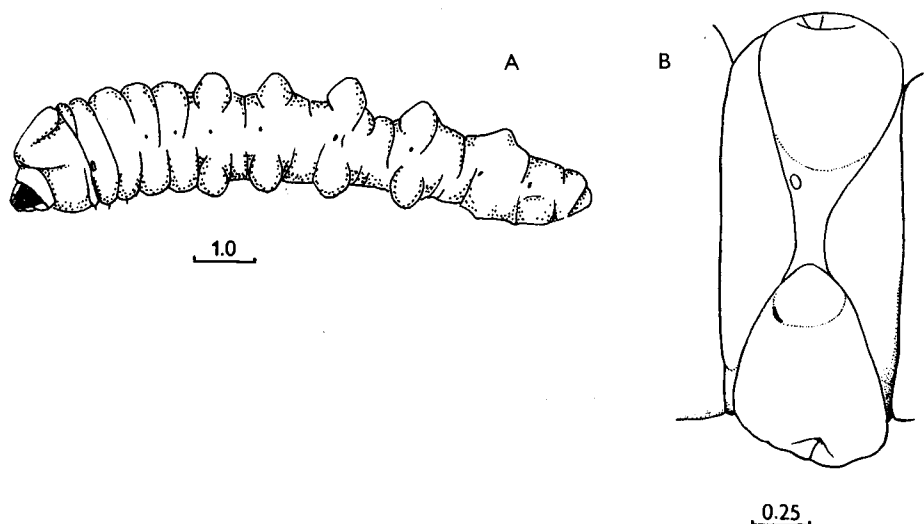


Fig. 13: A — *Obrium cantharinum*, body, lateral view. B — *Obriopsis bicolor*, abdominal sclerites.

O. brevicorne PLAVILSHCHIKOV, 1940

Cranium slightly transverse (1.2). Antennae short. 2nd antennal segment transverse or subquadrate. 3rd segment about twice longer than wide, much shorter than width of 2nd segment. Pigmented spots of stemmata greyish, indistinct. Body length up to 14 mm, width up to 3 mm.

Habits: Polyphagous on deciduous trees (*Acer*, *Fraxinus*). Larvae feed subcortically, pupation in sapwood in May. Adults from June to August.

Distribution: Ussuri region of USSR.

Material: 16. 4. 1969, SU, Ussuri region, Suputinskii reserve, 5/I, in *Fraxinus*, lgt. B. M. Mamaev, coll. IS; 17. 6. 1979, SU, Ussuri region, Sokolchi, 3/I, in *Acer*, lgt. A. V. Kompantsev, coll. IS; 10. 6. 1980, SU, Ussuri region, Lazovskii reserve, 3/I, in *Acer*, lgt. S. V. Murzin, coll. IS.

Genus *Obriopsis* MÜLLER, 1948

Type species: *Obrium bicolor* KRAATZ, 1862

Larvae very similar to those of *Obrium*.

Cranium strongly transverse (1.5). Antennae short, 2nd segment slightly longer than wide. 3rd segment about twice longer than wide, about as long as width of 2nd segment. Pigmented spots of stemmata indistinct. Hypostoma with distinct longitudinal striation on raised anterior half. Epipleurum of abdominal segments 3 to 6 with small curved sclerites (Fig. 13 B). Body length up to 10 mm, width up to 2.3 mm.

One species in the genus.

O. bicolor (KRAATZ, 1862)

Habits: Polyphagous on deciduous trees (*Rhamnus*, *Euonymus*, *Crataegus*, *Morus*, *Ficus* and apparently others). Larvae in dead branches. Adults from May to June.

Distribution: South-East of West Europe, Near East.

Material: 1980, CS, Slovakia m., Bratislava, 10/I, in dry branches of *Euonymus*, lgt. J. Hála, coll. S.

Genus *Callimoxys* KRAATZ, 1863

Type species: *Stenopterus gracilis* BRULLÉ, 1832

Larvae very similar to those of *Obrium*, but mouthframe almost without pigmentation, latter slightly broadened only near mandibular articulations. Pleurostoma without pigmentation beneath antennae. Cranium slightly transverse (1.3). Medial frontal line indistinct. Pigmented spots of stemmata greyish, rather inconspicuous. Antennae short. 2nd segment strongly transverse, 3rd segment about twice as long as wide. Antennal foramen not surrounded by pigmentation. Hypostoma smooth. Posterior area of pronotum dull, finely striate and diffusely microreticulate. Border lines of mediopraesternum absent. Body length of available larva 11 mm, width 1.6 mm.

One species in Palearctic Region.

C. gracilis (BRULLÉ, 1832)

Habits: Polyphagous on deciduous trees (*Paliurus spina-christi*, *Prunus* and apparently others). Larvae in dry branches. Adults from April to June.

Distribution: South-East of West Europe, Caucasus, Transcaucasia, Turkey, North Iran.

Material: 17. 9. 1980, SU, Talysh, Avrora, 1/I, in dry branch of *Prunus*, lgt. S. Aksent'ev, coll. IS; 20. 8. 1976, Bulgaria, Ropotamo, 1 exuvia, in *Paliurus spina-christi*, lgt. and coll. S.

Type species: *Necydalis rufa* L., 1767

Larvae almost indistinguishable from *Callimoxys*. The distinguishing characters given in the generic key seem rather dubious. Body length up to 18 mm, width up to 3 mm.

About 9 species in Palaearctic Region, larvae of 3 of them at my disposal.

- 1(2) 2nd antennal segment strongly transverse *flavicornis*
 2(1) 2nd antennal segment elongate.
 3(4) Cranium about 1.3 times wider than long *rufus*
 4(3) Cranium about 1.4 times wider than long *ater*

S. flavicornis KÜSTER, 1846

Habits: Polyphagous on deciduous trees, larvae in dry wood.

Distribution: South and South-East of West Europe, Near East, North Africa.

Material: 29. 8. 1976, Bulgaria, Ropotamo, 4/—, in dry branches of *Celtis australis*, lgt. and coll. S; *ibid.*, 26. 8. 1976, 7/I, lgt. and coll. S.

S. ater (L., 1767)

Habits: Polyphagous on deciduous trees (*Pistacia*, *Ceratonia* and apparently others). Larvae in dead wood. Adults from June to August.

Distribution: South of West Europe, North Africa, Crimea.

Material: 6. 1982, Tunisia, Msaken, 8/I, in *Ceratonia siliqua*, lgt. and coll. M. Sláma.

S. rufus (L., 1767)

Habits: Polyphagous on deciduous trees (*Castanea*, *Quercus*, *Robinia*, *Juglans*, *Prunus*, *Salix* and others). Larvae in dead wood. Life cycle about 2 years. Adults from May to August.

Distribution: Central and South Europe, Caucasus, Transcaucasia, North Africa, Near East, Iran, West Turkmenia.

Material: 14. 7. 1977, CS, Slovakia m., Štúrovo, 2/I, in dry standing *Juglans*-stem, lgt. and coll. S; 20. 8. 1976, Bulgaria, Ropotamo, 1/I, in *Paliurus spina-christi*, lgt. and coll. S; 1. 4. 1980, SU, Novorossiisk, 10/I, in *Paliurus spina-christi*, lgt. A. Miroshnikov, coll. IS.

Genus *Callimus* MULSANT, 1846

Type species: *Callimus bourdini* MULSANT, 1846 = *Saperda angulata* SCHRANK, 1789

Larvae very similar to those of *Callimoxys*. Distinguishing characters given in the generic key must be regarded as provisional. Body length up to 15.5 mm, width up to 3 mm.

- 1(2) 2nd antennal segment elongate. *angulatus*
 2(1) 2nd antennal segment transverse
 3(4) Cranium about 1.4 times wider than long *femoratus*
 4(3) Cranium about 1.3 times wider than long *abdominalis*

C. angulatus (SCHRANK, 1789)

Habits: Polyphagous on deciduous trees (*Quercus*, *Fagus*, *Fraxinus*, *Crataegus*, *Ficus*, *Zelkova* and apparently others). Larvae in dead wood. Adults hatch in autumn and overwinter in pupal cells. Emergence in spring, imago from March to July.

Distribution: West Europe except North, North Africa, Near East, Transcaucasia.

Material: 28. 2. 1979, CS, Slovakia m., Štúrovo, 1/I, in wood of little dry stem of *Quercus*, lgt. and coll. S; 8. 9. 1980, CS, Slovakia m., Kamenica n/Hr, 1/I, in dry branch of *Quercus*, lgt. and coll. S; 1. 5. 1980, SU, Talysh, Avrora, 3/I, in dry branch of *Zelkova*, lgt. D, coll. IS.

C. femoratus (GERMAR, 1824)

Habits: Polyphagous on deciduous trees (*Quercus* and apparently others). Larvae in dead wood. Adults from May to July.

Distribution: South of Europe, Caucasus, Transcaucasia, Near East, Iran, North Africa.

Material: 24. 8. 1976, Bulgaria, Ropotamo, 9/I, in wood of *Quercus*, lgt. and coll. S.

C. abdominalis (OLIVIER, 1795)

Habits: Polyphagous on deciduous trees (*Quercus*, *Acer*, *Cydonia*, *Paliurus*, *Ostrya* and others). Larvae in dead wood. Adults from May to July.

Distribution: South of West Europe, Near East.

Material: 1982, Italy, Romagna, 5/I, *Ostrya carpinifolia*, lgt. G. Sama, coll. S.

Genus *Nathrius* BRÈTHES, 1916

Type species: *N. porteri* BRÈTHES, 1916 = *Leptidea brevipennis* MULSANT, 1839

Body slender, with short sparse setae, with several wide constrictions between strongly raised ambulatory ampullae, without microasperities.

Head white, with distinct brown blotches on posterolateral angles. Mouthframe rather weakly pigmented. Pleurostoma completely pigmented beneath antennae. Cranium strongly transverse (1.6), with sides strongly diverging posteriorly, widest near slightly emarginate posterior margin (Fig. 14 A). Frontal lines and median frontal line indistinct. Frons smooth, with front margin roundly procurved, pigmented back to row of praefrontal setae (2,2,1).

Antennal ring widely opened. Antennae (Fig. 14 B) short, 2-segmented (basal segment absent). 1st segment subquadrate, bearing conspicuous main sensillum. 2nd segment elongate. Stemmata absent. Gena behind antennae without pigmenta-

- 1(2) Stemmata very small, diameter of stemma about twice smaller than width of 2nd antennal segment *excultus*
 2(1) Diameter of stemma about as long as, or longer than width of 2nd antennal segment.
 3(4) Thoracic spiracle more circular (length/width ± 1.3); antennal ring narrowly opened *reitteri*
 4(3) Thoracic spiracle about twice longer than wide *sexguttatus*

P. excultus BATES, 1884

Distinguishing characters in the key. Body length up to 27 mm, width up to 4 mm.

Habits: Polyphagous on deciduous trees (*Phellodendron*, *Betula*, *Acer*, *Alnus*, *Ulmus*, *Quercus*, *Sorbus* and many others). Larvae feed in decaying wood. Pupation at the end of summer. Adults overwinter in pupal cells, fly from May to August. Life cycle lasts two or three years.

Distribution: South Kurile Islands, Japan.

Material: 14. 9. 1972, SU, Kunashir, 12/I, from *Betula*, lgt. D, coll. IS; 14. 9. 1972, SU, Kunashir, 4/I, *Phellodendron*, lgt. D, coll. IS.

P. reitteri (GANGLBAUER, 1881)

Distinguishing characters in the key. Body length up to 27 mm, width up to 4 mm.

Habits: Polyphagous on deciduous trees (*Ficus*, *Carpinus*, *Quercus*, *Alnus*, *Pterocarya* and apparently others). Bionomics similar to the preceding species.

Distribution: Talysh, North Iran (Elburs).

Material: 8. 4. 1980, SU, Talysh, Avrora, 1/I, half-grown larva from *Ficus carica*, lgt. D, coll. IS.

P. sexguttatus (ADAMS, 1817)

Distinguishing characters in the key. Body length up to 24 mm, width up to 5.5 mm.

Habits: Polyphagous on deciduous trees (*Fagus*, *Quercus*, *Carpinus* and many others). Bionomics similar to the preceding species.

Distribution: Caucasus, Transcaucasia, North Turkey, North Iran.

Material: 15. 6. 1961, SU, Krasnodar reg., Guzeripl, 15/I, *Fagus*, lgt. D, coll. IS.

Genus *Anaglyptus* MULSANT, 1839

Type species: *Callidium gibbosum* F., 1787

Body robust, with dense short setae, without microasperities.

Head white, with strongly pigmented brown mouthframe. Cranium slightly transverse or subquadrate (1.1–1.2), with sides diverging posteriorly, widest near slightly emarginate hind margin. Frontal lines indistinct, medial frontal line distinct near

posterior end. Frons entirely smooth. Front margin of frons slightly procurved behind labrum, or straight, with a row of praefrontal setae (2,2,2 or 2,2,1), rather narrowly pigmented.

Antennal ring closed or narrowly opened. Antennae long, 2nd antennal segment about 1.5 times longer than wide, bearing very small seta and small main sensillum. 3rd segment about twice longer than wide, bearing small setae.

2 pairs of dorsal stemmata often distinct. One pair of large main stemmata present. Corneae convex, pigmented spots greyish. Main stemmata entirely surrounded by pigmentation of gena.

Poststemmatal protuberance (Fig. 19 A) present, relatively smooth. Gena almost smooth, finely rugose, with a row of thin setae. Subfossal process absent.

Ventral sclerite (7) glabrous, or with some setae, finely transversely striate. Anterior margin of hypostoma very narrowly pigmented, straight. Gula subquadrate, pale, interrupting pigmentation of hypostoma.

Labrum strongly transverse, with narrow basal pigmentation, bearing short dense peripheral setae.

Labiomaxillary complex attached to ventral sclerite by about 3 widths of gula. Maxillary palpiger and 1st segment of maxillary palp with small processes, 1st segment longer than 2nd, 2nd segment longer than 3rd, or sometimes 3rd and 2nd segments almost equal in length to 1st. Mala subquadrate, with some apical setae.

Submentum without pigmentation, bearing two setae. Mentum without pigmentation. Praementum with basal pigmented band interrupted or narrowed medially. Labial palps separated by more than width of their 1st segment. Ligula longer than 1st segment. 2nd segment of labial palp about equal in length to 1st or slightly longer.

Prothorax with yellow or pale yellow pigmentation on pronotum and alar lobes. Basal rings of setae indistinct. Posterior area of pronotum shining, finely longitudinally striate.

Thoracic and abdominal segments similar to those of *Paraclytus*. Terga and sterna of meso- and metathorax and all abdominal ampullae with regular network of striae and very finely microreticulate, dull. Transverse furrow of abdominal ampullae distinct.

Legs present. Trochanter absent. Femur with two setae.

Pleural discs indistinct. Thoracic spiracle about twice longer than wide and about 1.5 times longer than 1st abdominal spiracle. Marginal chambers absent, or sometimes present, but rather indistinct.

About 17 species in Palaearctics: 5 Caucasian species, about 3 European-Mediterranean species, 1 species from Central Asia, 4 species from Japan and about 4 species from China. Larvae of 4 species at my disposal.

- 1(2) Frons with deep setiferous pores. Body setae very long. Pigmentation of prothorax pale but distinct *gibbosum*
 2(1) Frons relatively flat. Body setae shorter.

tion, nearly smooth, with some strong setae. Pleurostoma smooth, without subfossal process.

Hypostomal lines distinct. Hypostoma smooth, glabrous, very finely obliquely rugose. Its anterior margin almost straight, with two paramedian pits, with relatively wide pigmentation interrupted by white transverse gula.

Clypeus long and wide, filling much of space between dorsal articulations of mandibles. Labrum strongly transverse, bearing sparse short setae. Mandibles brown, with pale brown basal part.

Labiomaxillary complex attached to ventral sclerite by about 3 widths of gula. Maxillae with 2-segmented palps. 1st segment transverse, 2nd elongate, longer than 1st. Palpiger and 1st segment with conspicuous processes. Mala subquadrate, rounded apically, bearing several short setae.

Mentum and submentum without pigmentation. Labial palps 2-segmented, separated by less than one width of 1st segment. 1st segment transverse, shorter than elongate 2nd segment. Ligula completely reduced.

Thorax and abdomen similar to those of *Obrium*, but legs absent. Glabrous posterior area of pronotum almost without striation, diffusely microreticulate. Body length up to 7 mm, width up to 1.3 mm.

Two species in the genus, larvae of one of them at my disposal. The second species (*N. berlandi* VILLIERS, 1946) was described from Morocco.

N. brevipennis (MULSANT, 1839)

Habits: Polyphagous on deciduous trees (*Alnus*, *Rosa*, *Fraxinus*, *Corylus*, *Pirus*, *Castanea*, *Salix*, *Juglans*, *Quercus*, *Morus*, *Cornus* and others). Larvae feed subcortically, then in wood of dry thin branches. Life cycle about two years. Pupation in spring, adults from June to August.

Distribution: Europe, North Africa, Caucasus, Transcaucasia, Near East, Iran, introduced in South and North America.

Material: 1976, SU, Crimea, 1/I, in dry branches of *Cornus*, lgt. M. Kravchenko, coll. IS; 29. 11. 1983, Bulgaria, Kresna, 2/I, lgt. J. Hála, coll. S.

Genus *Kurarua* GRESSITT, 1936

Type species: *K. constrictipennis* GRESSITT, 1936

Body slender, with strong sparse setae, intersegmental skin microasperate.

Head white, with narrowly pigmented brown mouthframe. Pleurostoma completely pigmented beneath antennae. Frontal lines indistinct, medial frontal line slightly visible near hind end. Front margin of frons deeply emarginate behind labrum. Emargination bears a strong tooth in the middle (Fig. 14 C). Frons smooth, widely pigmented back to dense groups of praefrontal setae (2, +, +).

Antennal ring opened, its upper boundary not projecting over antennal membrane. Antennae long, 3-segmented. 2nd segment strongly transverse, with conspicuous

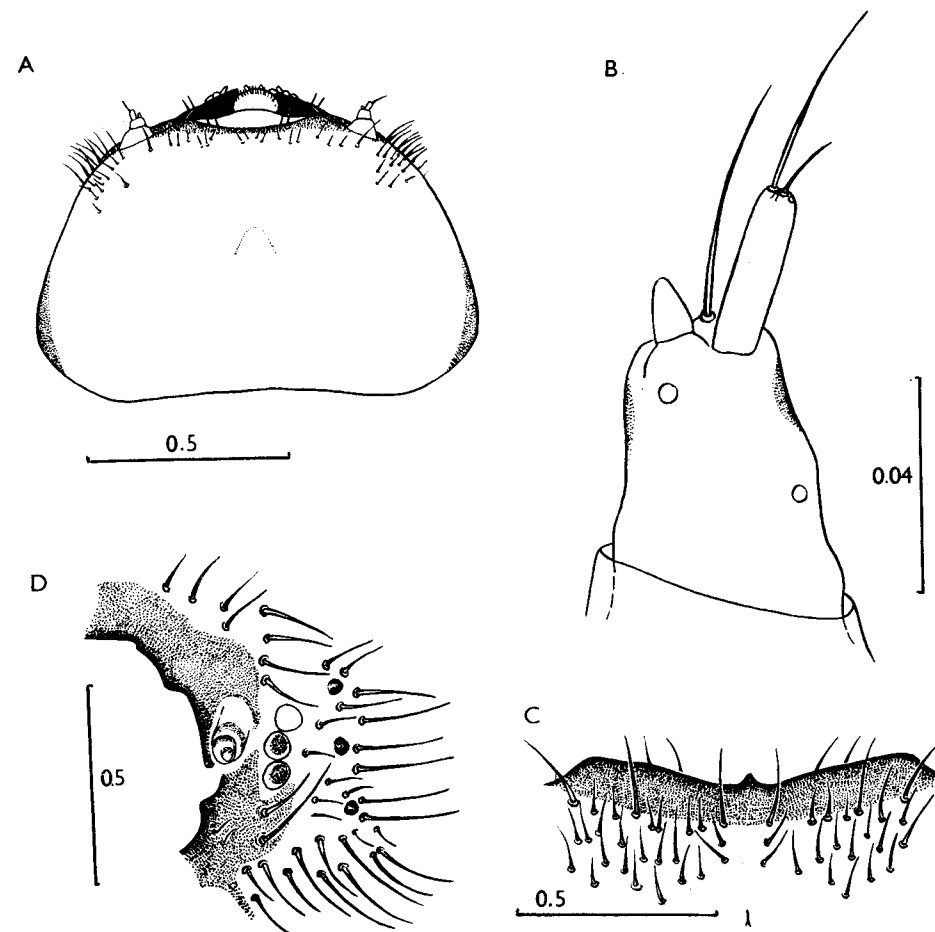


Fig. 14: A — *Nathrius brevipennis*, head, dorsal view. B — *N. brevipennis*, antenna. C — *Kurarua rhopalophoroides*, frons. D — *K. rhopalophoroides*, pleurostoma and gena.

main sensillum. 3rd segment elongate, about equal in length to 2nd. Both segments bearing long setae.

Dorsal and ventral stemmata absent. Two pairs of large very distinct main stemmata present. Corneae convex, pigmented spots distinct.

Gena without pigmentation behind stemmata, bearing many long strong setae, with 3 strongly sclerotized widely separated distinct tubercles on each side of head (Fig. 14 D). Subfossal process absent.

Hypostomal lines distinct. Ventral sclerite (6.5) nearly smooth, finely obliquely rugose, bearing some short setae. Anterior margin of hypostoma roundly procurved, with narrow pigmentation interrupted by white transverse gula.

Clypeus short and narrow. Labrum subcircular, about as long as wide, with narrow basal sclerotization, bearing long peripheral setae.

Mandibles black, with brown basal part, bearing dense short setae.

Labiomaxillary complex attached to ventral sclerite by about two widths of gula. Palpiger and 1st segment of palp with conspicuous processes. 1st and 2nd segments transverse, 3rd elongate. 1st segment about equal in length to 3rd, longer than 2nd. Mala subquadrate, rounded apically, with some short setae.

Submentum without pigmentation, with two pairs of setae. Mentum with two basal sclerites. Praementum with wide basal sclerotization. Labial palps separated by less than width of 1st segment. 1st segment transverse, shorter than elongate 2nd segment. Ligula indistinct.

Prothorax with bright-orange narrow band on pronotum and alar lobes. Setae of prothorax strong, with distinct basal rings. Posterior glabrous area of pronotum shining, regularly longitudinally striate. Ventral border line of epipleurum distinct posteriorly. Episternum fused with lateropraesternum. Border line of mediopraesternum distinct. Mediopraesternum shining, with a transverse row of 4 strong setae and with two small setae near anterior margin. Outer and inner border lines of coxosternum distinct.

Mesothorax dorsally divided by "X"-shaped groove, shining, irregularly rugose. Metathorax dorsally and ventrally, and mesothorax ventrally divided by transverse grooves, distinctly granulate, shining. Alar lobes, two areas of epipleurum, pleurum and coxae well defined in both segments.

Legs relatively well developed. Trochanter distinct, bearing a seta, but without pigmentation. Tibiotarsus and femur strongly sclerotized, with several setae. Praetarsus long, flagelliform, without pigmentation.

Abdominal ampullae slightly raised. Each ampulla with two transverse rows of shining granules and each dorsal ampulla also with some small granules behind those rows. Epipleurum distinctly delimited ventrally. Pleural discs large, distinct on abdominal segments 2 to 5. Thoracic and abdominal spiracles broadly oval, about 1.5 times longer than wide, without marginal chambers. Body length 12.5 mm, width 3 mm.

Three species in Japan and China, larvae of one of them at my disposal.

K. rhopalophoroides HAYASHI, 1951

Habits: Larvae feed subcortically in dead branches of *Ilex pedunculosa*, *Ilex rotunda* (GON, 1977). Pupation in sapwood. Reproduction parthenogenetic.

Distribution: Japan (Honshu).

Material: 29. 4. 1984, Japan, Okayama pref., Tokahashi-city, mt. Gagyn, one larva from *Ilex pedunculosa*, lgt. Y. Kuroda, coll. S.

Genus *Molorchus* F., 1792

Type species: *Necydalis minor* L., 1767

Body robust, with short setae, without microasperities.

Head white, posterolateral areas almost without pigmentation. Mouthframe

strongly but narrowly pigmented. Pleurostoma entirely pigmented beneath antennae. Cranium more or less transverse (1.4 to 1.7), with sides strongly diverging posteriorly, rounded behind middle. Hind margin slightly emarginate. Frontal lines indistinct. Medial frontal line distinct or indistinct. Front margin of frons almost straight, slightly procurved, pigmented back to row of praefrontal setae (2, 2, +), sometimes broader. Frons smooth.

Antennae long (*M. minor*) or rather short, sometimes 2-segmented (*M. kiesenwetteri*), with reduced basal segment. Main sensillum distinct. Apical segment elongate. Antennal ring opened.

Dorsal and ventral stemmata absent. One pair of main stemmata present, but hardly visible as corneae slightly convex or flat and pigmented spots often absent.

Poststemmatal protuberance absent. Gena almost smooth, very finely rugose, bearing numerous strong setae, without pigmentation behind stemmata. Pleurostoma smooth. Subfossal process absent.

Hypostomal lines distinct. Hypostoma smooth, glabrous; narrow pigmentation of anterior margin interrupted by pale transverse gula.

Labrum strongly transverse, bearing sparse short peripheral setae. Basal sclerotization indistinct.

Mandibles black, with dark brown basal part, bearing some short setae, with transverse and longitudinal impressions.

Labiomaxillary complex attached to ventral sclerite by about two widths of gula. Maxillary palps 3-segmented. Palpiger and 1st segment with conspicuous lateral processes. Mala transverse, with straight anterior margin, bearing some short setae.

Submentum without pigmentation, with two setae. Mentum with two basal sclerites. Praementum with wide basal sclerotization. Labial palps separated by less than width of their 1st segment. 2nd segment of labial palps longer than 1st. Ligula indistinct.

Pigmentation of prothorax pale. Basal rings of setae indistinct. Hind glabrous area of pronotum shining, finely irregularly rugose, with narrow microreticulate band near posterior margin. Ventral border line of epipleurum and border line of mediopraesternum indistinct. Coxosternum fused with sternellar fold, or sometimes its border line slightly visible.

Mesonotal furrows often absent, or "X"-shaped groove poorly developed. Meta-notum and meso- and metasternum divided by transverse grooves. Both segments dorsally and ventrally microreticulate. Coxal lobes indistinct. Ventral border line of epipleurum distinct in its posterior half. Alar lobes fused with anterior part of epipleurum, but delimited dorsally. Border line between alar lobes and posterior part of epipleurum very deep. Spiracles oval, without marginal chambers, about 1.5 times longer than wide.

Legs absent.

Abdominal ampullae slightly raised, microreticulate, each ampulla with one transverse groove. Epipleurum delimited ventrally in its posterior half. Pleural

discs may be distinct on abdominal segments 2 to 5. 1st abdominal spiracle about 1.5 times shorter than thoracic one.

About 35 species in Palaearctic Region, larvae of 7 of them at my disposal.

- 1(8) Antenna distinctly 3-segmented, all segments sclerotized.
 2(3) Dorsal mandibular surface with a deep notch to accommodate labrum (Fig. 15 B) *ishiharai*
 3(2) Dorsal notch of mandibles small or inconspicuous (Fig. 15 A).
 4(7) 2nd antennal segment elongate or subquadrate, segments of maxillary palps about equal in length.
 5(6) Setae of gena more numerous (about 30 setae between hypostomal and frontal lines) *minor*
 6(5) Setae of gena less numerous (about 20 setae between hypostomal and frontal lines) *monticola*
 7(4) 2nd antennal segment strongly transverse. 2nd segment of maxillary palps shorter than 1st and 3rd *pallidipennis*
 8(1) Basal antennal segment hardly visible or absent; all segments almost without pigmentation.
 9(10) Antennae 2-segmented, basal segment absent (Fig. 15 C) *kiesenwetteri*, *semenovi*
 10(9) Antennae 3-segmented, basal segment hardly visible but present.
 11(12) Gula narrower, pigmented anterior margin of each side of hypostoma about three times broader than pale anterior margin of gula *umbellatarum*
 12(11) Gula wider, pigmented anterior margin of each side of hypostoma about 1.5–2 times broader than pale anterior margin of gula *marmottani*

M. minor (L., 1767)

Main distinguishing characters in the key.

Cranium about 1.6 times wider than long. Pigmented anterior margin of each side of hypostoma from about 2.4 to 1.5 times broader than pale anterior margin of gula. It seems that larvae from Far East have rather broader gula. Body length up to 16 mm, width up to 3 mm.

Habits: Polyphagous on coniferous trees (all records about development on deciduous trees seem concerning another species). Larvae feed subcortically in dry branches and thinner stems. Pupation in sapwood. Adults hatch from July to August and overwinter in pupal cells. Emergence in spring. Adults from May to July. Life cycle about 1–2 years.

Distribution: Europe, Turkey, Iran, Caucasus, Transcaucasia, Siberia, Mongolia, Korea, North China, Japan.

Material: 3. 8. 1977 and 15. 4. 1979, CS, Bohemia c., Benešov, +/I, in *Picea*, lgt. and coll. S; 19. 7. 1971, SU, North Caucasus, Krasnaya Polyana, 2/I, in *Abies*, lgt. B. M. Mamaev, coll. IS; 29–30. 5. 1985, SU, South Sakhalin, Nevelsk, +/I, in *Picea*, lgt. D, coll. IS.

M. monticola DANILEVSKY et MIROSHNIKOV, 1985*)

Larvae very similar to those of *M. minor*. Provisional distinguishing characters in the key. Body length up to 12.7 mm, width up to 2.6 mm.

Habits: Polyphagous on deciduous trees (*Carpinus*, *Prunus* and apparently others). Larvae feed subcortically in dead branches. Pupation in sapwood. Adults hatch in October and overwinter in pupal cells. Emergence in spring. Adults from May to June. Life cycle about one year.

Distribution: Transcaucasia (South Armenia, East Azerbaïdzhân, Talysh) and apparently North Iran and North Turkey.

Material: 1. 7. 1983, SU, Azerbaïdzhân, Nabran, 6/I, in dry branches of *Prunus*, lgt. and coll. S; 11. 9. 1984, SU, Talysh, Avrora, 3/I, in dry branches of *Carpinus*, lgt. D, coll. IS.

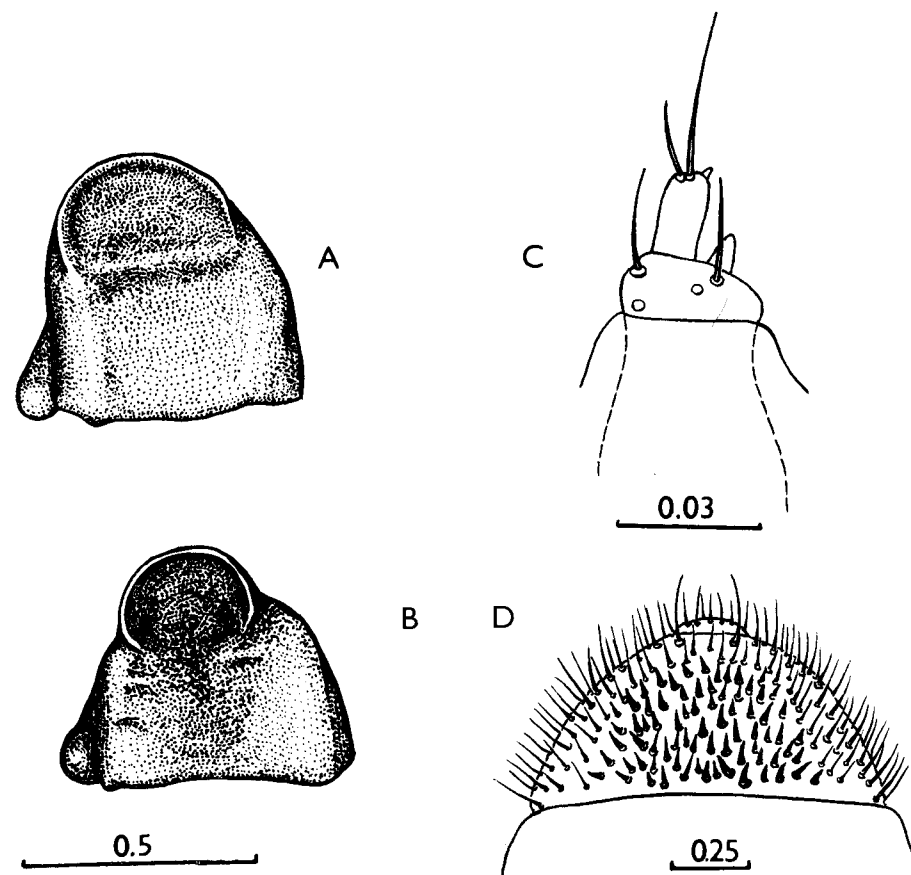


Fig. 15: A – *Molorchus minor*, mandible, medial view. B – *M. ishiharai*, dtdo. C – *M. kiesenwetteri*, antenna. D – *Nadezhdiana villosa*, 9th abdominal segment, dorsal view.

*) The name *monticola* was used by PLAVILSHCHIKOV in 1931 as infrasubspecific (a morph of *Molorchus minor*). It was first used as a species name by DANILEVSKY et MIROSHNIKOV (1985), who are therefore its authors, although they themselves attributed it to PLAVILSHCHIKOV [International Code of Zoological Nomenclature, 3rd Ed., 1985, Art. 50c(i)].

M. ishiharai OHBAYASHI, 1936

Main distinguishing characters in the key.

Cranium about 1.5 times wider than long. Gula about twice narrower than each half of hypostoma. Body length up to 16 mm, width up to 3.3 mm.

Habits: Very similar to *M. minor*.

Distribution: Kurile Islands (Kunashir), South Sakhalin, Japan.

Material: 29. 5. 1985, SU, South Sakhalin, Nevelsk, +/I, in *Picea*, lgt. D, coll. IS.

M. pallidipennis (HEYDEN, 1887)

Larvae very similar to those of *M. minor*. Provisional distinguishing characters in the key. Body length 9 mm, width 1.8 mm.

Habits: Polyphagous on coniferous trees, preferring *Picea*, life cycle about 1 year.

Distribution: East Tian-Shan, Dzhungaria.

Material: 7. 5. 1979, SU, Kazakhstan, 1/I, in *Picea schrenkiana*, lgt. S. Bilý, coll. Nat. Mus. Prague.

M. kiesenwetteri (MULSANT et REY, 1861)

Main distinguishing characters in the key.

Cranium from 1.4 to 1.5 times wider than long. Pigmented anterior margin of hypostoma from about 5 to 3 times broader than pale anterior margin of gula. 1st and 2nd segments of maxillary palps transverse, 3rd elongate. 1st segment about equal in length to 3rd, longer than 2nd. Body length up to 9 mm, width up to 1.9 mm.

Habits: Seems to be polyphagous on coniferous and deciduous trees, but many records about host plants may concern various closely related species, partly yet undescribed. Larvae feed subcortically in dry branches. Pupation in sapwood. Adults hatch at the end of summer and overwinter in pupal cells. Emergence in spring. Adults from May to June. Life cycle about 1 year.

Distribution: Europe, Caucasus, Transcaucasia, Near East, Iran. Southern part of the area may be occupied by other, partly undescribed species.

Material: 29. 11. 1983, Hungaria, Balatonfüred, ex ovo, 2 larvae in dry twigs of *Amygdalus*, lgt. J. Hála, coll. S; 19. 5. 1982, SU, Nakhichevan, Buzgov, 4/I, in *Rosa*, lgt. D, coll. IS; 27. 4. 1964, SU, Kazakhstan, Dzhanybek, 2/?, in *Malus*, lgt. G. V. Lindemann, coll. IS; 20. 6. 1983, SU, Azerbaidzhan, Gobustan, 8/I, in dry twigs of *Amygdalus*, lgt. and coll. S.

M. semenovi PLAVILSHCHIKOV, 1940

Larvae rather similar to those of *M. kiesenwetteri*. I did not find any distinguishing character.

Habits: Polyphagous on deciduous trees (*Elaeagnus*, *Malus*, *Cerasus*, *Populus*, *Salix*, *Prunus* and apparently others). Larvae feed subcortically in dry branches. According to CHEREPANOV

(1981*), 1985), mature larvae overwinter. Pupation in sapwood in spring, emergence from May to June. Life cycle about 2 years.

Distribution: Kazakhstan and Soviet Central Asia.

Material: 5. 6. 1971, SU, Turkmenia, Ipai-Kala, 5/I, in *Cerasus*, lgt. B. M. Mamaev, coll. IS.

M. umbellatarum (SCHREBER, 1759)

Main distinguishing characters in the key.

Cranium strongly transverse, about 1.7 times wider than long. 2nd antennal segment transverse, 3rd elongate, slightly shorter than 2nd, almost as long as main sensillum. 2nd and 1st segments of maxillary palps transverse. 1st segment about as long as 3rd, longer than 2nd. Body length up to 11 mm, width up to 1.8 mm.

Habits: Polyphagous on deciduous trees. Larvae feed subcortically in dry twigs. Pupation in sapwood in spring. According to CHEREPANOV (1981), mature larvae and often pupae overwinter. Life cycle about 2 years. Adults from April to June.

Distribution: Europe, Caucasus, Transcaucasia, Near East, Iran.

Material: 8. 5. 1978, Hungaria, Mecsek, 1/I, in *Castanea sativa*, lgt. and coll. S; 18. 1. 1980, CS, Praha, Klukovice, 10/I, in *Malus*, lgt. and coll. S; 6. 1. 1981, SU, Krasnodar, 7/I, in *Malus*, lgt. A. Miroshnikov, coll. IS.

M. marmottani BRISOUT, 1863

Main distinguishing characters in the key.

2nd antennal segment transverse, about as long as 3rd. 1st and 2nd segments of maxillary palps transverse. 1st segment about as long as 3rd, longer than 2nd. Body length up to 8.5 mm, width up to 1.7 mm.

Habits: Larvae in dry *Pinus*-twigs. One overwintering pupa has been found. Probably two-year development.

Distribution: Europe.

Material: 7. 9. 1982 and 8. 5. 1983, CS, Bohemia c., Benešov, 2/I, in dry thin *Pinus*-twigs, lgt. and coll. S.

Genus *Nadezhdiana* CHEREPANOV, 1976

Type species: *N. villosa* CHEREPANOV, 1976

Larvae very similar to those of *M. minor*.

Cranium transverse (1.6). 2nd antennal segment transverse to subquadrate. Stemmata hardly visible. Corneae flat, pigmented spots indistinct. 2nd segment of maxillary palps shorter than 1st and shorter than 3rd. 1st segment of labial palps transverse, shorter than 2nd. Lateral sclerites of mentum indistinct. Abdominal tergum 9 bea-

*) *M. kiesenwetteri* sensu CHEREPANOV (1981) seems to be *M. semenovi* PLAVILSHCHIKOV.

ring numerous strongly sclerotized spines (Fig. 15 D). Body length up to 11 mm, width up to 2.1 mm.

One species in the genus.

N. villosa CHEREPANOV, 1976

Habits: Larvae feed subcortically in dead branches of *Juglans manshurica*. Pupation in wood in spring. Emergence in June, adults from June to July.

Distribution: South of Ussuri region of USSR.

Material: 11. 6. 1980, SU, Ussuri region, Sokolchi, 12/1, in *Juglans manshurica*, lgt. S. V. Murzin, coll. IS.

Genus *Hylotrupes* SERVILLE, 1834

Type species: *Cerambyx bajulus* L., 1758

Body robust, with short sparse setae, without microasperities.

Head white, with very narrowly pigmented mouthframe. Pigmentation slightly broadened near mandibular articulations and in the middle of pleurostoma. Cranium transverse (1.2), with sides diverging posteriorly, widest near hind margin which is slightly procurved. Frontal lines absent, medial frontal line distinct, but pale. Front margin of frons with very shallow emargination behind labrum, almost straight. Frons smooth, with a row of praefrontal setae (2, 2, 1).

Antennal ring widely opened. Antennae long. 2nd segment about twice shorter than 2nd. Main sensillum much shorter than 3rd segment.

2 pairs of dorsal stemmata present. Corneae slightly convex, pigmented spots distinct. 3 pairs of large main stemmata present. Corneae strongly convex, pigmented spots present, but sometimes indistinct. Main stemmata not surrounded by pigmentation.

Gena smooth, without pigmentation, bearing a row of long setae. Subfossal process absent.

Hypostomal lines distinct. Ventral sclerite (8) smooth, bearing small setae near narrowly pigmented almost straight anterior margin. Gula pale, slightly raised.

Labrum strongly transverse, bearing short dense peripheral setae, with pale basal sclerotization.

Mandibles black, with pale basal part, bearing some short setae.

Labiomaxillary complex attached to ventral sclerite by little more than width of gula. Mala subquadrate, strongly rounded apically, bearing short dense setae. Palpiger and 1st palpal segment bearing very small lateral processes. 1st segment transverse, longer than 2nd, 2nd subquadrate, longer than 3rd, 3rd elongate.

Submentum without pigmentation, bearing about 8 setae. Lateral sclerites of mentum indistinct. Praementum with wide basal pigmentation broadened laterally. Labial palps separated by about one width of their 1st segment. Both segments

of palps elongate, 1st longer than 2nd. Ligula short, elongate, slightly longer than 1st palpal segment, bearing dense short setae.

Prothorax with pale yellow anterior band on pronotum and alar lobes. Basal rings of setae indistinct. Posterior area of pronotum shining, with deep medial line, longitudinally rugose. Epipleurum fused with lateropraesternum. Lateral border lines of mediopraesternum distinct. Coxosternum distinct, not fused with sternellar fold or epimeron.

Meso- and metathorax dorsally divided by "X"-shaped grooves, ventrally - by transverse grooves. Both surfaces shining, irregularly rugose. Alar lobes and 3 divisions of epipleurum distinct on both segments. Ventral border line of epipleurum distinct. Spiracle large and narrow, more than twice longer than own width, without marginal chambers.

Legs short. Coxal lobes distinct. Trochanter without pigmentation but distinct, bearing 3 to 6 setae. Femur and tibiotarsus strongly sclerotized. Praetarsus flagelliform, without pigmentation.

Abdominal ampullae raised, shining, irregularly rugose. Each dorsal ampulla with two transverse furrows, two lateral longitudinal furrows, and a deep medial impressions. Each ventral ampulla with only 1 transverse furrow, but ampulla of 7th segment may have two. Dorsal border lines of coxal lobes distinct. Pleural discs diffuse. 1st abdominal spiracle about twice shorter than thoracic spiracle and about 1.5 times narrower than own length. Body length up to 30 mm, width up to 6 mm.

One species in the genus.

H. bajulus (L., 1758)

Habits: Polyphagous on coniferous trees. Larvae feed in dead wood. This species is the most serious timber pest among Cerambycidae. It attacks seasoned timber, furniture, wooden structures. Life period about 2 or 3 years, sometimes longer. Pupation in spring, adults from June to July.

Distribution: Europe, North Africa, Near and Middle East, Caucasus, Transcaucasia, Siberia (?), East China, North America.

Material: 9. 7. 1971, SU, North Caucasus, Guzeripl, 7/1, in dead *Abies*, lgt. D., coll. IS.

Genus *Ropalopus* MULSANT, 1839

Type species: *Callidium insubricum* GERMAR, 1824

Body robust, rather depressed, covered with long dense setae which may be very strong, without microasperities.

Head white or pale yellow, with strongly pigmented almost black mouthframe. Cranium (1.5-1.7) with almost straight sides, diverging posteriorly, widest near slightly emarginate hind margin. Frontal lines indistinct. Medial frontal line distinct in its posterior half, or indistinct. Frons finely rugose, anterior margin straight or

procurved, shallow emargination behind labrum present or absent; pigmented back to row of praefrontal setae (2, 2, 1), pigmented area with more or less distinct longitudinal or oblique dense striae.

Antennal ring closed, or often narrowly and not very distinctly opened, especially in half-grown larvae. Antennae long, all segments elongate, strongly sclerotized. Main sensillum minute, often hardly visible.

Dorsal and ventral stemmata absent or indistinct. One pair of large very distinct main stemmata present. Corneae convex, pigmented spots black, greyish or absent.

Stemmata narrowly surrounded by pigmentation of gena. Small poststemmatal protuberance present. Gena finely rugose, bearing a few strong setae. Subfossal process absent. Pleurostoma rugose.

Hypostomal lines distinct in their anterior half. Hypostoma transversely striate, glabrous, its anterior margin procurved or almost straight, widely pigmented. Gula elongate or transverse, pale, its anterior margin pigmented, as dark as hypostomal margin. Gular lines slightly raised.

Labrum transverse or subcircular, with pale basal sclerotization, bearing not very dense peripheral setae.

Mandibles black, or with brown basal part, latter bearing some small setae.

Labiomaxillary complex attached to ventral sclerite by about 2 or 3 widths of gula. Mala transverse or subquadrate, bearing some long apical setae. Palpiger and 1st segment of maxillary palps with large lateral processes. 2nd and 3rd segments elongate, 1st transverse.

Submentum often slightly pigmented, bearing 4 setae. Lateral sclerites of mentum distinct or indistinct. Praementum with wide basal sclerotization. Labial palps widely separated by more than basal width of their 1st segment. Ligula shorter than 1st segment of labial palp, but distinct, with some small setae.

Pigmentation of pronotum and alar lobes bright orange or pale yellow. Rarely lateropraesternum also with two pigmented spots. Setae of prothorax may be very strong, with large basal rings, or rather slender and with basal rings indistinct. Ventrally, strong setae of anterior margin may form long transverse rows or dense tufts. Posterior glabrous area of pronotum may be dull microreticulate, without striae, or shining, distinctly longitudinally striate. Mediopraesternum not defined. Ventral border line of epipleurum indistinct. Outer and inner border lines of coxosternum distinct.

Meso- and metathorax dorsally and ventrally microgranulate or microreticulate. Mesothorax dorsally divided by "X"-shaped furrow, or undivided. Metathorax dorsally and ventrally and mesothorax ventrally divided by transverse furrows. Alar lobes, pleurum and 3 divisions of epipleurum very distinct on both segments.

Legs well developed. Coxal lobes distinct. Femur, tibiotarsus and trochanter strongly sclerotized. Trochanter bearing 2 setae. Praetarsus flagelliform, pigmented apically.

Abdominal ampullae slightly raised, shining, microgranulate or dull microreticula-

te. 1st transverse furrow of dorsal ampulla distinct, 2nd - incomplete or absent. Ventral ampulla with one transverse furrow. Each ampulla with two lateral longitudinal furrows and a shallow medial impression. Coxal lobes and epipleurum of abdominal segments strongly protuberant. Pleural discs small but distinct on abdominal segments 2 to 5. Spiracles large, oval, without marginal chambers.

About 20 species in Palaearctics, larvae of 6 of them at my disposal.

- 1(4) Anterior part of lateropraesternum with two lateral tufts of very strong long setae, or with two paramedian transverse rows of such setae and one medial tuft.
- 2(3) Lateropraesternum with 2 lateral tufts of very long and thick setae (Fig. 16 A). *clavipes*
- 3(2) Lateropraesternum with two paramedian rows of long, thick setae and a medial tuft of such setae (Fig. 16 B) *spicicornis*
- 4(1) Lateropraesternum without such tufts of setae; anterior setae only slightly longer than posterior ones (Fig. 16 C).
- 5(8) Abdominal ampullae dull microreticulate; ventral ampullae finely rugose medially. Prothorax with bright yellow-orange pigmentation.
- 6(7) Mentum with lateral sclerites diffuse *ungaricus*, *insubricus*
- 7(6) Mentum with well developed lateral sclerites, their border lines very distinct. *siculus*
- 8(5) Abdominal ampullae shining, microgranulate; ventral ampullae coarsely rugose medially, prothorax with pale yellow pigmentation.
- 9(10) Front margin of frons relatively straight; pleural discs shifted towards upper side of epipleurum, in mature larvae ventrally surrounded by pigmentation *macropus*

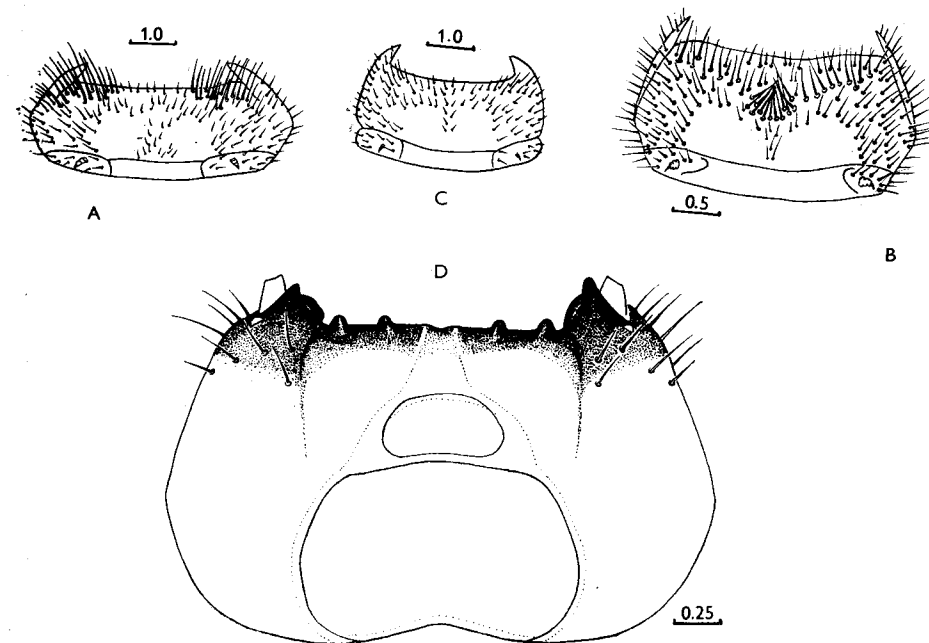


Fig. 16: A — *Ropalopus clavipes*, prothorax, ventral view. B — *R. spicicornis*, dtto. C — *R. macropus*, dtto. D — *Callidium aeneum*, cranium, ventral view.

- 10(9) Front margin of frons shallowly emarginate behind labrum and slightly raised medially. Pleural discs shifted towards lower side of epipleurum, not surrounded by pigmentation
..... femoratus

R. clavipes (F., 1775)

Main distinguishing characters in the key.

Cranium (1.6–1.7) white. Medial frontal line indistinct. Front margin of frons almost straight; striation often indistinct. 2nd antennal segment about 1.5 times longer than wide. 3rd segment about as long as width of 2nd. Dorsal and ventral stemmata absent. Pigmented spots of main stemmata present or absent. Gula narrow, elongate. Ventral sclerite (10) strongly transverse. Labrum about 1.5 times wider than long, with pale basal sclerotization. 2nd segment of maxillary palps as long as 3rd, shorter than 1st. Mentum with very distinct large lateral sclerites. Segments of labial palps elongate, about equal in length.

Pigmentation of prothorax pale yellow. Lateropraesternum without pigmentation. Posterior area of pronotum shining, rather regularly longitudinally rugose. Setae of prothorax strong, with distinct basal rings. 1st abdominal spiracle almost twice shorter than thoracic spiracle. Mesothorax and metathorax dorsally and ventrally and all abdominal ampullae irregularly rugose, shining. Body length up to 25 mm, width up to 6 mm.

Habits: Polyphagous on deciduous trees (*Acer*, *Alnus*, *Castanea*, *Fagus*, *Quercus*, *Salix*, *Malus*, *Prunus*, *Tilia* and others). Larvae feed subcortically and in wood, pupation in heartwood from May to June. Life cycle about 2 years. Adults from May to August.

Distribution: Europe, Caucasus, Transcaucasia, Near East, Iran,

Material: 17. 5. 1973, SU, Chernomorskii reserve, 1/I, in dry twig of *Rhamnus*, lgt. I. N. Lyam-tseva, coll. IS; 25. 8. 1976, Bulgaria, Ropotamo, 1/I, in dry branches of *Ulmus*, lgt. and coll. S.

R. spinicornis (ABEILLE DE PERRIN, 1869)

Larvae similar to those of *R. clavipes*, though rather smaller. Main distinguishing characters in the key.

Medial frontal line indistinct. Front margin of frons with shallow emargination behind labrum. Dorsal stemmata slightly visible. Pigmented spots of main stemmata black. 3rd antennal segment about twice as long as broad. 1st and 2nd segments of maxillary palps transverse, 3rd elongate. 1st segment about equal in length to 3rd, longer than 2nd. Submentum with 2 strong setae. 2nd segment of labial palps longer than 1st. Thoracic spiracle about 1.4 times longer than 1st abdominal spiracle. Body length up to 13.5 mm, width up to 3.5 mm.

Habits: Larvae feed subcortically and later in wood of dry thin branches of *Quercus* and probably also in fruit trees. Adults from June to August.

Distribution: West of USSR (Moldavia), Europe.

Material: Yugoslavia, Buje, 2/I, *Quercus*, lgt. P. Schurmann, coll. M. Sláma; 8. 1984, CS, Slovakia, Štúrovo, 1/–, *Quercus*, lgt. V. Kubáň, coll. S; 10. 6. 1984, Bulgaria, Kresna, 1/–, *Quercus*, lgt. G. Dunay, coll. S.

R. ungaricus (HERBST, 1784)

Main distinguishing characters in the key.

Cranium (1.5) pale yellow. Medial frontal line distinct near hind end. Front margin of frons procurved, strongly longitudinally striate. Labrum strongly transverse, with pale basal pigmentation. 2nd antennal segment about 1.5 times longer than wide, 3rd segment about 3 times longer than wide. Dorsal and ventral stemmata absent. Pigmented spots of main stemmata distinct. Gula elongate. Ventral sclerite (6) moderately transverse. Segments of maxillary palps about equal in length. 1st segment transverse, 2nd segment subquadrate. Submentum with 4 setae. Lateral sclerites of mentum indistinct. 1st segment of labial palps subquadrate, much longer than 2nd.

Hind area of pronotum very finely striate, posteriorly dull. Setae of prothorax not very strong, short, their basal rings indistinct. Thoracic spiracle about 1.5 times longer than 1st abdominal spiracle. Body length up to 30 mm, width up to 9 mm.

Habits: Larvae feed subcortically and then in wood of dead or dying branches of deciduous trees, preferring *Acer*, but also in *Salix*, *Ficus carica* and apparently others. Adults from June to August.

Distribution: Europe.

Material: 10. 6. 1960, SU, Voronezh reg., Tellerman, 1/I, from dry wood of *Acer*, lgt. G. V. Lindemann, coll. IS.

R. insubricus (GERMAR, 1824)

Larvae very similar to those of *R. ungaricus*. I did not find any distinguishing character.

Habits: Larvae feed subcortically and then in wood of deciduous trees (*Acer*, *Ficus carica*, *Fraxinus*, *Alnus* and apparently others). Adults from June to August.

Distribution: South Europe, North Africa.

Material: 7. 7. 1964, France, Castellane, 4/I, from *Acer*, lgt. and coll. M. Sláma; Algeria, Tizi n'Test, 2/I, from *Acer*, lgt. G. Sama, coll. J.

R. siculus STIERLIN, 1864

Very similar to larvae of *R. ungaricus*. Main distinguishing characters in the key.

Labrum less transverse, often as long as wide. Body length up to 27 mm, width up to 8 mm.

Habits: Larvae feed subcortically and later in wood of *Acer*.

Distribution: Sicilia.

Material: 25. 4. 1984, Italia, Sicilia, Madonie, Piano Zucchi, 13/I, from *Acer pseudoplatanus*, lgt. G. Sama, coll. S.

R. macropus (GERMAR, 1824)

Main distinguishing characters in the key.

Cranium (1.6) white. Medial frontal line indistinct. 2nd antennal segment about twice longer than wide. 3rd segment about 3 times longer than wide, about as long as width of 2nd segment. Dorsal and ventral stemmata absent, rarely dorsal stemmata visible. Pigmented spots of main stemmata distinct. Gula slightly transverse, often a little darker than hypostoma. Ventral sclerite 7 times wider than gular length. Labrum subcircular, feebly pigmented basally. 1st and 2nd segments of maxillary palps transverse. 2nd segment about equal in length to 3rd, shorter than 1st. Submentum with two setae. Mentum with distinct lateral sclerites. 1st segment of labial palps subquadrate, about as long as 2nd. Posterior area of prothorax shining, strongly regularly striate. Prothoracic setae slender, with basal rings indistinct. Thoracic spiracle about 1.2–1.3 times longer than 1st abdominal spiracle. Body length up to 16 mm, width up to 4 mm.

Habits: Larvae polyphagous on deciduous trees (*Fagus*, *Juglans*, *Castanea*, Rosaceae and others). Larvae feed subcortically. Pupation in wood in spring. Life cycle about 2 years. Adults from April to August.

Distribution: Europe, Transcaucasia, Caucasus, Near East, Iran.

Material: 18. 3. 1980, SU, Krasnodarskii region, Elizavetinskaya, 7/I, *Quercus*, lgt. A. I. Miroshnikov, coll. IS; 14. 3. 1965, CS, Snina, 7/I, *Fagus*, lgt. and coll. M. Sláma.

R. femoratus (L., 1758)

Rather similar to larvae of *R. macropus*. Distinguishing characters in the key.

Habits: Polyphagous on deciduous trees (*Castanea*, *Alnus*, *Juglans*, *Quercus*, Rosaceae and others). Adults from May to July. Larvae feed subcortically. Pupation in wood in spring.

Distribution: West Europe.

Material: 27. 3. 1976, CS, Stará Boleslav, 1/I, *Quercus*, lgt. and coll. S; 1983, CS, Praha env. (Úvaly), many larvae ex ovo from *Quercus*, lgt. M. Nikodým, coll. S.

Genus *Pronocera* MOTSCHULSKY, 1859

Type species: *P. daurica* MOTSCHULSKY, 1859 = *Callidium brevicollis* GEBLER, 1833

Larvae very similar to those of *R. macropus*. Body rather depressed, with protuberant epipleurum and coxal lobes of abdominal segments. Setae long and strong.

Medial frontal line indistinct. Antennal foramen may be narrowly opened.

2nd antennal segment slightly longer than wide. 3rd segment about twice longer than wide, about as long as width of 2nd segment.

Dorsal and ventral stemmata absent. Main stemmata large, pigmented spots distinct, corneae strongly convex. Poststemmatal protuberance present.

Pigmentation of front margin of hypostoma interrupted medially by pale gula. Gula subquadrate.

Labrum transverse. 1st and 2nd segments of maxillary palps strongly transverse. 3rd segment longer than 2nd but shorter than 1st. Mentum with very large lateral sclerites. Labial palps separated by less than width of their 1st segment. 1st segment subquadrate, slightly shorter than elongate 2nd segment. Ligula very small, shorter than 1st palpal segment.

Terga and sterna of meso- and metathorax dull microreticulate. Abdominal ampullae strongly irregularly rugose, dull microreticulate, but reticulation of dorsal ampullae in mature larvae may be indistinct, then dorsal ampullae shining. Pleural discs present on abdominal segments 1 to 3. Discs very large and distinct, about 2 or more times wider than spiracles, not surrounded by pigmentation. Thoracic spiracle about 1.5 times longer than 1st abdominal spiracle. Body length up to 14 mm, width up to 3.5 mm.

Two species in Palaearctic Region, larvae of one of them at my disposal.

P. angusta (KRIECHBAUM, 1844)

Habits: Larvae feed subcortically in dead branches and tops of *Picea* (STARZYK, LESSAER, 1984), *Abies* and *Larix*. Pupation in wood from May to June. Adults from May to August. Life cycle lasts two years.

♂ Distribution: West of USSR (Carpathian Mts.), Europe.

♂ Material: 1967, CS, Bohemia c., Slapy, 1/I, *Picea*, lgt. and coll. M. Sláma; 1977–80, CS, Bohemia c., Neveklov env., 2/I and exuviae, *Picea* and *Larix*, lgt. et coll. S.

Genus *Leioderus* REDTENBACHER, 1845

Type species: *L. testaceus* REDTENBACHER, 1845 = *L. kollari* REDTENBACHER, 1849

Larvae similar to those of *R. macropus* but body less depressed, epipleurum and coxal lobes of abdominal segments less strongly protuberant. Setae dense, long, but slender.

Head white. Cranium strongly transverse (1.6). Front margin of frons procurved, obliquely rugose. Medial frontal line indistinct.

Antennal ring closed. Antennae long. 2nd antennal segment long, about twice longer than wide. 3rd segment short, elongate, rather shorter than width of 2nd segment.

Dorsal and ventral stemmata absent. Main stemmata very large, corneae strongly convex, pigmented spots distinct. Poststemmatal protuberance present.

Gula transverse, darker than hypostoma, but its anterior margin less pigmented

than anterior margin of hypostoma. Ventral sclerite (10) with some small setae near straight front margin.

Labrum about 1.5 times wider than long, with pale basal pigmentation.

Setae of labiomaxillary complex unusually long. Setae of mentum reaching apex of maxillary palps. 1st segment of maxillary palps transverse, 2nd subquadrate, 3rd segment about as long as 1st, longer than 2nd.

Submentum with 4 setae, without pigmentation. Lateral pigmentation of mentum indistinct. Praementum with narrow basal pigmentation interrupted medially. Labial palps separated by less than width of their 1st segment. 1st segment transverse, shorter than 2nd. Ligula very small, narrow, a little longer than 1st palpal segment.

Pigmentation of prothorax pale yellow. Basal rings of setae indistinct. Posterior glabrous area of pronotum strongly regularly and densely striate, shining. Meso- and metathorax dorsally and ventrally and abdominal ampullae microreticulate. Thoracic spiracle about 1.1–1.2 times longer than 1st abdominal spiracle. Pleural discs of 1st abdominal segment indistinct. Discs of 2nd and 3rd segments large and distinct, with diffuse border lines. Body length up to 18 mm, width up to 4.7 mm.

Two species in Palaearctic Region, larvae of one of them at my disposal.

L. kollari REDTENBACHER, 1849

Habits: Polyphagous on deciduous trees (*Acer*, *Ulmus*, *Quercus*, *Carpinus* and apparently others). Larvae feed subcortically in dead branches. Pupation in wood. Life cycle lasts two years. Adults from May to June.

Distribution: Europe, reaching Ural, Near East.

Material: 5. 1963, CS, Bohemia, Křivoklát, 9/I, from *Acer pseudoplatanus*, lgt. and coll. M. Sláma; 4. 1980, CS, Moravia, Břeclav, 2/I, *Acer campestre*, lgt. J. Hála, coll. S; 2. 9. 1983, CS, Slovakia, Bratislava-Vajnory, 8/I, in dry branches of *Acer campestre*, lgt. and coll. S.

Genus *Turanium* BAECKMANN, 1923

Type species: *Callidium scabrum* KRAATZ, 1882

Larvae rather similar to those of *R. macropus* but less depressed; coxal lobes and epipleurum of abdominal segments less protuberant.

Head white. Cranium (1.6) rounded behind middle. Medial frontal line indistinct. Anterior margin of frons feebly emarginate behind labrum, sometimes almost straight, finely obliquely rugose, often almost smooth. Antennal ring very narrowly opened, or closed.

Dorsal and ventral stemmata absent. Main stemmata large, corneae convex. Poststemmatal protuberance absent.

Ventral sclerite (7) glabrous. Anterior margin of hypostoma straight, its pigmentation interrupted medially by gula. Gula elongate, its posterior part often darker than hypostoma.

Labial palps separated by less than width of their 1st segment. Apical segments of maxillary and labial palps often subquadrate. Ligula short and narrow, shorter than 1st segment of labial palp.

Prothorax with bright yellow spots on pronotum; pigmentation of alar lobes indistinct. Setae of pronotum with very large dark brown basal rings. Posterior glabrous area of pronotum strongly regularly striate.

Meso- and metathorax dorsally and ventrally and abdominal ampullae irregularly rugose, shining, or dull, microreticulate.

Legs short, trochanter distinct, with basal pigmented band, without setae.

Pleural discs on abdominal segments 1 and 4 small, often indistinct, but very large and distinct on segments 2 to 3. Pleural discs of 3rd segment about twice larger than spiracle. Thoracic spiracle about twice longer than 1st abdominal spiracle.

Four species in Soviet Central Asia, larvae of 3 of them at my disposal.

1(4) Abdominal ampullae, meso- and metathorax at least partly microreticulate.

2(3) 2nd antennal segment transverse or subquadrate, 3rd segment shorter than width of 2nd, may be almost quadrate. 3rd segment of maxillary palps conical, about as long as wide

..... *juglandis*

3(2) 2nd antennal segment elongate, 3rd longer, about as long as width of 2nd segment. 3rd segment of maxillary palps cylindrical, elongate

..... *pilosum*

4(1) Abdominal ampullae, meso- and metathorax without microreticulation, entirely shining

..... *scabrum*

T. scabrum (KRAATZ, 1882)

Main distinguishing characters in the key.

2nd antennal segment about 1.2 times longer than wide, 3rd segment about twice longer than wide, about as long as width of 2nd. 1st and 2nd segments of maxillary palps transverse, 3rd segment about equal in length to 2nd, shorter than 1st. First segment of labial palps slightly transverse, about equal in length to 2nd. Body length up to 18 mm, width up to 4 mm.

Habits: Polyphagous on deciduous trees (*Elaeagnus*, *Prunus*, *Rosa*, *Halimodendron*, *Tamarix* and others). Larvae feed subcortically, pupation in wood in spring. Adults from May to July.

Distribution: South and Middle Kazakhstan, Tadzhikistan, Uzbekistan, East Turkmenia.

Material: 25. 8. 1971, SU, Kazakhstan, Chimkent, 20/I, *Prunus*, lgt. D, coll. IS; 9. 4. 1973, SU, Turkmenia, Dainau, 2/I, *Elaeagnus*, lgt. N. P. Krivosheina, coll. IS.

T. pilosum (REITTER, 1891)

Main distinguishing characters in the key.

2nd antennal segment about 1.2–1.3 times longer than wide. 3rd segment about twice longer than wide. 1st and 2nd segments of maxillary palps transverse, 1st

segment about equal in length to 3rd, longer than 2nd. 1st segment of labial palps subquadrate, shorter than 2nd. Body length up to 18 mm, width up to 4 mm.

Habits: Polyphagous on deciduous trees (*Juglans*, *Amygdalus*, *Cydonia*, *Malus*, *Armeniaca*, *Cerasus*, *Acer*, *Salix*, *Populus*, *Ulmus*, *Morus*, *Sorbus* and others). Larvae feed subcortically in dry branches. Pupation in wood in spring. Adults from May to August.

Distribution: South Kazakhstan, Uzbekistan, Tadzhikistan, Kirgizia.

Material: 12. 5. 1965, SU, Kirgizia, Sary-Chelek, 1/I, *Juglans*, lgt. B. M. Mamaev, coll. IS; 25. 5. 1978, SU, Kirgizia, Sary-Chelek, 7/I, *Juglans*, lgt. A. V. Kompantsev, coll. IS.

T. juglandis BAECKMANN, 1923*)

Main distinguishing characters in the key.

3rd segment of maxillary palps conical, as long as wide, about equal in length to 2nd, shorter than 1st. 1st and 2nd segments transverse. 1st segment of labial palps transverse, 2nd about as long as wide, shorter than 1st. Body length up to 18 mm, width up to 4 mm.

Habits: Polyphagous on deciduous and coniferous trees (*Picea*, *Abies*, *Juglans* and apparently others). Larvae feed subcortically in dry branches. Pupation in wood in spring. Adults from May to August.

Distribution: West Tian-Shan (Kirgizia, Uzbekistan).

Material: 14. 5. 1965, SU, Kirgizia, Sary-Chelek, 1/I, *Picea*, lgt. B. M. Mamaev, coll. IS; 26. 5. 1978, SU, Kirgizia, Sary-Chelek, 2/-, *Abies*, lgt. A. V. Kompantsev, coll. IS.

Genus *Callidium* F., 1777

Type species: *Cerambyx violaceus* L., 1758

Body robust, with long dense setae, without microasperities.

Head white or pale yellow, with strongly sclerotized black mouthframe. Cranium (1.4–1.5) with sides almost parallel in first one-fourth and then broadened and widely rounded behind middle. Posterior margin deeply emarginate (Fig. 16 D). Frontal lines and medial frontal line indistinct, or latter often hardly visible near hind end. Frons finely rugose, with a row of praefrontal setae (2,2,1). Front margin of frons almost straight (or even recurved), pigmented back to the row of praefrontal setae, coarsely obliquely striate.

Antennal ring closed or very narrowly opened. Antennae long, all segments strongly sclerotized, elongate.

Dorsal and ventral stemmata absent. One pair of main stemmata present; corneae convex, pigmented spots greyish.

Pigmentation of gena more or less widely surrounding stemmata. Gena and pleu-

rostoma coarsely rugose. Gena with many dense short setae. Subfossal process mostly present.

Hypostomal lines distinct anteriorly. Ventral sclerite (8) glabrous, widely pigmented, sometimes with 4 strong teeth. Pigmentation of anterior margin may or may not be interrupted by pale gula. Gula elongate, posteriorly not darker than hypostoma.

Labrum transverse, with pale basal pigmentation.

Mandibles black, or with brown basal part, bearing several small setae.

Labiomaxillary complex attached to ventral sclerite by about 3 widths of gula. Mala transverse, with numerous short and several long setae apically. Palpiger and 1st segment of maxillary palps with conspicuous lateral processes.

1st segment of maxillary palps transverse, 2nd subquadrate, 3rd elongate. 2nd segment longer than 3rd and shorter than 1st.

Submentum with two setae. Mentum with large lateral sclerites. Praementum with wide basal pigmentation. Labial palps separated by less than width of their 1st segment. 1st segment subquadrate, shorter than elongate 2nd segment. Ligula very short and narrow, often indistinct.

Prothorax with yellow spots on pronotum and pale yellow ones on alar lobes. Two rather pale paramedian blotches may be visible on lateropraesternum. Setae of pronotum long but slender, with basal rings indistinct. Posterior glabrous area of pronotum strongly longitudinally striate, shining. Border lines of mediopraesternum absent.

Meso- and metathorax and abdomen similar to those of *Ropalopus*, but epipleurum and coxal lobes not strongly protuberant. Meso- and metathorax dorsally and ventrally and abdominal ampullae microreticulate (but reticulation may be rather diffuse), or partly microgranulate. Pleural discs present on segments 1 to 4. Discs of 1st segment small, discs of 4th segment hardly visible, diffuse. Discs of 2nd and 3rd segments large and very distinct. Discs of 3rd segment more than twice larger than spiracle.

About 12 species in Palaearctic Region, larvae of 4 of them at my disposal.

- 1(2) Anterior margin of hypostoma with 4 distinct teeth (Fig. 16 D). *aeneum*
- 2(1) Anterior margin of hypostoma rugose but without teeth.
- 3(4) Pleural discs of 2nd abdominal segment situated from underneath of raised epipleurum, discs of 3rd segment situated on epipleurum from above, near spiracles *violaceum*
- 4(3) Pleural discs of 2nd and 3rd abdominal segments situated at the same level, from above, near spiracles.
- 5(6) Pleural discs of 1st and 4th abdominal segments rather distinct. Discs of 1st segment larger than its spiracles. *chlorizans*
- 6(5) Pleural discs of 1st and 4th segments hardly visible. Discs of 1st segment smaller than its spiracles *coriaceum*

*) Larvae of this species were previously erroneously determined by me (MAMAEV, DANILEVSKY, 1975) as *T. johannis*.

C. aeneum (DEGEER, 1775)

Main distinguishing characters in the key.

Pigmentation of gena about as wide as diameter of stemma. Subfossal process sometimes absent. 2nd antennal segment about 1.7 times longer than wide. 3rd segment shorter than width of 2nd. 1st segment of maxillary palps transverse, 2nd subquadrate, 3rd elongate. 2nd segment shorter than 1st and longer than 3rd. 1st segment of labial palps subquadrate, 2nd elongate, longer than 1st. Thoracic spiracle more than twice longer than wide, about 1.5 times longer than 1st abdominal spiracle. Pleural discs of segments 1 to 4 situated at the same level, from above on epipleural protuberance. Discs of 1st segment very small, smaller than its spiracle, discs of 4th segment indistinct. Body length up to 20 mm, width up to 5 mm.

Habits: Polyphagous on coniferous trees (*Abies*, *Juniperus*, *Larix*, *Picea*, *Pinus*). Larvae feed subcortically in dead branches and stems. Pupation in sapwood in spring. Adults from June to July. Life cycle lasts 2 years. According to PLAVILSHCHIKOV (1940) and DEMELT (1966), larvae also live in deciduous trees (*Fagus*, *Quercus* and others).

Distribution: Europe, Caucasus, Transcaucasia, Siberia, Far East, Japan.

Material: 1960, CS, Bohemia, Slapy, 5/I, *Picea*, lgt. and coll. M. Sláma; 1977, 1979, CS, Bohemia, Benešov, 11/I, *Picea*, *Pinus*, *Larix*, lgt. and coll. S.

C. violaceum (L., 1758)

Main distinguishing characters in the key.

Pigmentation of gena behind stemmata sometimes very narrow, less than half diameter of stemma, but often rather wide, wider than stemma. Subfossal process always rather distinct. 2nd antennal segment almost twice as long as broad. 3rd segment slightly shorter than width of 2nd. Thoracic spiracle about 1.6 times longer than wide and about 1.4 times longer than 1st abdominal spiracle. Body length up to 26 mm, width up to 5.5 mm.

Habits: Polyphagous on conifers (*Pinus*, *Picea*, *Larix*, *Abies*). According to PLAVILSHCHIKOV (1940) and DEMELT (1966), larvae also live in deciduous trees (*Alnus*, *Fagus*, *Quercus* and others). Larvae feed subcortically, then in sapwood of stems and branches, often in seasoned timber and wooden structures. Pupation in the sapwood in spring or autumn. Adults from June to August. Life cycle lasts two years.

Distribution: Europe, Caucasus, Transcaucasia, Siberia, Japan, Korea, Mongolia, North China, North America.

Material: 1968–1970, SU, Moscow region, 27/I, *Picea*, *Pinus*, lgt. B. M. Mamaev, coll. IS; 1976, 1979, 1980, CS, Bohemia, Benešov, 14/I, from *Picea*, lgt. and coll. S.

C. coriaceum PAYKULL, 1800

Main distinguishing characters in the key.

Pigmentation of gena behind stemmata often rather wider than stemma. 2nd antennal segment about twice longer than wide. 3rd segment about as long as width

of 2nd segment. Subfossal process always distinct. Thoracic spiracle about twice longer than wide and about 1.5 times longer than 1st abdominal spiracle. Body length up to 24 mm, width up to 6 mm.

Habits: Polyphagous on coniferous trees (*Picea*, *Pinus*, *Larix*, *Abies*), preferring *Picea*. Larvae feed subcortically. Pupation in sapwood in spring. Adults from June to August. Life cycle lasts 2 years.

Distribution: Europe, Siberia, Mongolia, North China, Korea.

Material: 18. 7. 1977, CS, Slovakia, Liptovský Hrádok, 11/I, *Picea*, lgt. and coll. S; 10. 8. 1961, Sweden, 1/I, *Picea*, coll. M. Sláma; 18. 8. 1978, CS, Bohemia, Šumava, Lenora, 9/I, from *Picea*, lgt. and coll. S.

C. chlorizans (SOLSKY, 1870)

Main distinguishing characters in the key.

Pigmentation of gena behind stemmata from rather narrow to relatively wide. 2nd antennal segment about 1.5 times longer than wide. 3rd segment short, about twice shorter than width of 2nd segment. Subfossal process sometimes indistinct. Thoracic spiracle about twice longer than wide and about 1.2 times longer than 1st abdominal spiracle. Body length up to 25 mm, width up to 5 mm.

Habits: Polyphagous on coniferous trees (*Larix*, *Abies* and apparently others). Bionomics as in *C. coriaceum*.

Distribution: Siberia, Mongolia, North China, Korea, Japan.

Material: 3. 7. 1974, SU, Tuva, Ishtii-Khem, 6/I, *Larix*, lgt. D, coll. IS; 30. 8. 1975, SU, Khabarovsk reg., near Gur-river, 5/I, *Abies*, lgt. D, coll. IS.

Genus *Callidiellum* LINSLEY, 1940

Type species: *Semanotus cupressi* VAN DYKE, 1923

Larvae very similar to those of *Callidium*.

Head white, with strongly pigmented mouthframe. Cranium (1.5) with sides strongly diverging posteriorly, widest near emarginate hind margin (Fig. 17 A). Frontal lines and medial frontal line indistinct. Frons smooth, pigmented back to row of praefrontal setae (2,2,1), glabrous posteriorly. Front margin of frons straight or slightly emarginate behind labrum.

Antennal ring widely opened. Antennae short, 2nd segment slightly longer than wide, or subquadrate, with small main sensillum. 3rd segment rather shorter than 2nd. Both segments bearing short setae.

Dorsal and ventral stemmata absent. One pair of main stemmata present, corneae slightly convex, pigmented spots greyish.

Gena without pigmentation behind stemmata, smooth, densely setose. Poststemmatial protuberance absent. Pleurostoma smooth. Subfossal process present.

Hypostomal lines anteriorly distinct. Ventral sclerite (6) glabrous, finely obliquely

striate, with strongly pigmented almost straight anterior margin, its pigmentation not interrupted by gula. Gula elongate.

Labrum transversely oval, with wide basal sclerotization, densely setose peripherally.

Mandibles black, with pale brown smooth basal part, bearing two setae.

Labiomaxillary complex as in *Callidium*. 3rd segment of maxillary palp equal in length to 1st, longer than 2nd.

Prothorax with pale yellow pigmentation, densely setose. Setae short, their basal rings distinct. Posterior area of pronotum densely striate. Lateropraesternum with two yellowish paramedian blotches. Terga and sterna of meso- and metathorax, as well as all abdominal ampullae, distinctly microreticulate.

Legs well developed. Trochanter present but without setae. Pleural discs rather distinct on segments 1 to 4, situated from above on epipleural protuberance. Discs of 1st segment small, other discs large, larger than abdominal spiracles. Thoracic spiracle about 1.5 times longer than 1st abdominal spiracle. Body length of available larvae up to 11.5 mm, width up to 4.3 mm.

One species in Palaearctics.

C. rufipenne (MOTSCHULSKY, 1860)

Habits: Polyphagous on coniferous trees. Larvae feed subcortically in *Cryptomeria*, *Abies*, *Chamaecyparis* and apparently others. Adults from June to August.

Distribution: Sakhalin, Korea, Japan, China.

Material: 18. 8. 1956, Japan, Kogoro, 7/?, coll. S. Nakamura.

Genus *Pyrrhidium* FAIRMAIRE, 1864

Type species: *Cerambyx sanguineus* L., 1758

Body robust, covered with long dense setae, without microasperities.

Head pale yellow, with strongly pigmented dark brown mouthframe. Cranium (1.5) with sides strongly diverging posteriorly, rounded near slightly emarginate hind margin. Frontal lines indistinct, medial frontal line slightly visible. Frons smooth. Front margin of frons widely procurved, without emargination behind labrum, smooth, pigmented back to row of praefrontal setae (2, 2, 1).

Antennal ring widely opened. Antennae long, all segments elongate, sclerotized. 2nd antennal segment less than twice as long as wide. Main sensillum very small, indistinct. 3rd segment long, longer than half length of 2nd. Both segments bearing short setae.

Dorsal and ventral stemmata absent. One pair of large main stemmata present. Corneae slightly convex, pigmented spots greyish.

Gena without pigmentation behind stemmata, bearing one vertical row of setae, smooth. Subfossal process absent.

Hypostomal lines distinct in their anterior half. Anterior margin of hypostoma straight, with two paramedian concavities, widely pigmented and strongly longitudinally striate (Fig. 17 B). Pigmentation of hypostoma interrupted by pale gula. Gula subquadrate, raised, posteriorly slightly darker than hypostoma. Posterior part of ventral sclerite (7) glabrous, smooth.

Labrum transverse, with distinct basal pigmentation and short dense peripheral setae.

Mandibles black, with some short setae near base.

Labiomaxillary complex attached to ventral sclerite by about 2.5 widths of gula. Palpiger of maxillary palp with conspicuous lateral process. Lateral process of 1st segment of maxillary palp very small, indistinct. 1st palpal segment transverse, 2nd subquadrate, 3rd elongate. All segments about equal in length. Mala subquadrate, with short apical setae.

Submentum yellow, with two setae. Mentum without lateral sclerites. Praementum with wide basal sclerotization. 1st segment of labial palps subquadrate, 2nd elongate, about as long as 1st. Ligula short, narrow, but distinct, about as long as 1st palpal segment.

Thorax and abdomen similar to those of *Callidium*, but pigmented spots of pronotum and alar lobes bright yellow. Trochanter with narrow basal sclerotization and often with a seta. Thoracic spiracle about 1.3 times longer than wide, and 1.8 times longer than 1st abdominal spiracle. Spiracles without marginal chambers.

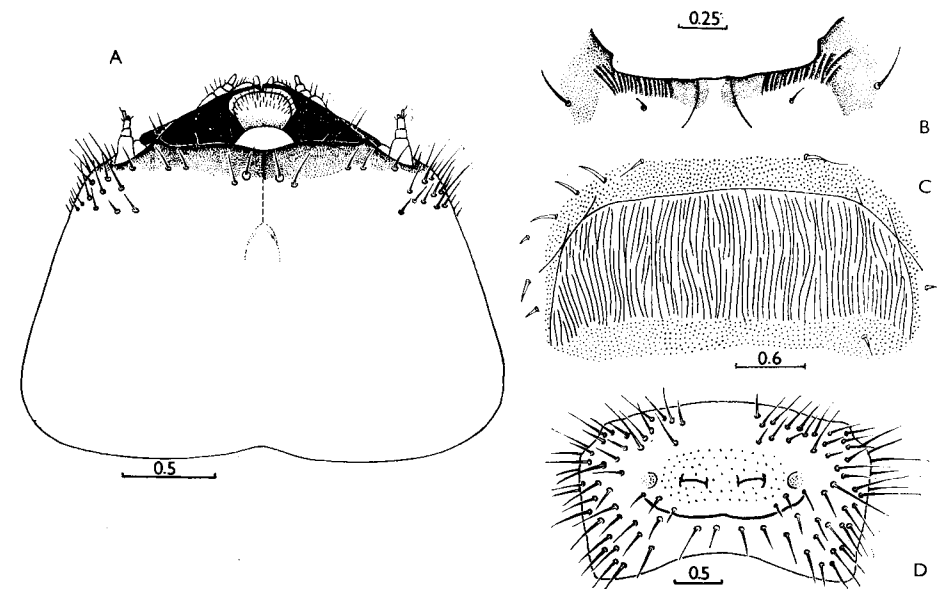


Fig. 17: A — *Callidiellum rufipenne*, head, dorsal view. B — *Pyrrhidium sanguineum*, ventral cranial sclerite. C — *Semanotus persicus*, dorsal ampulla of 2nd abdominal segment. D — *S. undatus*, sclerites of 7th abdominal sternum.

Pleural discs of abdominal segments 1 and 4 diffuse. Pleural discs of 2nd and 3rd abdominal segments large and distinct, situated from above on epipleural protuberance. Body length up to 15 mm, width up to 4.2 mm.

One species in the genus.

P. sanguineum (L., 1758)

Habits: Polyphagous on deciduous trees (*Quercus*, *Carpinus*, *Aesculus*, *Fagus*, *Castanea* and others), preferring *Quercus*. Larvae feed subcortically in dead branches and stems. Pupation in sapwood and partly in the bark from March to April or in autumn. Adults from May to June. Life cycle lasts 2 years.

Distribution: Europe, Caucasus, Transcaucasia, North Iran, Near East, North Africa.

Material: 18. 8. 1970, SU, Krasnodar region, Ubinskaya, 9/1, *Quercus*, lgt. D, coll. IS.

Genus *Semanotus* MULSANT, 1839

Type species: *Cerambyx undatus* L., 1758

Body robust, with dense strong setae, some lateral body regions and intersegmental skin covered with microasperities.

Cranium (1.5) white or yellowish, with widely pigmented dark brown mouthframe, with deeply emarginate hind margin. Frontal lines indistinct, medial frontal line distinct or indistinct. Front margin of frons strongly raised, with deep median depression behind labrum, pigmented back to row of praefrontal setae (2,2,1) or even slightly behind them, rugose or smooth, with groups of short strong setae near anterior angles.

Antennal ring closed or indistinctly opened near stemmata. Antennae long but 3rd segment rather short, less than twice as long as wide. 2nd segment about 1.5 times longer than wide. Main sensillum very short, indistinct.

Dorsal and ventral stemmata absent. One pair of main stemmata present, but hardly visible, corneae flat, partly to entirely pigmented, subcircular. Pigmented spots absent. Often main stemmata indiscernible.

Poststemmatal protuberance absent. Gena finely rugose, bearing dense short setae, very narrowly pigmented behind stemmata, or without pigmentation. Small subfossal process often present.

Hypostomal lines distinct in anterior part. Hypostoma glabrous, finely obliquely rugose. Anterior margin straight, with small paramedian depressions, widely pigmented, relatively smooth. Gula raised, elongate, slightly darker than hypostoma.

Labrum semicircular, transverse, with pale basal pigmentation and dense short peripheral setae.

Mandibles black, with some short basal setae.

Labiomaxillary complex attached to ventral sclerite by about 3 widths of gula. Maxillary palpiger and 1st segment of maxillary palp with rather long processes.

1st palpal segment transverse, 2nd subquadrate, 3rd elongate. 2nd segment longer than 3rd, shorter than 1st. Mala subquadrate, with dense short apical setae.

Submentum yellowish, with two setae. Mentum with two lateral sclerites, or with wide basal pigmentation. Praementum with wide basal pigmentation. Labial palps separated by about one width of their 1st segment, or slightly more. Both segments elongate, 1st segment longer than 2nd. Ligula short but distinct, not longer than 1st segment of labial palp, with some short apical setae.

Thorax and abdomen similar to those of *Ropalopus*. Prothorax with yellow spots on pronotum and with pale yellow spots on alar lobes. Glabrous paramedian areas of lateropraesternum slightly yellowish. Pronotal setae rather short, their basal rings indistinct. Glabrous posterior area of pronotum finely striate, shining. Meso- and metathorax dorsally and ventrally microreticulate.

Legs well developed. Trochanter with distinct basal sclerotization, with two setae.

Abdominal ampullae microreticulate and dull peripherally, and microgranulate and shining medially, or longitudinally striate. Pleural discs distinct on abdominal segments 2 to 5 or 2 to 4. Sternum of 7th abdominal segment of *S. undatus* with two round sclerites (sometimes lacking). Spiracles without marginal chambers.

About 10 species in Palaearctic Region, 5 of them at my disposal, and larvae of *S. semenovi* were studied earlier (MAMAEV, DANILEVSKY, 1975).

- 1(2) 7th abdominal sternum (Fig. 17 D) with 2 round sclerites (rarely inconspicuous). Dorsal abdominal ampullae 2 to 4 without longitudinal striation *undatus*
- 2(1) 7th abdominal sternum always without sclerites.
- 3(8) Dorsal abdominal ampullae 2 to 4 longitudinally striate (Fig. 17 C).
- 4(5) Stemmata not surrounded by pigmentation of gena *semenovi, laurasi*
- 5(4) Stemmata surrounded by pigmentation of gena.
- 6(7) 3rd antennal segment subquadrate or slightly elongate; stemmata usually distinct. Longitudinal striae of abdominal segments 2 to 4 very distinct, without transverse rugae . . . *persicus*
- 7(6) 3rd antennal segment distinctly elongate, stemmata indistinct, longitudinal striae of abdominal segments 2 to 4 not very distinct, with many fine transverse rugae *russicus*
- 8(3) All (?)*) abdominal ampullae microreticulate, without longitudinal striation . . . *bifasciatus*

S. undatus (L., 1758)

Main distinguishing characters in the key.

Cranium less transverse, with sides widely rounded, widest behind middle. Front margin of frons pigmented back to row of praefrontal setae. 3rd antennal segment about 1.5 times longer than wide, main sensillum small but distinct. Stemmata mostly distinct, never surrounded by pigmentation of gena. Ventral sclerite about 7 times wider than gular length. Mentum with two lateral sclerites.

Thoracic spiracle about 1.7 times as long as wide and 1.7 times longer than 1st abdominal spiracle. Abdomen with 1st dorsal ampulla and all ventral ampullae

*) Only two small dried larvae available, but also according to CHEREPANOV (1981).

microreticulate. Dorsal ampullae 2 to 7 peripherally microreticulate, microgranulate medially. Longitudinal striation of dorsal ampullae 2 to 4 indistinct. Ventral sclerites of 7th abdominal segment at least in European population often poorly developed or absent. Body length up to 20 mm, width up to 3.5 mm.

Habits: Polyphagous on coniferous trees (*Picea*, *Abies*, *Pinus*), preferring *Picea*. Larvae feed subcortically in dead but fresh branches and stems. Pupation in sapwood at the end of summer. Imagoes hatch in autumn and overwinter in pupal cells. Adults from April to July. Sometimes mature larvae overwinter in pupal cells and pupation occurs in spring. Life cycle lasts 2 years.

Distribution: Europe, Siberia, North Mongolia, North China.

Material: 9. 5. 1972, SU, Tuva, Ishtii-Khem, 10/I, *Picea*, lgt. D, coll. IS; 17. – 18. 7. 1977, CS, Slovakia, Liptovský Hrádok, 4/I, *Picea*, lgt. and coll. S; 2. 1984, CS, Moravia, Znojmo, 2/I, *Picea*, lgt. M. Nikodým, coll. S; 7. 1962, CS, Slovakia, Liptovský Hrádok, 5/I, lgt. and coll. M. Sláma.

S. persicus (SOLSKY, 1876), sp. res.

Main distinguishing characters in the key.

Cranium more transverse, with sides strongly diverging posteriorly, widest near hind margin. Praefrontal setae surrounded by pigmentation of front margin of frons. 3rd antennal segment as long as wide. Main sensillum indistinct. Ventral sclerite about 7.7 times wider than gular length. Mentum with wide basal sclerotization.

Thoracic spiracle about twice longer than wide and about 1.4 times longer than 1st abdominal spiracle. 1st and 7th dorsal abdominal ampullae and all ventral ampullae microreticulate. Most part of dorsal ampullae 2 to 4 shining, strongly regularly longitudinally striate, peripheral area microreticulate. Medial areas of dorsal ampullae 5 and 6 microgranulate, peripheral areas microreticulate. Body length up to 29 mm, width up to 7 mm.

Habits: Monophagous on *Juniperus*. Larvae feed subcortically in branches and stems. Pupation in wood at the end of summer. Imagoes hatch in autumn and overwinter in pupal cells. Emergence from March to June. Life cycle lasts two years.

Distribution: Kopetdag, North Iran.

Material: 29. 5. 1971, SU, Turkmenia, Ipai-Kala, 10/I, *Juniperus*, lgt. B. M. Mamaev, coll. IS.

S. ruscicus (F., 1776)

Similar to *S. persicus*. Distinguishing characters in the key.

Habits: Similar to *S. persicus*.

Distribution: South-East of West Europe, North Africa, Turkey, Transcaucasia.

Material: 11. 1964, CS, Slovakia occ., Nové Mesto n/Váh., 1/I, from *Juniperus*, lgt. and coll. M. Sláma.

S. semenovi OKUNEV, 1933

Distinguishing characters in the key, according to MAMAEV and DANILEVSKY (1975).

Habits: Similar to *S. persicus*.

Distribution: USSR from North Kirgizia to South Tadzhikistan and South Uzbekistan.

S. laurasi (LUCAS, 1851)

Front margin of frons procurved, finely longitudinally rugose, its pigmentation surrounds row of praefrontal setae. Medial frontal line distinct near posterior end. Corneae of stemmata flat, pigmented spots absent. Gena without pigmentation behind stemmata. Antennal ring closed. Main antennal sensillum indistinct. Small subfossal process present. Ventral sclerite (8) narrowly pigmented anteriorly. Hypostoma finely transversely striate, with two pairs of setae. Gula slightly darkened. Mentum with two lateral sclerites.

Thoracic spiracle about 1.5 times longer than 1st abdominal spiracle. Terga and sterna of meso- and metathorax, ventral abdominal ampullae and dorsal ampullae 1 and 5 to 7 microreticulate. Dorsal ampullae 5 to 6 finely longitudinally rugose. Dorsal ampullae 2 to 4 shining in the middle and here longitudinally striate, peripheral areas microreticulate. Pleural discs of 1st and 5th abdominal segments diffuse, discs of segments 2 to 4 large, very distinct. Body length 34 mm, width 9 mm.

Habits: Oligophagous on Cupressaceae. Larvae feed in living *Cupressus* and *Juniperus*. Life cycle about 18 months (VILLIERS, 1978). Adults from April to September.

Distribution: France, Spain, North Africa.

Material: 24. 5. 1985, Haut Atlas, Tizi n'Test, 1/I, in *Cupressus atlantica*, lgt. and coll. G. Sama.

S. bifasciatus (MOTSCHULSKY, 1875)

Cranium (1.4) deeply notched posteriorly, with strongly diverging sides. Medial frontal line distinct near hind margin. Front margin of frons procurved, pigmentation surrounds row of praefrontal setae. Antennal ring closed. Main antennal sensillum indistinct. Gena without pigmentation. Subfossal process absent. Ventral sclerite (7) finely rugose, glabrous, with straight, widely pigmented anterior margin. Posterior part of gula darker than hypostoma. Mentum with distinct lateral sclerites. Praementum with wide basal pigmentation.

All ambulatory ampullae microreticulate. Dorsal abdominal ampullae 2 to 4 seem to be without longitudinal striation (both available larvae in poor condition). Body length up to 20 mm, width up to 6 mm.

Habits: Oligophagous on Cupressaceae and Taxodiaceae (*Juniperus*, *Chamaecyparis*, *Thuja*, *Thujopsis*). According to CHEREPANOV (1981), larvae feed subcortically. Pupation in sapwood

at the end of summer. Adults hatch in autumn and overwinter in pupal cells. Emergence in June. Life cycle lasts two years.

Distribution: Ussuri region of USSR, China, Korea, Japan.

Material: 1. 3. 1969, Japan, 2/? coll. S. Nakamura.

Genus *Phymatodes* MULSANT, 1839

Type species: *Cerambyx variabilis* L., 1761 = *Cerambyx testaceus* L., 1758

Body robust, with short dense setae, without asperities.

Cranium white, with dark brown mouthframe, strongly (1.4–1.5) or moderately (1.3) transverse, with sides broadly rounded behind middle, or strongly diverging posteriorly and widest near hind margin (*Ph. maaki*, *Ph. pusillus*); posteriorly almost straight to distinctly emarginate. Frontal lines indistinct. Medial frontal line distinct near hind end. Frons entirely smooth, with front margin slightly emarginate behind labrum or broadly procurved, or nearly straight, pigmented back to row of praefrontal setae (2,2,1).

Antennal ring broadly opened. Antenna long, 3-segmented. 2nd and 3rd segments with very short setae. Main sensillum distinct.

Dorsal and ventral stemmata absent. One pair of main stemmata present, corneae convex, pigmented spots black or greyish, never surrounded by pigmentation of gena.

Poststemmatal protuberance absent. Gena smooth, with a row of short thin setae. Subfossal process absent.

Hypostomal lines distinct anteriorly. Hypostoma smooth, glabrous, pigmented along front margin, latter slightly procurved, almost straight, with two paramedian concavities near gula. Gula pale, or rarely darkly pigmented and darker than hypostoma.

Labrum subcircular or transverse, with some peripheral setae, with narrow basal pigmentation which may be indistinct.

Mandibles black, with brown basal part, bearing short setae.

Labiomaxillary complex attached to ventral sclerite by about 2.5 widths of gula. Lateral processes of maxillary palpiger and 1st palpal segment distinct. Mala subquadrate, with some apical setae.

Submentum slightly pigmented, with two setae. Mentum without lateral sclerites, or sometimes with feebly developed sclerites. Praementum with wide basal pigmentation. Ligula short, but distinct, not longer than 1st segment of labial palps.

Prothorax with bright or pale yellow spots on pronotum and alar lobes. Posterior area of pronotum finely longitudinally striate. Basal rings of pronotal setae indistinct, or rarely large and very distinct. Epipleurum delimited ventrally near its hind margin, or entirely fused with lateropraesternum. Mediopraesternum fused with lateropraesternum. Coxosternum not fused with sternellar fold, completely delimited.

Meso- and metathorax dorsally and ventrally without furrows, microreticulate

or microgranulate, or rarely shining, divided by "X"-shaped grooves dorsally and by transverse grooves ventrally. Alar lobes distinctly delimited dorsally and ventrally. Three divisions of epipleurum separate. Pleurum delimited dorsally in its anterior part. Coxal lobes distinct.

Legs always present, each with trochanter, femur and tibiotarsus, or trochanter absent, or sometimes legs very small, indistinct.

Abdominal ampullae slightly raised, microreticulate or microgranulate, almost without transverse grooves, each with two short lateral longitudinal furrows, but sometimes (*Ph. fasciatus*) shining, each with one transverse groove. Coxal lobes and epipleurum of abdominal segments not strongly protuberant. Pleural discs of 1st segment small or diffuse. Pleural discs of abdominal segments 2 to 3 (or 2 to 4) rather distinct. Spiracles without marginal chambers.

About 20 species in Palaearctic Region, larvae of 12 of them at my disposal.

- 1(20) Femur present and distinct, but if indistinct (*Ph. ussuricus*), then pronotum with pale yellow pigmentation and pronotal setae without basal rings.
- 2(3) Last dorsal abdominal ampulla strongly protuberant and sloped posteriorly. . . *zemlinae*
- 3(2) Last dorsal abdominal ampulla almost flat.
- 4(7) Abdominal ampullae without microgranulation or microreticulation, shining, with deep transverse furrows.
- 5(6) Front margin of frons procurved *fasciatus*
- 6(5) Front margin of frons straight *mediofasciatus*

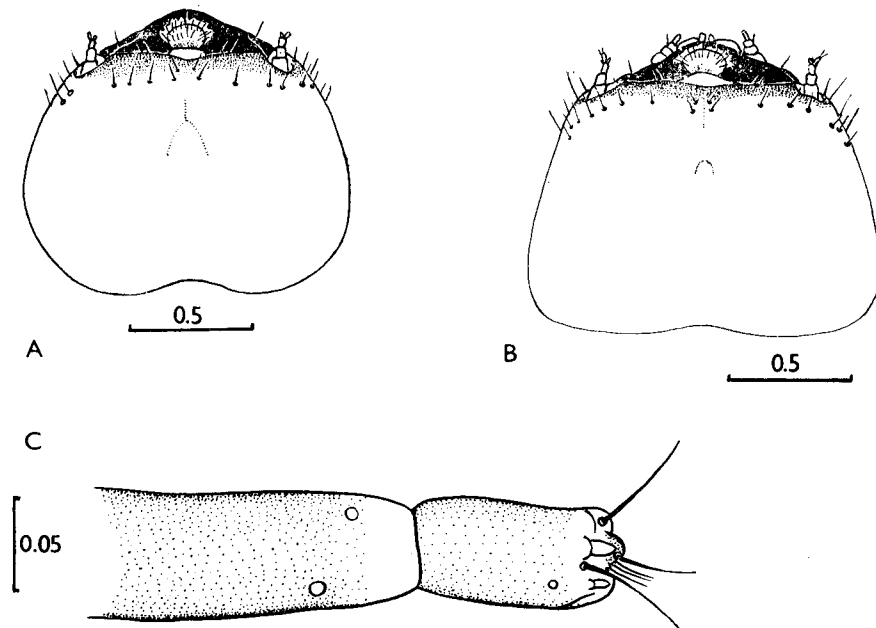


Fig. 18: A – *Phymatodes alni*, head, dorsal view. B – *Ph. ermolenkoi*, dttto. C – *Ph. puncticollis*, antenna.

- 7(4) Abdominal ampullae microgranulate or microreticulate, often dull, their transverse furrows indistinct.
- 8(11) Gula brown, much darker than hypostoma.
- 9(10) Basal rings of pronotal setae indistinct *pusillus*
- 10(9) Basal rings of pronotal setae distinct *maaki*
- 11(8) Gula pale, interrupting anteriorly pigmentation of hypostoma.
- 12(15) Trochanter indistinct.
- 13(14) Femur and tibiotarsus distinct *glabratus*
- 14(13) Legs very small, their segments indiscernible *ussuricus*
- 15(12) Trochanter distinct.
- 16(19) Posterior area of pronotum finely striate.
- 17(18) 3rd antennal segment less than twice longer than main sensillum. *femoralis*
- 18(17) 3rd antennal segment more than twice longer than main sensillum *testaceus*
- 19(16) Posterior area of pronotum coarsely striate *puncticollis*
- 20(1) Femur indistinct, legs in form of small papillae, prothorax with bright yellow pigmentation; basal rings of setae distinct.
- 21(22) Cranium with sides broadly rounded, widest behind middle; posterior margin procurved (Fig. 18A) *alni*
- 22(21) Cranium with sides strongly diverging posteriorly, widest near straight hind margin (Fig. 18B) *ermolenkoi*

Ph. testaceus (L., 1758)

Main distinguishing characters in the key.

Cranium about 1.5 times wider than long, with sides broadly rounded near middle, with almost straight hind margin. Front margin of frons broadly procurved. 2nd antennal segment about 1.5 times longer than wide. 3rd antennal segment more than twice longer than wide. Ventral sclerite about 6.5 times wider than gular length. Paramedian concavities of hypostoma indistinct. Gula transverse. Labrum cordate, transverse. Mentum without sclerites. 1st segment of labial palp transverse, shorter than 2nd. Labial palps separated by about half width of their 1st segment. 3rd segment of maxillary palp longer than 2nd and shorter than 1st.

Pigmentation of prothorax pale yellow, basal rings of setae indistinct. Posterior area of pronotum finely striate. Meso- and metathorax dorsally and ventrally and all abdominal ampullae microgranulate, with transverse furrows indistinct. Pleural discs of 1st abdominal segment small, discs of 2nd and 3rd segments large but indistinct. Thoracic spiracle about twice longer than wide and about 1.4 times longer than 1st abdominal spiracle. Body length up to 15 mm, width up to 4 mm.

Habits: Polyphagous on deciduous trees, preferring *Quercus*. Larvae feed subcortically. Pupation under bark, or sometimes in sapwood. Mature larvae overwinter. Life cycle lasts one or two years. Adults from May to July.

Distribution: Europe, Caucasus, Transcaucasia, North Africa, Near East, North Iran, Siberia, Japan, North America.

Material: 10. 7. 1977, CS, Moravia m., Lednice, 5/I, under bark of *Quercus*, lgt. and coll. S; 30. 5. 1979, CS, Slovakia m., Štúrovo, 4/I, under bark of *Quercus*, lgt. and coll. S; 3. 4. 1976, SU, Crimea Ai-Petri, 10/I, under bark of *Quercus*, lgt. M. Kravchenko, coll. IS.

Ph. femoralis (MÉNÉTRIÈS, 1832)

Very similar to larvae of *Ph. testaceus*, distinguishing characters in the key. Body length up to 15 mm, width up to 4 mm.

Habits: Polyphagous on deciduous trees, preferring *Quercus*. Larvae feed subcortically. Pupation under bark or in sapwood. Life cycle lasts 1 year.

Distribution: Caucasus, Transcaucasia, North Iran.

Material: 1. 7. 1970, SU, Krasnodar reg., Ubinskaya, 8/I, under bark of *Quercus*, lgt. B. M. Mamaev, coll. IS; 2. 5. 1959, SU, Krasnodar reg., Novopokhladnoe, +/I, under bark of *Quercus*, B. M. Mamaev lgt. coll. IS; 4. 5. 1980, SU, Talysh, Avrora, 2/I, under bark of *Quercus*, lgt. D. coll. IS.

Ph. puncticollis MULSANT, 1862

Main distinguishing characters in the key.

Front margin of frons broadly procurved. Antennae seem 2-segmented. 3rd segment in form of small slightly sclerotized tubercle (Fig. 18 C). 2nd segment about 1.5 times longer than wide. Gula slightly elongate. Labrum transversely oval, without basal pigmentation. 3rd segment of maxillary palps as long as 2nd and shorter than 1st. Submentum feebly pigmented, mentum without lateral sclerites. Labial palps separated by less than width of their 1st segment. 2nd segment of palp longer than 1st.

Prothorax with yellow pigmentation. Basal rings of setae indistinct. Femur flat, bearing one seta, or without setae, entirely pigmented. Meso- and metathorax and all abdominal ampullae microreticulate. Pleural discs of 1st abdominal segment indistinct. Pleural discs of 2nd and 3rd abdominal segments very distinct, strongly protuberant. Thoracic spiracle about 1.3 times longer than 1st abdominal spiracle. Anal segment (anal tube) with two small ventral tubercles. Body length up to 8.7 mm, width up to 2.8 mm.

Both available specimens slightly prothetelic. Such characters as anal tubercles, entirely sclerotized flat femur, absence of 3rd antennal segment and strongly protuberant pleural discs, seem abnormal.

Habits: Larvae feed subcortically in dry branches of *Quercus*. Adults from May to June. Distribution: South-East Europe.

Material: 8. 1982, Yugoslavia, Budva, 2/I, from branch of *Quercus*, ex ovo, fix. 29. 11. 1983, lgt. J. Hála, coll. S.

Ph. pusillus (F., 1787)

Main distinguishing characters in the key.

Cranium (1.4–1.3) with sides strongly diverging posteriorly, widest near almost straight hind margin. Front margin of frons narrowly emarginate behind labrum,

2nd antennal segment subquadrate to elongate, 3rd segment about twice longer than wide. Gula subquadrate. Ventral sclerite 7 times wider than gular length. Labrum transverse, oval, without basal pigmentation. 3rd segment of maxillary palps longer than 2nd, shorter than 1st. Submentum feebly sclerotized, mentum almost without latero-basal pigmentation. Labial palps separated by about half width of their 1st segment. 2nd segment of labial palps longer than 1st.

Prothorax with bright orange pigmentation. Basal rings of setae indistinct. Posterior area of pronotum almost without longitudinal striation, microreticulate, dull. Legs small but very distinct, trochanter distinct though without setae. Meso- and metathorax dorsally and ventrally and all abdominal ampullae microreticulate. Pleural discs of 1st abdominal segment indistinct. Pleural discs of 2nd and 3rd segments poorly developed, small. Thoracic spiracle about twice longer than wide, and about 1.6 times longer than 1st abdominal spiracle. Body length up to 15.5 mm, width up to 3.3 mm.

Habits: Larvae feed subcortically and later in wood of *Quercus*, rarely in other trees (*Castanea*). Pupation in wood. Pupae or adults overwinter in pupal cells. Adults fly from March to May. Life cycle lasts one or two years.

Distribution: Europe, Caucasus, Transcaucasia.

Material: 12. 1964, CS, Bohemia c., Nižbor, 2/I, from dead branch of *Quercus*, lgt. and coll. M. Sláma; 2. 4. 1980, SU, Krasnodar reg., Gornii, 2/I, *Quercus*, lgt. A. I. Miroshnikov, coll. IS.

Ph. maaki (KRAATZ, 1889)

Main distinguishing characters in the key.

Cranium (1.3) with sides strongly diverging posteriorly, widest near almost straight hind margin. Front margin of frons roundly procurved. 2nd antennal segment about 1.5 times longer than wide, 3rd segment about twice longer than wide. Gula subquadrate. Ventral sclerite about 8 times wider than gular length. Labrum transverse, oval, without basal pigmentation. 3rd segment of maxillary palps longer than 2nd, shorter than 1st. Submentum slightly pigmented, with two or four setae. Lateral sclerites of mentum indistinct. Labial palps separated by about half width of their 1st segment.

Prothorax with bright orange pigmentation. Posterior half of pronotum without longitudinal striae, finely indistinctly rugose. Legs small, but distinct, trochanter absent, femur distinct, with a seta. Meso- and metathorax dorsally and ventrally and all abdominal ampullae microreticulate. Pleural discs of 1st abdominal segment indistinct. Pleural discs of 2nd and 3rd segments very large and distinct. Thoracic spiracle about twice longer than wide, and about 1.8 times longer than 1st abdominal spiracle. Body length up to 14 mm, width up to 3.3 mm.

Habits: Larvae feed subcortically and later in sapwood of dead *Vitis*. Pupation in wood. Mature larvae overwinter. Pupation in May. Adults from May to July.

Distribution: Soviet Far East, North China, Korea, Japan.

Material: 5. 5. 1959, SU, Ussuri reg., Ugolnaya, 2/I, *Vitis*, lgt. L. A. Anufriev, coll. IS; 24. 8. 1979, SU, Ussuri reg., Sokolchi, 4/I, *Vitis*, lgt. A. V. Kernerartsev, coll. IS.

Ph. fasciatus (VILLERS, 1789)

Main distinguishing characters in the key.

Cranium (1.4) with sides rounded behind middle, hind margin emarginate. Front margin of frons roundly procurved, 2nd antennal segment about 1.5 times longer than wide, 3rd more than twice longer than wide. Gula transverse or subquadrate. Ventral sclerite about 9 times wider than gular length. Labrum transversely oval, basal pigmentation indistinct. 1st segment of maxillary palp about as long as 3rd, 2nd rather shorter. Submentum without pigmentation. Mentum with pale lateral sclerites. 2nd segment of labial palp longer than 1st. Labial palps separated by about half width of their 1st segment.

Prothorax with bright yellow pigmentation. Basal rings of setae indistinct. Posterior area of pronotum finely longitudinally striate, shining. Meso- and metathorax shining, dorsally divided by indistinct "X"-shaped grooves, ventrally by transverse grooves. Legs distinct, but trochanter absent. Femur bearing two setae. Each abdominal ampulla with one transverse furrow, but 1st dorsal ampulla with two distinct transverse furrows. Pleural discs of 1st abdominal segment indistinct. Pleural discs of 2nd and 3rd abdominal segments distinct. Thoracic spiracle about twice longer than wide, and about 1.2 times longer than 1st abdominal spiracle. Body length up to 9 mm, width up to 2.8 mm.

Habits: Larvae feed subcortically and in the sapwood of *Vitis* twigs and branches. Mature larvae overwinter. Pupation in spring. Adults from May to June. Mostly one-year development.

Distribution: South and Central Europe, South-West of European part of USSR.

Material: 13. 2. 1977, CS, Moravia m., Mikulov, 10/I, from dry twigs of *Vitis*, lgt. and coll. S; 1966, CS, Slovakia m., Štúrovo, 8/I, from *Vitis*, lgt. and coll. M. Sláma.

Ph. mediofasciatus PIC, 1933

Main distinguishing characters in the key.

Cranium (1.5) with sides rounded behind middle, posteriorly slightly emarginate. 2nd antennal segment subquadrate or elongate. 3rd segment more than twice longer than wide. Gula subquadrate. Ventral sclerite 10 times wider than gular length. Labrum transversely oval, without basal pigmentation. 1st segment of maxillary palp longer than 2nd but shorter than 3rd. Submentum feebly pigmented. Mentum with lateral sclerites indistinct. Labial palps separated by about half width of their 1st segment. 2nd palpal segment longer than 1st.

Prothorax with pale yellow pigmentation. Basal rings of setae indistinct. Posterior area of pronotum finely longitudinally striate, shining. Legs small but distinct, trochanter without setae, femur with two setae. Meso- and metathorax dorsally and ventrally and all abdominal ampullae shining, each ampulla with transverse

furrow. Pleural discs of 2nd and 3rd abdominal segments rather distinct. Thoracic spiracle about twice longer than wide and about 1.4 times longer than 1st abdominal spiracle. Body length up to 12 mm, width up to 3 mm.

Habits: Larvae feed in wood of *Vitis*-twigs. Mature larvae overwinter. Pupation in wood from May to June. Life cycle lasts 1 year. Adults from May to July.

Distribution: Soviet Far East, North-East China, (?) Korea.

Material: 5. 1. 1961, SU, Ussuri-reg., Ugolnaya, 3/I, from *Vitis*, lgt. L. A. Anufriev, coll. IS.

Ph. glabratus (CHARPENTIER, 1825)

Main distinguishing characters in the key.

Cranium (1.5) with sides rounded behind middle, widest near emarginate hind margin. Front margin of frons roundly procurved, 2nd antennal segment subquadrate, 3rd segment about twice longer than its width. Gula subquadrate. Ventral sclerite about 8 times wider than gular length. Labrum transversely oval, without basal pigmentation. 1st segment of maxillary palp about equal in length to 3rd, longer than 2nd. Submentum and mentum without pigmentation. 2nd segment of labial palps slightly longer than 1st.

Prothorax with pale yellow pigmentation. Basal rings of setae indistinct. Posterior area of pronotum strongly longitudinally striate, shining. Legs small, but distinct. Femur with two setae. Meso- and metathorax dorsally and ventrally and all abdominal ampullae microreticulate. Pleural discs of abdominal segments 1 to 3 small and hardly visible. Thoracic spiracle relatively small, rather broad, about 1.3 times longer than wide, just slightly longer than 1st abdominal spiracle. Body length up to 11.5 mm, width up to 2.2 mm.

Habits: Larvae feed subcortically in branches of *Juniperus* (rarely in *Cupressus* and *Pinus*). Pupation in autumn, adults overwinter in pupal cells. Adults fly from March to June.

Distribution: Europe, North-West Caucasus.

Material: 11. 1964, CS, Slovakia occ., Nové Mesto n/Váh., 4/I, *Juniperus*, lgt. and coll. M. Sláma; 18. 2. 1977, CS, Slovakia occ., Čachtice, 5/I, *Juniperus*, lgt. and coll. S.

Ph. ussuricus PLAVILSHCHIKOV, 1940

Main distinguishing characters in the key.

Cranium (1.5) with sides rounded behind middle. Hind margin slightly emarginate, almost straight. Front margin of frons procurved behind labrum. 2nd antennal segment slightly elongate to transverse, 3rd about twice longer than wide. Gula transverse. Ventral sclerite about 9 times wider than gular length. Labrum transversely oval, without basal pigmentation. Labial palps separated by less than half width of their 1st segment. 1st segment shorter than 2nd.

Prothorax with pale yellow pigmentation. Basal rings of setae indistinct. Posterior area of pronotum shining, finely longitudinally rugose. Only one segment of legs

(tibiotarsus) slightly visible. Meso- and metathorax dorsally and ventrally and abdominal ampullae microreticulate. Pleural discs hardly visible on abdominal segments 1 to 3. Thoracic spiracle subcircular, slightly longer than 1st abdominal spiracle. Body length up to 6 mm, width up to 1.5 mm.

Habits: Larvae feed in wood of dry thin twigs of *Vitis*. Mature larvae overwinter. Pupation in June. Adults from June to August. Life cycle lasts 1 year.

Distribution: Soviet Far East.

Material: 9. 1. 1961, SU, Ussuri region, Ugolnaya, 15/I, from *Vitis*, lgt. L. A. Anufriev, coll. IS.

Ph. zemlinae PLAVILSHCHIKOV et ANUFRIEV, 1964

Main distinguishing characters in the key.

Cranium (1.5) with sides rounded behind middle; hind margin roundly procurved. Front margin of frons straight. 2nd antennal segment transverse. 3rd segment about 1.5 times longer than wide. Gula subquadrate. Ventral sclerite about 8 times wider than gular length. Labrum subcircular.

Prothorax with pale yellow pigmentation. Posterior area of pronotum shining, finely longitudinally rugose. Legs small, femur and tibiotarsus distinct. Meso- and metathorax and all abdominal ampullae microreticulate. Body length up to 10 mm (but only half-grown larvae available: body length up to 4.7 mm, width up to 1 mm).

Habits: Larvae feed in living wood of thin *Vitis*-twigs. Mature larvae overwinter. Pupation in wood in spring. Adults from May to June. Life cycle lasts 1 year.

Distribution: Soviet Far East.

Material: 20. 2. 1961, SU, Ussuri region, Ugolnaya, 10/I, from *Vitis*, lgt. L. A. Anufriev, coll. IS.

Ph. alni (L., 1767)

Cranium (1.5) with sides rounded behind middle. Hind margin almost straight. Front margin of frons narrowly emarginate behind labrum. Stemmata large, oval, but pigmented spots indistinct. 2nd antennal segment subquadrate, 3rd about twice as long as wide. Gula subquadrate, pale, interrupting anterior pigmented margin of hypostoma. Ventral sclerite about 8 times wider than gular length. Labrum transversely oval, with pale basal pigmentation, 1st segment of maxillary palp longer than 2nd, 3rd segment longer than 1st. Submentum and mentum without pigmentation. Labial palps separated by about half width of their 1st segment. 1st segment shorter than 2nd.

Prothorax with bright yellow pigmentation. Basal rings of setae very distinct. Posterior area of pronotum shining, finely longitudinally rugose. Meso- and metathorax dorsally and ventrally and abdominal ampullae microreticulate. Legs vestigial, indistinct, unsegmented. Thoracic spiracle about 1.5 times longer than wide

and about 1.2 times longer than 1st abdominal spiracle. Pleural discs distinct on 2nd and 3rd abdominal segments. Body length up to 7 mm, width up to 1.8 mm.

Habits: Polyphagous on deciduous trees (*Castanea*, *Carpinus*, *Ulmus*, *Ahnus*, *Rosa* and others), preferring *Quercus*. Larvae feed subcortically. Mature larvae overwinter. Pupation in wood in spring. Adults from April to June. Life cycle lasts one year.

Distribution: Europe, North Africa, Caucasus, Transcaucasia, Near East, North Iran.

Material: 13. 3. 1980, SU, Krasnodar reg., Novomikhailovskoe, +/I, from twigs of *Carpinus*, lgt. A. Miroshnikov, coll. IS; 8. 5. 1978, Hungaria, Mesceek, 2/I, from *Castanea*, lgt. and coll. S.

Ph. ermolenkoi CHEREPANOV, 1980

Cranium (1.5) with sides strongly diverging posteriorly, widest near straight hind margin. Front margin of frons procurved. Stemmata large, oval, pigmented spots greyish, poorly visible. 2nd antennal segment subquadrate, 3rd segment about twice longer than wide, shorter than width of 2nd segment. Ventral sclerite (9) with narrow pigmentation of anterior margin interrupted by white gula. Gula quadrate. Labrum subcircular, with pale basal sclerotization. 1st and 2nd segments of maxillary palp transverse. 1st slightly longer than 2nd, 3rd segment about twice longer than 1st. Mentum without lateral sclerites. Praementum with narrow pigmented band. 1st segment of labial palp transverse, 2nd elongate, longer than 1st. Labial palps separated by about half width of their 1st segment. Ligula short, but distinct.

Prothorax with bright yellow pigmentation. Basal rings of setae distinct. Glabrous area of pronotum finely striate. Meso- and metathorax dorsally and ventrally and all abdominal ampullae microreticulate, with grooves indistinct. Legs indistinct, in form of small papillae. Thoracic spiracle subcircular, slightly longer than wide, about 1.5 times longer than 1st abdominal spiracle. Pleural discs large and distinct on 2nd and 3rd abdominal segments. Body length up to 9.5 mm, width up to 2 mm.

Habits: Larvae feed subcortically in dry thin branches of *Quercus*. Mature larvae overwinter. Pupation also under bark (rarely in sapwood) in spring. Adults at the beginning of summer. According to CHEREPANOV (1985), life cycle lasts 2 years.

Distribution: South of Ussuri region of USSR.

Material: 16. 8. 1985, SU, Ussuri reg., Khasan, 12/I, from dry branches of *Quercus*, lgt. D, coll. IS.

Genus *Lioderina* GANGLBAUER, 1885

Type species: *Callidium lineare* HAMPE, 1870

Larvae similar to those of *Phymatodes*.

Cranium pigmented as in *Phymatodes*. Front margin of frons almost straight, feebly emarginate behind labrum. Stemmata very large, pigmented spots large, intensively black. Antennae relatively short. 2nd segment subquadrate. Ventral sclerite about 10 times wider than gular length. Labrum transversely oval. 1st and

2nd segments of maxillary palp almost equal in length, 3rd rather longer. Submentum and mentum without pigmentation. Ligula not visible from below. Labial palps almost contiguous.

Prothorax with bright yellow pigmentation. Basal rings of setae small but distinct. Posterior area of pronotum shining, longitudinally striate.

Meso- and metathorax dorsally divided by "X"-shaped grooves, microreticulate, ventrally divided by transverse grooves, narrowly microreticulate. Legs distinct, trochanter almost absent, femur with a seta.

Pleural discs of 2nd and 3rd abdominal segments distinct. Each abdominal ampulla with only one transverse furrow, shining, irregularly microgranulate. Thoracic spiracle subcircular, about 1.3 times longer than wide and about 1.2 times longer than 1st abdominal spiracle. Body length up to 8 mm, width up to 2.2 mm.

One species in the genus.

L. linearis (HAMPE, 1870)

Habits: Seems to be polyphagous on deciduous trees (*Amygdalus* and apparently others).

Distribution: South-East of West Europe.

Material: 5. 1981, Hungaria, Balatonfüred, 3/I, from dry twigs of *Amygdalus*, lgt. J. Hála, coll. S.

Genus *Cleroclytus* KRAATZ, 1884

Type species: *C. semirufus* KRAATZ, 1884

Body robust, with short sparse setae, without microasperities.

Head white, with strongly pigmented brown mouthframe. Cranium strongly transverse (1.6), with sides rounded behind middle. Frontal lines and medial frontal line indistinct. Frons smooth. Front margin of frons slightly procurved behind labrum, pigmented back to row of praefrontal setae (2,2,1).

Antennal ring widely opened. Antennae long, 2nd segment slightly longer than wide, bearing conspicuous main sensillum, 3rd segment 1.5 times longer than wide, about as long as width of 2nd segment.

Dorsal and ventral stemmata absent. Main stemmata large, corneae convex, pigmented spots greyish.

Gena smooth, without pigmentation behind stemmata, or slightly pigmented, bearing a row of strong setae. Small poststemmatal protuberance present. Subfossal process absent.

Ventral sclerite (10) smooth, very finely obliquely rugose, glabrous, with straight anterior margin, its pigmentation interrupted by pale subquadrate gula.

Labrum broadly oval, bearing short peripheral setae, with narrow basal pigmentation.

Mandibles with pale basal part bearing small setae.

Labiomaxillary complex attached to ventral sclerite by about 3 widths of gula. Palpiger and 1st segment of maxillary palp with conspicuous processes. 1st segment about equal in length to 3rd, 2nd rather shorter. Mala subquadrate, bearing some apical setae.

Submentum and mentum without pigmentation. Submentum without setae. Praementum with two lateral sclerites. Labial palps separated by about half width of their 1st segment. 1st segment slightly shorter than 2nd. Ligula very short, shorter than 1st palpal segment.

Prothorax with pale yellow pigmentation on pronotum and alar lobes. Posterior area of pronotum shining, strongly longitudinally striate. Epipleurum and medio-praesternum fused with lateropraesternum.

Meso- and metathorax dorsally and ventrally microreticulate; dorsally divided by "X"-shaped grooves, ventrally divided by transverse grooves. Alar lobes and 3 divisions of epipleurum distinct.

Legs small but distinct. Border lines of coxal lobes distinct. Trochanter flat, but sclerotized. Femur with two setae.

All abdominal ampullae dull, microreticulate. Each dorsal ampulla with two lateral and one medial short longitudinal furrows and with a deep transverse furrow. Each ventral ampulla with a transverse furrow, two short lateral longitudinal furrows and a shallow medial impression. Coxal lobes defined. Pleural discs of 1st abdominal segment indistinct. Pleural discs of 2nd and 3rd abdominal segments large and very distinct. Spiracles without marginal chambers. Thoracic spiracle about 1.6 times longer than wide and about 1.6 times longer than 1st abdominal spiracle. Body length up to 12.5 mm, width up to 2.5 mm.

About 7 species in the genus, all from Soviet Central Asia. Some of these species are rather dubious. Larvae of one species at my disposal.

C. banghaasi (REITTER, 1895)

Habits: Polyphagous on deciduous trees. Larvae feed subcortically in thin dead branches (KULINICH, 1965). Pupation at the end of summer, adults overwinter in pupal cells, or sometimes mature larvae overwinter and then pupate in spring. Adults fly from the end of April to July.

Distribution: Tadzhikistan.

Material: 26. 3. 1978, SU, Tadzhikistan, Takob, 3/I, from twigs of *Juglans*, lgt. D, coll. IS; 18. 4. 1978, SU, Tadzhikistan, Kondara, 9/I, from twigs of *Juglans*, lgt. D, coll. IS.

Genus *Paraclytus* BATES, 1884

Type species: *P. excultus* BATES, 1884

Body robust, with short sparse setae, without microasperities.

Head white, with broadly pigmented mouthframe. Cranium (1.3) with sides broadly rounded behind middle. Hind margin almost straight, feebly emarginate.

Frontal lines indistinct. Medial frontal line indistinct or slightly visible near hind end. Front margin of frons smooth, slightly procurved behind labrum, pigmented back to row of praefrontal setae (2,2,1).

Antennal ring closed (narrowly opened in half-grown larvae). Antennae short, all segments bearing very short setae. 2nd segment slightly longer than wide (or transverse in half-grown larvae), with small main sensillum. 3rd segment about twice longer than wide.

Dorsal and ventral stemmata absent. One pair of small main stemmata present. Corneae convex, pigmented spots greyish.

Pigmentation of gena more or less wide, always surrounding stemmata. Gena and pleurostoma finely rugose. Gena with a row of very fine setae. Subfossal processes absent.

Ventral sclerite (7-10) glabrous, finely obliquely rugose. Hypostomal lines distinct anteriorly. Front margin of hypostoma almost straight, with two paramedian impressions. Gula pale, transverse or elongate, interrupting pigmentation of anterior margin of hypostoma.

Labrum transversely oval, bearing short peripheral setae, with pale basal pigmentation.

Mandibles with dark brown basal part, bearing some small setae.

Labiomaxillary complex attached to ventral sclerite by about two widths of gula. Maxillary palpiger with conspicuous process, process of 1st palpal segment indistinct. 3rd segment longer than 2nd, shorter than 1st. Mala subquadrate, with some apical setae.

Submentum slightly pigmented, bearing from two to 6 setae. Mentum with or without lateral sclerites. Praementum with distinct lateral sclerites. Labial palps separated by about one width of their 1st segment. 2nd palpal segment slightly or rather longer than 1st, ligula short, about as long as 1st segment.

Prothorax with bright yellow pigmentation on pronotum and alar lobes and with 2 pale yellow blotches on lateropraesternum. Basal rings of setae indistinct. Posterior area of pronotum shining, strongly longitudinally striate. Epipleurum delimited ventrally near posterior margin. Mediopraesternum fused with lateropraesternum.

Legs well developed. Coxal lobes of all legs very distinct. Trochanter present but unsclerotized, without setae. Femur with two setae.

Terga and sterna of meso- and metathorax microreticulate, their transverse grooves not very distinct.

Abdominal ampullae microreticulate, their transverse grooves indistinct. Each ampulla with 4 short lateral longitudinal furrows. Pleural discs indistinct. Coxal lobes well developed. Thoracic spiracle about 1.3 to 2 times longer than wide and 1.5 times longer than 1st abdominal spiracle. Spiracles (especially 1st abdominal spiracle) often with distinct marginal chambers.

One species in Balkan Peninsula, 3 species in the Caucasus, 1 species in the Far East. Larvae of 3 species at my disposal.

- 1(2) Stemmata very small, diameter of stemma about twice smaller than width of 2nd antennal segment *excultus*
 2(1) Diameter of stemma about as long as, or longer than width of 2nd antennal segment.
 3(4) Thoracic spiracle more circular (length/width \pm 1.3); antennal ring narrowly opened *reitteri*
 4(3) Thoracic spiracle about twice longer than wide *sexguttatus*

P. excultus BATES, 1884

Distinguishing characters in the key. Body length up to 27 mm, width up to 4 mm.

Habits: Polyphagous on deciduous trees (*Phellodendron*, *Betula*, *Acer*, *Alnus*, *Ulmus*, *Quercus*, *Sorbus* and many others). Larvae feed in decaying wood. Pupation at the end of summer. Adults overwinter in pupal cells, fly from May to August. Life cycle lasts two or three years.

Distribution: South Kurile Islands, Japan.

Material: 14. 9. 1972, SU, Kunashir, 12/I, from *Betula*, lgt. D, coll. IS; 14. 9. 1972, SU, Kunashir, 4/I, *Phellodendron*, lgt. D, coll. IS.

P. reitteri (GANGLBAUER, 1881)

Distinguishing characters in the key. Body length up to 27 mm, width up to 4 mm.

Habits: Polyphagous on deciduous trees (*Ficus*, *Carpinus*, *Quercus*, *Alnus*, *Pterocarya* and apparently others). Bionomics similar to the preceding species.

Distribution: Talysh, North Iran (Elburs).

Material: 8. 4. 1980, SU, Talysh, Avrora, 1/I, half-grown larva from *Ficus carica*, lgt. D, coll. IS.

P. sexguttatus (ADAMS, 1817)

Distinguishing characters in the key. Body length up to 24 mm, width up to 5.5 mm.

Habits: Polyphagous on deciduous trees (*Fagus*, *Quercus*, *Carpinus* and many others). Bionomics similar to the preceding species.

Distribution: Caucasus, Transcaucasia, North Turkey, North Iran.

Material: 15. 6. 1961, SU, Krasnodar reg., Guzeripl, 15/I, *Fagus*, lgt. D, coll. IS.

Genus *Anaglyptus* MULSANT, 1839

Type species: *Callidium gibbosum* F., 1787

Body robust, with dense short setae, without microasperities.

Head white, with strongly pigmented brown mouthframe. Cranium slightly transverse or subquadrate (1.1–1.2), with sides diverging posteriorly, widest near slightly emarginate hind margin. Frontal lines indistinct, medial frontal line distinct near

posterior end. Frons entirely smooth. Front margin of frons slightly procurved behind labrum, or straight, with a row of praefrontal setae (2,2,2 or 2,2,1), rather narrowly pigmented.

Antennal ring closed or narrowly opened. Antennae long, 2nd antennal segment about 1.5 times longer than wide, bearing very small seta and small main sensillum. 3rd segment about twice longer than wide, bearing small setae.

2 pairs of dorsal stemmata often distinct. One pair of large main stemmata present. Corneae convex, pigmented spots greyish. Main stemmata entirely surrounded by pigmentation of gena.

Poststemmatal protuberance (Fig. 19 A) present, relatively smooth. Gena almost smooth, finely rugose, with a row of thin setae. Subfossal process absent.

Ventral sclerite (7) glabrous, or with some setae, finely transversely striate. Anterior margin of hypostoma very narrowly pigmented, straight. Gula subquadrate, pale, interrupting pigmentation of hypostoma.

Labrum strongly transverse, with narrow basal pigmentation, bearing short dense peripheral setae.

Labiomaxillary complex attached to ventral sclerite by about 3 widths of gula. Maxillary palpiger and 1st segment of maxillary palp with small processes, 1st segment longer than 2nd, 2nd segment longer than 3rd, or sometimes 3rd and 2nd segments almost equal in length to 1st. Mala subquadrate, with some apical setae.

Submentum without pigmentation, bearing two setae. Mentum without pigmentation. Praementum with basal pigmented band interrupted or narrowed medially. Labial palps separated by more than width of their 1st segment. Ligula longer than 1st segment. 2nd segment of labial palp about equal in length to 1st or slightly longer.

Prothorax with yellow or pale yellow pigmentation on pronotum and alar lobes. Basal rings of setae indistinct. Posterior area of pronotum shining, finely longitudinally striate.

Thoracic and abdominal segments similar to those of *Paraclytus*. Terga and sterna of meso- and metathorax and all abdominal ampullae with regular network of striae and very finely microreticulate, dull. Transverse furrow of abdominal ampullae distinct.

Legs present. Trochanter absent. Femur with two setae.

Pleural discs indistinct. Thoracic spiracle about twice longer than wide and about 1.5 times longer than 1st abdominal spiracle. Marginal chambers absent, or sometimes present, but rather indistinct.

About 17 species in Palaearctics: 5 Caucasian species, about 3 European-Mediterranean species, 1 species from Central Asia, 4 species from Japan and about 4 species from China. Larvae of 4 species at my disposal.

1(2) Frons with deep setiferous pores. Body setae very long. Pigmentation of prothorax pale but distinct *gibbosus*

2(1) Frons relatively flat. Body setae shorter.

- 3(6) Glabrous area of pronotum strongly striate.
- 4(5) Pronotum with bright yellow spots *mysticus*
- 5(4) Pronotum almost without pigmentation *praezellens*
- 6(3) Striae of pronotal glabrous area indistinct. Pronotal pigmentation rather bright. *persicus*

A. gibbosus (F., 1787)

Distinguishing characters in the key. Body length up to 16 mm, width up to 4.5 mm.

Habits: Polyphagous on deciduous trees (*Acer*, *Quercus*, *Sorbus*, *Crataegus*, *Ilex* and others)
Larvae feed in dry sapwood. Adults from April to June.

Distribution: South Europe, North Africa.

Material: 20. 4. 1984, Italy (Puglia), Foresta Umbra, 2/I, from *Acer*, lgt. G. Sama, coll. S.

A. mysticus (L., 1758)

Distinguishing characters in the key. Body length up to 19 mm, width up to 4.3 mm.

Habits: Polyphagous on deciduous trees. Larvae feed in dry sapwood. Pupation at the end of summer. Adults overwinter in pupal cells, fly from May to August. Life cycle lasts at least two years.

Distribution: Europe, Caucasus, Transcaucasia, ? North Africa.

Material: 23–24. 7. 1976, CS, Slovakia, Turany, 7/I, from dry wood of *Fagus*, lgt. and coll. S; 5. 3. 1977, CS, Praha, 6/I, from dry wood of *Sambucus nigra*, lgt. and coll. S; 7. 5. 1979, CS, Bohemia c., Dobříš, 1/I, *Fagus*, lgt. and coll. S; 14. 7. 1977, CS, Slovakia m., Gbelce, 2/I, from wood of *Juglans*, lgt. and coll. S.

A. praezellens HOLZSCHUH, 1981

Distinguishing characters in the key. Body length up to 20 mm, width up to 5 mm.

Habits: Larvae feed in dry wood of *Quercus coccifera* and apparently in other deciduous trees.

Distribution: Crete.

Material: 12. 6. 1981, Crete, Omalos, 3/I, from stump of *Quercus coccifera*, lgt. and coll. M. Sláma.

A. persicus PIC, 1906

Distinguishing characters in the key. Body length up to 20 mm, width up to 5 mm.

Habits: Larvae feed in dry wood of *Quercus* and apparently in other deciduous trees. Adults from May to June.

Distribution: North Iran and apparently Turkey, South Transcaucasia (Armenia, Azerbaidzhan).

Material: 23. 5. 1982, SU, Nakhichevan, Bichenek, 9/I, from *Quercus*-branches, lgt. D, coll. IS.

Type species: *A. fasciatus* THOMSON, 1857

Larvae very similar to larvae of *Anaglyptus mysticus*, but cranium (1.2) with sides almost parallel, with strongly raised poststemmatal protuberance (Fig. 19 B). Dorsal stemmata absent. Body length up to 20 mm, width up to 3.5 mm.

Larvae of one species available.

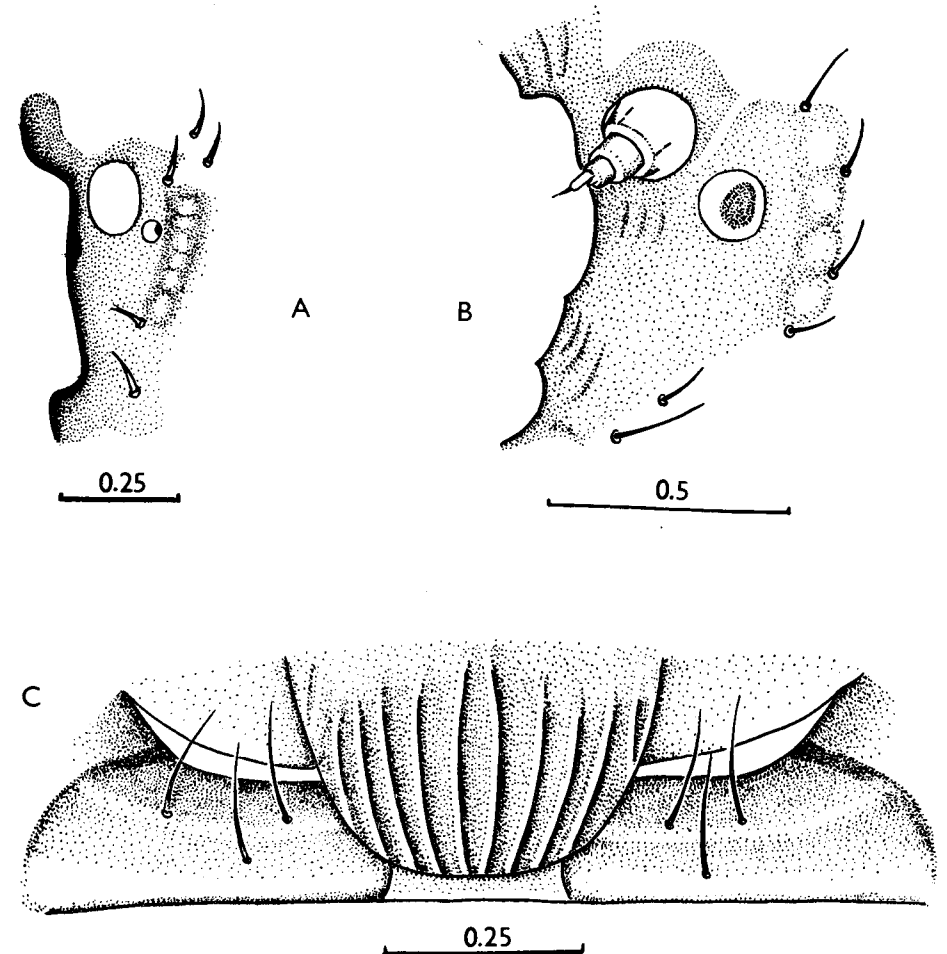


Fig. 19: A – *Anaglyptus mysticus*, pleurostoma and gena (antenna removed). B – *Aglaophis colobotheoides*, dtto. C – *Teratoclytus plavilstshikovi*, submentum.

A. colobothoides BATES, 1884

Habits: Polyphagous on deciduous trees (*Maakia*, *Armeniaca*, *Acer*, *Padus* and many others). Larvae feed in dry wood. Pupation at the end of summer. Adults overwinter in pupal cells, fly from May to July. Life cycle lasts two years.

Distribution: Soviet Far East, Japan, Korea, China.

Material: 6. 8. 1974, SU, Khabarovsk reg., Bychikha, 5/I, from *Juglans*, lgt. D, coll. IS.

Genus *Teratoclytus* ZAITSEV, 1937

Type species: *T. plavilstshikovi* ZAITSEV, 1937

Body with dense short setae, without microasperities.

Head white, with strongly pigmented dark brown mouthframe. Cranium transverse (1.2), with sides slightly diverging posteriorly, widest near feebly emarginate hind margin. Frontal lines indistinct. Medial frontal line distinct. Frons smooth. Front margin of frons slightly procurved, pigmented back to row of praefrontal setae (2,2,1).

Antennal ring closed, 2nd antennal segment about 1.5 times longer than wide, bearing conspicuous main sensillum. 3rd segment about twice longer than wide, bearing some short setae.

Dorsal and ventral stemmata absent. One pair of large main stemmata present. Corneae convex, pigmented spots black.

Large, coarsely rugose and strongly pigmented poststemmatal protuberance present. Stemmata entirely surrounded by pigmentation. Gena with a row of long setae, finely rugose behind the protuberance.

Hypostoma finely obliquely rugose, with some short setae. Anterior margin narrowly pigmented. Gula strongly transverse, with pigmented front margin. Anterior half of gula covered by posterior part of submentum (Fig. 19 C).

Labrum strongly transverse, with long peripheral setae, without basal pigmentation.

Mandibles with black basal part, bearing some short setae.

Labiomaxillary complex attached to ventral sclerite by slightly more than width of gula. Lateral process of palpiger and of 1st segment of maxillary palps indistinct. Mala subquadrate. 1st and 2nd palpal segments transverse, 1st segment about equal in length to 3rd, longer than 2nd.

Submentum with two setae, strongly sclerotized, bearing about 8 strong longitudinal carinae, covering anterior half of gula. Mentum without lateral sclerites. Praementum with two large lateral sclerites. Labial palps separated by about one width of their 1st segment. 1st segment shorter than 2nd. Ligula short, about as long as 1st segment.

Prothorax with yellow pigmentation on pronotum and alar lobes. Basal rings of setae indistinct. Posterior area of pronotum longitudinally rugose, shining. Tho-

rax and abdomen similar to those of *Paraclytus*, but sterna of meso- and metathorax, terga of metathorax, and all abdominal ampullae irregularly rugose, shining, with transverse grooves distinct. Tergum of mesothorax divided by "X"-shaped groove, microreticulate.

Legs small, trochanter indistinct. Femur sclerotized, with 2 setae. Spiracles without marginal chambers. Body length up to 17 mm, width up to 3.5 mm.

T. plavilstshikovi ZAITSEV, 1937

Habits: Larvae feed in wood of *Vitis*. Mature larvae overwinter. Pupation from May to June. Adults from May to July. Life cycle lasts 2 years.

Distribution: Soviet Far East, Japan, apparently Korea and North China.

Material: 10. 5. 1955, SU, Ussuri reg., Ugolnaya, 2/I, from *Vitis*, lgt. L. A. Anufriev, coll. IS.

Genus *Plagionotus* MULSANT, 1842

Type species: *Leptura detrita* L., 1758

Body robust, with dense short setae, without microasperities.

Head yellow, with strongly pigmented dark brown mouthframe. Cranium transverse (1.4), but in half-grown larvae strongly transverse (1.6), with sides diverging posteriorly, rounded behind middle. Posterior margin almost straight. Medial frontal line distinct posteriorly. Frons finely rugose, with dense short setae. Front margin of frons procurved behind labrum, or almost straight, smooth or rather coarsely rugose (in large specimens). Praefrontal setae (2,2,1) surrounded by pigmentation.

Antennal ring closed. Antennae long, 2nd and 3rd segments elongate, each more than twice longer than wide, bearing short setae. Main sensillum very small, hardly visible.

Dorsal and ventral stemmata absent. 3 pairs of main stemmata present, surrounded by pigmentation of gena. Corneae convex, pigmented spots greyish.

Poststemmatal protuberance absent. Gena finely rugose, widely pigmented, with a row of long setae and with many short setae. Pleurostoma smooth. Subfossal process absent.

Ventral sclerite (13) with some small setae, rugose, anteriorly often coarsely rugose. Anterior margin almost straight, widely pigmented. Gula brown, strongly transverse.

Labrum transverse, oval, or cordate and often nearly as long as wide, with wide basal pigmentation and dense short peripheral setae.

Mandibles with black basal part, bearing some short setae.

Labiomaxillary complex attached to ventral sclerite by about 3 widths of gula. Maxillary palpiger and 1st palpal segment with large lateral processes. 1st segment longer than 2nd, or about equal in length, 3rd rather shorter. Mala subquadrate.

Submentum slightly pigmented, with two setae. Mentum with lateral sclerites very small or invisible. Praementum with wide basal pigmentation. Labial palps separated by about two basal widths of their 1st segment. 2nd segment shorter than 1st. Ligula wide, longer than 1st palpal segment.

Prothorax with yellow pigmentation on pronotum and alar lobes. Basal rings of setae indistinct. Posterior area of pronotum shining, longitudinally rugose. Epipleurum distinctly delimited ventrally near hind margin. Mediopraesternum fused with lateropraesternum.

Coxal lobes distinct on all thoracic segments. Legs short but distinct, trochanter absent. Femur with two setae.

Tergum of mesothorax divided by "X"-shaped groove. Tergum of metathorax and sterna of meso- and metathorax divided by transverse grooves. Meso- and metathorax dorsally and ventrally, and all abdominal ampullae microgranulate. Alar lobes and three divisions of epipleurum distinct on both pterothoracic segments.

Coxal lobes on abdominal segments distinct. Pleural discs indistinct. Each abdominal ampulla with one transverse groove and with two lateral longitudinal grooves. Each dorsal ampulla with fragments of 2nd transverse groove. Spiracles without marginal chambers. Thoracic spiracle more than twice longer than wide (sometimes nearly 3 times longer than wide), and about 1.5 times longer than 1st abdominal spiracle.

About 10 species in Palaearctics, larvae of 4 of them at my disposal.

- 1(2) Abdominal ampullae very finely microgranulate, dull *arcuatus*
- 2(1) Abdominal ampullae coarsely microgranulate, shining.
- 3(4) Fragments of 2nd transverse groove of dorsal abdominal ampullae more distinct, longer; 2nd transverse groove of 7th abdominal ampulla entirely distinct *pulcher*
- 4(3) Fragments of 2nd transverse groove of dorsal abdominal ampullae less distinct, shorter; 2nd transverse groove of 7th dorsal abdominal ampulla widely interrupted.
- 5(6) Front margin of frons distinctly emarginate behind labrum *detritus*
- 6(5) Front margin of frons straight or very slightly procurved *lugubris*

P. pulcher BLESSIG, 1872

Distinguishing characters in the key. Body length up to 30 mm, width up to 7 mm.

Habits: Larvae feed subcortically in *Quercus*-boles, rarely in other deciduous trees (*Betula*). Mature larvae overwinter. Pupation in (under) bark from May to July. Adults from June to August. Life cycle lasts two years.

Distribution: Soviet Far East, Japan, Korea, North China.
Material: 4. 5. 1975, SU, Amur reg., Kundur, 9/I, from *Quercus*, lgt. D, coll. IS.

P. lugubris (MÉNÉTRIÈS, 1832)

Distinguishing characters in the key. Body length up to 29 mm, width up to 6.5 mm.

Habits: Polyphagous on deciduous trees (*Quercus*, *Carpinus*, *Fagus* and others), preferring *Quercus*. Larvae feed subcortically. Mature larvae overwinter. Pupation in sapwood, or sometimes under bark. Adults from May to July. Life cycle lasts two years.

Distribution: Transcaucasia, North Iran, North Turkey.
Material: 21. 7. 1972, SU, Talysh, Avrova, 6/I, from *Quercus*, lgt. D, coll. IS.

P. arcuatus (L., 1758)

Distinguishing characters in the key. Body length up to 29 mm, width up to 6.5 mm.

Habits: Similar to those of previous species.
Distribution: Europe, Caucasus, Transcaucasia, North Iran, Turkey, North Africa.
Material: Various localities of European part of USSR and Caucasus, +/I, from *Quercus*, *Carpinus*, *Fagus*, *Acer*, *Ulmus*, *Fraxinus*, lgt. B. M. Mamaev, coll. IS; 25. 8. 1977, CS, Bohemia c., Řevnice, 7/I, *Quercus*, lgt. and coll. S.

P. detritus (L., 1758)

Distinguishing characters in the key. Body length up to 35 mm, width up to 7 mm.

Habits: Similar to those of preceding species.
Distribution: Europe, Near East, Caucasus, Transcaucasia, North Iran.
Material: 5. 6. 1977, CS, Bohemia c., Stará Boleslav, +/I, under bark of *Quercus*, lgt. and coll. S; 18. 5. 1980, SU, Krasnodar reg., Khodyzhensk, 2/I, in bark of *Quercus*, lgt. A. I. Miroshnikov, coll. IS.

Genus *Xylotrechus* CHEVROLAT, 1860

Type species: *Clytus sartorii* CHEVROLAT, 1860

Body robust, with dense short setae; various body areas often covered with micro-asperities.

Head white, with strongly pigmented dark brown mouthframe. Cranium slightly transverse or nearly quadrate (1.1–1.3), with sides almost parallel, widely rounded near middle, or diverging posteriorly and widest near hind margin which is always ± straight. Medial frontal line indistinct, or visible posteriorly. Frons smooth, with a row of praefrontal setae (2,2,1) and with some small setae among them. Front margin of frons shallowly emarginate, nearly straight or even recurved, ± widely pigmented, in *X. rufilius* with two paramedian transverse depressions and low protuberances behind them, resembling postcondylar carinae of Prioninae.

Antennal ring closed (narrowly opened in *X. pantherinus*). 2nd and 3rd antennal segments elongate, bearing very short setae. Main sensillum indistinct.

One pair of small main stemmata present. Corneae convex, pigmented spots greyish or absent. Stemmata always surrounded by \pm wide pigmentation of gena.

Gena finely rugose (sometimes coarsely so, with a poststemmatal protuberance and deep furrows), bearing a row of long setae and some short setae. Small subfossal process may occur.

Hypostomal lines distinct anteriorly. Hypostoma glabrous, or often with short setae, finely rugose, \pm broadly pigmented anteriorly. Anterior margin almost straight. Gula narrow, elongate, or rarely transverse, darker than hypostoma, not interrupting pigmentation of its anterior margin.

Labrum subcircular, feebly sclerotized basally, bearing short dense peripheral setae.

Mandibles with dark brown or black basal part, bearing some short setae.

Labiomaxillary complex attached to ventral sclerite by about 3 widths of gula. Maxillary palpiger and 1st segment of maxillary palp with lateral processes. Process of 1st palpal segment often indistinct. 1st segment longer than 2nd, 2nd longer than 3rd. Mala subquadrate.

Submentum feebly sclerotized, mostly with two setae. Mentum without lateral sclerites, or with small pale sclerites. Praementum with \pm wide basal pigmentation. Labial palps widely separated by more than width of their 1st segment. 1st segment always longer than 2nd. Ligula wide, longer than 1st palpal segment.

Prothorax with yellow pigmentation on pronotum and alar lobes. Pale yellow blotches often present on lateropraesternum. Basal rings of setae indistinct. Posterior area of pronotum covered with microasperities, dull, without longitudinal rugae, or rarely (in *X. antilope* and *X. arvicola*) without microasperities, shining, longitudinally rugose, posterior margin microsculptured, dull. Epipleurum ventrally distinctly delimited near hind margin, but this border line does not seem to be homologous with ventral border line of epipleurum of less derived genera. Mediopraesternum fused with lateropraesternum, medially often with elongate band of microasperities.

Curved furrows of mesothoracic tergum distinct. Transverse furrows of meso- and metathoracic sterna, of metathoracic tergum, and of all abdominal ampullae not very distinct, or disappeared. Laterally meso- and metathorax with deep oblique furrows, as alar lobes are fused with anterior portion of epipleurum. Posterior and middle portions of epipleurum fused. Furrows delimiting pleurum ventrally and dorsally are almost absent. Border line of coxal lobes hardly visible.

Legs almost indiscernible, in form of unsegmented papillae.

Abdominal ampullae entirely microasperate, or medially microreticulate and peripherally microasperate, or entirely microreticulate. Each ampulla with short lateral longitudinal often poorly developed furrows. Pleural discs absent. Spiracles without marginal chambers. Coxal lobes fused with epipleural region.

About 35 species in Palaearctics, larvae of 14 of them at my disposal.

- 1(6) Posterior raised area of pronotum without microasperities, anteriorly shining, broad posterior margin microsculptured, dull, abdominal ampullae microreticulate, not asperate.
- 2(3) Frons with two paramedian depressions and with two transverse protuberances behind them (only in mature larvae) (Fig. 20 A); medial pair of epistomal setae lies above lateral pair and far from it *rufilius*
- 3(2) Frons entirely flat.
- 4(5) Poststemmatal protuberance absent. Gena finely rugose, narrowly pigmented behind stemmata, about as wide as diameter of stemma and much narrower than diameter of antennal opening *arvicola*
- 5(4) Poststemmatal protuberance present, gena broadly and strongly pigmented, with two transverse furrows (Fig. 20 B), pigmentation of gena behind stemmata about as wide as diameter of antennal opening or often rather wider *antilope*
- 6(1) Posterior raised area of pronotum with \pm wide band of microasperities.
- 7(8) Abdominal ampullae without microasperities and gula subquadrate . . . *namanganensis*
- 8(7) At least peripheral areas of some abdominal ampullae with microasperities, rarely all ampullae without microasperities, but then gula strongly transverse.
- 9(24) At least lateral parts of each abdominal ampulla centrally without microasperities.
- 10(21) Most of each dorsal abdominal ampulla without microasperities.
- 11(12) Gula strongly transverse; posterior raised area of pronotum never entirely covered with microasperities (about half or less, rarely more) *sieversii*
- 12(11) Gula elongate or subquadrate; posterior area of pronotum always entirely covered with microasperities.
- 13(16) Some dorsal abdominal ampullae (2nd-4th) of mature larvae never entirely surrounded by microasperities
- 14(15) Cranium broader (1.3), band of asperities separating glabrous plates of prothoracic praesternum about as wide as diameter of each plate *cuneipennis*
- 15(14) Cranium less transverse (1.2); band of asperities separating glabrous plates of praesternum much narrower than diameter of each plate *grumi*
- 16(13) Abdominal ampullae entirely surrounded by microasperities
- 17(18) Antennal ring narrowly opened *pantherinus*
- 18(17) Antennal ring closed.
- 19(20) Pigmented band of anterior margin of hypostoma about equal in width to half length of gula; from 7 to 4 setiferous pores behind stemmata large and very distinct. . . *hircus*
- 20(19) Pigmented band of anterior margin of hypostoma much narrower, about equal in width to 1/4 length of gula; setiferous pores behind stemmata less distinct *capricornis*
- 21(10) Small central areas of lateral halves of abdominal ampullae mostly without microasperities
- 22(23) Submentum with two setae *adpersus*
- 23(22) Submentum with 4 setae (according to CHEREPANOV, 1982) *altaicus*
- 24(9) Abdominal ampullae entirely covered with microasperities.
- 25(26) Gula elongate or subquadrate, antennal segments mostly relatively longer, 2nd segment about twice longer than wide, 3rd segment about equal in length to width of 2nd. Thoracic spiracle more than twice longer than wide and about 1.7 times longer than 1st abdominal spiracle *rusticus*
- 26(25) Gula transverse, antennal segments relatively shorter; 2nd segment about 1.3–1.4 times longer than wide, 3rd segment shorter than width of 2nd. Thoracic spiracle about twice longer than wide and about 1.5 times longer than 1st abdominal spiracle. . . *ibex, clarinus*

X. antilope (SCHÖNHERR, 1817)

Cranium subquadrate (1.1), with sides almost parallel. Medial frontal line often totally indiscernible. Frons smooth, with praefrontal setae only. Front margin of frons procurved, pigmented back to the row of setae. 2nd antennal segment about twice longer than wide. 3rd segment about as long as width of 2nd. Gena strongly and broadly pigmented, coarsely rugose, with poststemmatal protuberance and two transverse furrows (Fig. 20 B). Subfossal process often distinct. Ventral sclerite (7.5) with some short setae, anterior margin widely pigmented, almost straight, with two small paramedian concavities. Labrum subcircular, slightly transverse, with pale basal pigmentation. Mentum without lateral sclerites.

Posterior area of pronotum anteriorly longitudinally rugose, shining, without microasperities, only posterior sloping margin just before postnotum with narrow band of microasperities, only posterior sloping margin just before postnotum with narrow band of microasperities, reaching onto posterior and lateral margins of alar lobes and lateropraesternum. Medial setose band of propraesternum shining, not asperate. Postnotum, lateral areas of meso- and metanotum and meso- and metapleurum, and coxosternum asperate. Dorsal and ventral furrows of meso- and metathorax indistinct. Abdomen without microasperities. Abdominal ampullae microreticulate, without transverse furrows, each ampulla with two lateral longitudinal furrows. Thoracic spiracle about twice longer than wide. 1st abdominal spiracle about as long as width of thoracic spiracle. Body length up to 22 mm, width up to 5.4 mm.

Habits: Larvae feed usually subcortically in dead branches and stems of *Quercus*. Mature larvae overwinter. Pupation in June in sapwood or in bark. Adults from June to August. Life cycle lasts two years.

Distribution: Europe, Caucasus, Transcaucasia, North Africa, Near East, North Iran.

Material: 23. 8. 1976, Bulgaria, Ropotamo, 8/I, from *Quercus*-wood, lgt. and coll. S; 11. 5. 1978, Hungaria, Villányi hegyység, 4/I, under bark of *Quercus*, lgt. and coll. S; 13. 5. 1979, SU, Talysh, Avrova, 16/I, under bark of *Quercus*-branch, lgt. D, coll. IS.

X. arvicola (OLIVIER, 1795)

Similar to larvae of the previous species, but cranium more transverse (1.2), with sides more diverging posteriorly. Gena without poststemmatal protuberance, without furrows, finely rugose though widely pigmented. Hypostoma narrowly pigmented anteriorly. Gula pale brown. Body length up to 26 mm, width up to 6 mm.

Habits: Polyphagous on deciduous trees. Larvae feed in dead wood of *Quercus*, *Carpinus*, *Fagus*, *Malus*, *Betula*, *Pyrus*, *Ulmus*, *Crataegus* and many other trees. Mature larvae overwinter. Pupation in June. Adults from July to August. Life cycle lasts 2 years.

Distribution: Europe, Caucasus, Transcaucasia, North Africa, Near East, North Iran.

Material: 7. 1970, SU, Caucasus, Ubinskaya, 15/I, from *Quercus*, *Carpinus*, *Fagus*, *Pyrus*, lgt. D, coll. IS; 1. 1978, CS, Moravia, Adamov, 5/I, from *Carpinus betulus*, lgt. J. Hála, coll. S.

X. rufilius BATES, 1884

Cranium more transverse (1.3), with sides slightly diverging posteriorly. Medial frontal line visible. Anterior half of frons pigmented, finely rugose, with two transverse paramedian depressions and transverse protuberances behind them (Fig. 20 A). Medial pair of epistomal setae pushed backwards, each seta situated in middle of the depression. In half-grown larvae frontal depressions and protuberances indistinct, but medial pair of epistomal setae also pushed backwards. Front margin of frons slightly procurved. Frons with only praefrontal setae present. 2nd antennal segment about twice longer than wide, 3rd segment about as long as width of 2nd segment. Gena very strongly and broadly pigmented, with postantennal protuberance, coarsely rugose. Pleurostoma also strongly protuberant. Small subfossal process present. Ventral sclerite (10) narrowly pigmented anteriorly, with some small setae. Front margin straight, with two small paramedian concavities. Gula transverse or subquadrate, brown. Labrum subcircular, slightly wider than long, with wide basal pigmentation. Mentum without lateral sclerites.

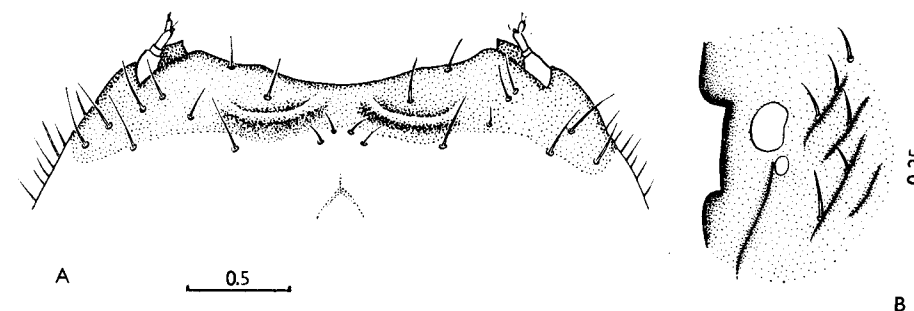


Fig. 20: A - *Xylotrechus rufilius*, frons. B - *X. antilope*, pleurostoma and gena (antenna removed).

Posterior area of pronotum longitudinally rugose, shining, only hind declivous margin just before postnotum microasperate. Band of asperities extended laterally along hind margin of alar lobes, epipleurum and praesternum and extended also anteriorly along ventral margins of alar lobes. Praesternum and pleurum almost entirely covered with microasperities, excepting glabrous paired medial areas. Postnotum, coxosternum, peripheral areas of meso- and metanotum and periphery of meso- and metasternum covered with microasperities. Dorsal and ventral transverse furrows of meso- and metathorax and all abdominal ampullae indistinct. Abdomen without microasperities. Ampullae microreticulate, each ampulla with two longitudinal lateral furrows. Thoracic spiracle about twice longer than wide, and about twice longer than 1st abdominal spiracle. Body length up to 18 mm, width up to 4 mm.

Habits: Larvae feed subcortically in *Acer*, *Ulmus*, *Fraxinus* and apparently in other deciduous trees. Pupation in wood and under bark from June to July. Adults from July to August. Life cycle lasts two years.

Distribution: Soviet Far East, Japan, North China, Korea.

Material: 20. 8. 1980, SU, Ussuri reg., Sokolchi, 6/—, from *Acer mono*, lgt. S. V. Murzin, coll. IS.

X. namanganensis HEYDEN, 1885

Cranium transverse (1.3), with sides strongly diverging posteriorly, broadly rounded behind middle. Hind margin straight or slightly procurved. Medial frontal line indistinct. Frons smooth, with some small setae among praefrontal setae. Front margin slightly procurved behind labrum, finely rugose, strongly pigmented back to row of setae. 2nd antennal segment about 1.5 times longer than wide. 3rd segment about as long as width of 2nd. Gena widely pigmented behind antenna. Gena and pleurostoma coarsely rugose. Small subfossal process often present. Ventral sclerite (11) with some small setae. Anterior margin narrowly pigmented, straight, with two paramedian concavities. Gula brown, moderately transverse or subquadrate. Labrum transverse, with wide basal pigmentation. Mentum without lateral sclerites.

Raised plate of pronotum with narrow band of microasperities on and before posterior declivity. Most of plate's surface shining, longitudinally rugose. Microasperities cover most of praesternum, pleurum and alar lobes (excepting glabrous plates), extended anteriorly along both sides of lateral furrows of pronotum. Postnotum, coxosternum and sternellar fold, mesonotum and peripheral parts of meso- and metasternum also microasperate. Metanotum and all abdominal ampullae microreticulate. Transverse furrows of meso- and metanotum, meso- and metasternum and of all abdominal ampullae (two on each dorsal ampulla and one on each ventral one) distinct. Each abdominal ampulla with two short lateral longitudinal furrows. Thoracic spiracle about 3 times longer than wide and about twice longer than 1st abdominal spiracle. Body length up to 22 mm, width up to 6 mm.

Habits: Larvae feed in wood of various deciduous trees (*Populus*, *Elaeagnus*, *Armeniaca*, *Salix*, *Juglans* and many others). Mature larvae overwinter. Pupation at the end of spring. Adults from May to July. Life cycle lasts apparently two years.

Distribution: Soviet Central Asia and South Kazakhstan, North-West China, North Afghanistan.

Material: 13. 4. 1970, SU, Turkmenia, Akibai, 6/I, from *Armeniaca*, lgt. B. M. Mamaev, coll. IS; 3. 3. 1978, SU, Tadzhikistan, Tigrovaya Balka, 4/I, from *Populus*, lgt. D, coll. IS.

X. sieversi GANGLBAUER, 1890

Cranium slightly transverse (1.2), with sides strongly diverging posteriorly, widest near feebly emarginate hind margin. Medial frontal line indistinct. Anterior half of frons coarsely irregularly rugose, with dark brown pigmentation surrounding

praefrontal setae, latter often multiplied laterally. Front margin of frons slightly procurved. 2nd antennal segment about 1.5 times longer than wide, 3rd segment shorter than width of 2nd. Gena very broadly pigmented. Pleurostoma and pigmented area of gena coarsely rugose. Small subfossal process present. Ventral sclerite (12–15) coarsely obliquely rugose, widely pigmented anteriorly, with some setae. Front margin of hypostoma deeply procurved. Gula brown, strongly transverse. Labrum transverse, with pale basal pigmentation. Mentum with pale basal sclerites.

Prothorax with bright orange pigmentation. Most of raised plate of pronotum asperate, occasionally, however, only posterior half or even less. Asperate pronotal area mostly projecting forward medially and laterally. Most part of alar lobes, epipleurum and praesternum asperate (excepting glabrous plates). Postnotum, mesonotum, metanotum (or its peripheral areas), coxosternum, sternellar fold and peripheral areas of meso- and metasternum asperate. Mostly all abdominal ampullae peripherally narrowly asperate, and last abdominal ampulla asperate also along medial depression, but sometimes all ampullae without microasperities. Most of each ampulla indistinctly microreticulate, dull. Transverse furrows of abdominal ampullae and of meso- and metanotum and meso- and metasternum poorly defined. Each ampulla with short lateral longitudinal furrows. Thoracic spiracle from 3 to 2 times longer than wide, and about 1.2–1.3 times longer than 1st abdominal spiracle. Body length up to 22 mm, width up to 4 mm.

Habits: Larvae monophagous on *Astragalus*, feed in dead wood of basal parts of stems and in roots. Life cycle at least two years. Mature larvae overwinter. Pupation in May. Adults in June–July.

Distribution: Transcaucasia, Near East, North Iran.

Material: 7. 5. 1981, SU, Tbilisi, +/I, from *Astragalus*, lgt. D, coll. IS; 5. 1982, SU, Nakhichevan, Buzgov, +/I, from *Astragalus*, lgt. D, coll. IS.

X. cuneipennis KRAATZ, 1879

Cranium transverse (1.3), with sides widely rounded near middle. Medial frontal line indistinct. Frons smooth, pigmented back to row of praefrontal setae which are multiplied laterally. Front margin of frons straight. 2nd antennal segment up to about 1.5 times longer than wide. 3rd segment up to about as long as width of 2nd segment. Gena widely pigmented. Pleurostoma and gena finely rugose. Postantennal protuberance almost absent. Small subfossal process present. Ventral sclerite (7) finely obliquely striate, widely pigmented along straight anterior margin, with some setae. Gula strongly elongate, darker than posterior pale area of hypostoma. Labrum transverse, with pale basal pigmentation. Mentum with pale lateral sclerites.

Prothorax with bright orange spots. Posterior raised area of pronotum microasperate, asperities projecting forward laterally and medially. Most of alar lobes, epipleurum and praesternum asperate, excepting propraesternal paired glabrous

plates. Coxosternum and sternellar fold, postnotum, mesonotum (or only its peripheral areas), peripheral areas of metanotum and of meso- and metasternum also asperate. Transverse furrows of meso- and metanotum, meso- and metasternum and of all abdominal ampullae absent. Each ampulla with short lateral longitudinal furrows. All ampullae microreticulate, with narrow peripheral asperate bands, mostly not entirely surrounding ampullae. Only two or three last abdominal ampullae entirely surrounded by asperities, with medial asperate bands. Thoracic spiracle about twice longer than wide and about 1.8 times longer than 1st abdominal spiracle. Body length up to 28 mm, width up to 5 mm.

Habits: Polyphagous on deciduous trees, preferring *Acer*, but also in *Carpinus*, *Quercus*, *Ulmus*, *Betula*, *Alnus*, *Fraxinus* and others. Larvae feed subcortically and in wood. Mature larvae overwinter. Pupation in June. Adults from July to August. Life cycle lasts 2 years.

Distribution: East Siberia, Japan, Korea, North China.

Material: 29. 6. 1977, SU, Kurile Islands, Kunashir, 3/I, *Acer*, lgt. A. V. Kompantsev, coll. IS; 19. 5. 1976, SU, Khabarovsk reg., Bychikha, 4/I, from *Acer*, lgt. A. V. Kompantsev, coll. IS; 20. 9. 1968, SU, Ussuri reg., Kedrovaya Pad', 2/I, *Quercus*, lgt. B. M. Mamaev, coll. IS.

X. grumi SEMENOV, 1889

Similar to *X. cuneipennis* but cranium less transverse (1.2), with sides diverging posteriorly, widest near procurved hind margin. Pigmented region of frons finely rugose. Front margin slightly emarginate behind labrum. Ventral sclerite about 10 times wider than length of gula. Gula slightly elongate, brown. Labrum transverse, with wide pale basal pigmentation. Thoracic spiracle more than twice longer than wide, about twice longer than 1st abdominal spiracle. Body length up to 32 mm, width up to 7 mm.

Habits: Monophagous on *Elaeagnus*. Larvae feed in wood of living trees. Mature larvae overwinter. Pupation in spring. Adults from May to July. Life cycle lasts two years.

Distribution: Soviet Central Asia and South Kazakhstan.

Material: 9. 5. 1971, SU, Turkmenia, Akibai, 6/I, from wood of *Elaeagnus*, lgt. B. M. Mamaev, coll. IS; 6. 5. 1978, SU, Tadzhikistan, Tigrovaya Balka, 16/I, from wood of *Elaeagnus*, lgt. D, coll. IS.

X. pantherinus (SAVENIUS, 1835)

Cranium about 1.2 times wider than long, with sides slightly diverging posteriorly, widest near feebly procurved hind margin. Medial frontal line indistinct. Frons smooth, pigmented back to row of praefrontal setae which are multiplied laterally. Front margin of frons emarginate behind labrum. 2nd antennal segment from 1.3 to 2 times longer than wide. 3rd segment shorter than width of 2nd segment. Gena widely pigmented behind antennae, but antennal foramen narrowly opened. Pleurostoma and gena finely rugose, without postantennal protuberance. Subfossal

process distinct in large larvae. Ventral sclerite (10) narrowly pigmented anteriorly, with some setae. Gula transverse or subquadrate, brown. Labrum subcircular, slightly wider than long, with pale basal pigmentation. Mentum without lateral sclerites.

Thorax with pale yellow spots. Posterior raised pronotal plate entirely covered with microasperities, projecting forward medially and laterally. Postnotum, coxosternum, sternellar fold, most of alar lobes, epipleurum and praesternum (excepting glabrous areas) covered with microasperities. Transverse furrows of meso- and metanotum, meso- and metasternum and all abdominal ampullae poorly developed. Mesonotum and peripheral area of metanotum and meso- and metasternum covered with microasperities. All abdominal ampullae microreticulate and entirely surrounded by microasperities, with asperate longitudinal medial band. Thoracic spiracle about 2.5 times longer than wide and about 1.7 times longer than 1st abdominal spiracle. Body length up to 25 mm, width up to 5 mm.

Habits: Monophagous on *Salix*. Larvae feed in living or recently dead wood. Mature larvae overwinter. Pupation in spring or at the beginning of summer. Adults from June to August. Life cycle lasts two years.

Distribution: Europe, Siberia, Kazakhstan, North Caucasus.

Material: 1964, CS, Bohemia c., Řevnice, 4/I, from *Salix caprea*, lgt. and coll. M. Sláma; 2. 1979, CS, Moravia, Vyškov, 3/I, from *Salix caprea*, lgt. J. Hála, coll. S; 17. 6. 1981, SU, Altai, Artybash, 2/I, from *Salix* sp., lgt. A. Esenin, coll. IS.

X. hircus (GEBLER, 1825)

Very similar to *X. patherinus*, but sides of cranium more parallel, hind margin straight. Gena more coarsely rugose. Gula elongate, posteriorly pale. Antennal ring closed. Medial impressions of first ventral abdominal ampulla and of most of dorsal ampullae not microasperate. Thoracic spiracle about twice longer than wide and from 1.6 to 1.7 times longer than 1st abdominal spiracle. Body length up to 20 mm, width up to 4 mm.

Habits: Larvae feed in dead wood of *Betula* (as far as known). Mature larvae overwinter. Pupation from May to June. Adults from June to July. Life cycle lasts two years.

Distribution: Siberia, Japan (Hokkaido), North Mongolia, North China, Korea.

Material: 9. 5. 1975, SU, Amur reg., Kundur, 4/I, from wood of *Betula*, lgt. D, coll. IS.

X. capricornis (GEBLER, 1830)

Larvae almost indistinguishable from *X. hircus*. For the only difference that I could find see the key.

Habits: Larvae feed subcortically. Known only from *Betula* so far. Life cycle apparently lasts 2 years. Pupation in spring and at the beginning of summer. Adults from June to July.

Distribution: Europe, West Siberia.

Material: 6. 1965, CS, Slovakia or., Stakčín, 8/I, under bark of *Betula verrucosa*, lgt. and coll. M. Sláma,

X. adspersus (GEBLER, 1830)

Cranium transverse (1.3), with sides diverging posteriorly, rounded behind middle. Hind margin straight. Medial frontal line indistinct. Front margin of frons almost straight, pigmented back to row of praefrontal setae or wider, latter setae multiplied laterally. 2nd antennal segment slightly longer than wide (1.3–1.4). 3rd segment shorter than width of 2nd. Gena and pleurostoma finely rugose, without postantennal protuberance. Subfossal process present. Anterior margin of hypostoma narrowly pigmented, almost straight. Ventral sclerite (9.5) with some setae. Gula elongate, pale brown. Labrum subcircular, slightly transverse, with pale basal pigmentation. Mentum without lateral sclerites.

Prothorax with pale yellow spots. Posterior raised plate of pronotum entirely covered with microasperities, projecting forward medially and laterally. Postnotum, coxosternum, sternellar fold and most of alar lobes, epipleurum and praesternum (excepting glabrous plates) asperate. Meso- and metathorax asperate dorsally and ventrally, with poorly developed transverse furrows. Transverse furrows of abdominal ampullae almost absent. Abdominal ampullae almost entirely asperate, only small areas near short longitudinal impressions without asperities, microreticulate. Thoracic spiracle about 2.5 times longer than wide and about 1.5 times longer than 1st abdominal spiracle. Body length up to 29 mm, width up to 6 mm.

Habits: Strongly oligophagous on *Salix* and *Chosenia*. Larvae feed in living wood. Mature larvae overwinter. Pupation from May to June. Adults from June to July. Life cycle lasts 2 years.

Distribution: Siberia, North Korea, North Mongolia, North China.

Material: 3. 5. 1975, SU, Amur reg., Kundur, 12/I, from *Salix*, lgt. D, coll. IS.

X. altaicus (GEBLER, 1836)

No material available. According to CHEREPANOV (1982), body length up to 30 mm.

Habits: Monophagous on living *Larix*. Larvae feed subcortically and later in sapwood. Mature larvae overwinter. Pupation from June to July. Adults from June to August. Life cycle lasts two years.

Distribution: Siberia, North Mongolia.

X. ibex (GEBLER, 1825)

Rather similar to larvae of *X. adspersus*, but sides of cranium broadly rounded, widest near middle. Setae of hypostoma very small, almost indiscernible. Gula brown, strongly transverse. Ventral sclerite about 11 times wider than length of gula.

Meso- and metathorax dorsally and ventrally and all abdominal ampullae entirely asperate. Thoracic spiracle about twice longer than wide and about 1.5 times longer than 1st abdominal spiracle. Body length up to 33 mm, width up to 7 mm.

Habits: Polyphagous on deciduous trees (*Betula*, *Ulmus*, *Carpinus*, *Alnus* and apparently others). Larvae feed subcortically in dead branches and stems. Mature larvae overwinter. Pupation in spring and at the beginning of summer. Adults from June to July. Life cycle lasts 2 years.

Distribution: Siberia, North Mongolia, North China, Korea.

Material: 20. 4. 1967, SU, Ussuri reg., Suputinskii reserve, 3/I, from *Betula*, lgt. B. M. Mamaev, coll. IS; 10. 5. 1967, SU, Ussuri reg., Kedrovaya Pad', 3/I, from *Alnus*, lgt. B. M. Mamaev, coll. IS.

X. clarinus BATES, 1884

I was unable to find any distinguishing characters from *X. ibex*.

Habits: Rather similar to those of *X. ibex*. Adults from July to September.

Distribution: Sakhalin, South Kurile Islands, Japan.

Material: 11. 9. 1972, SU, Kunashir, 3/I, from *Alnus*, lgt. D, coll. IS.

X. rusticus (L., 1758)

Almost indistinguishable from *X. ibex*. Distinguishing characters in the key. Body length up to 32 mm, width up to 7 mm.

Habits: Polyphagous on deciduous trees, preferring *Populus*, but also in *Salix*, *Betula*, *Acer*, *Tilia*, *Sorbus* and others. Larvae feed subcortically and later in dead wood. Mature larvae overwinter, pupation from May to July. Adults from May to September. Life cycle lasts two years.

Distribution: Europe, Caucasus, Transcaucasia, Turkey, North Iran, Siberia, Japan, Korea, North China, North Mongolia.

Material: 14. 2. 1977, CS, Moravia m., Lednice, +/I, from *Populus alba*, lgt. and coll. S; 15. 7. 1977, CS, Slovakia m., Štúrovo, +/I, from *Populus* sp., lgt. and coll. S; 1967–1975, various regions of USSR, +/I, from *Populus tremula*, *Populus* sp., *Betula* sp., lgt. B. M. Mamaev and D, coll. IS.

Genus *Chlorophorus* CHEVROLAT, 1863

Type species: *Clytus annularis* F., 1787

Body robust, with long sparse setae, without microasperities.

Head white, with mostly feebly pigmented mouthframe. Cranium transverse (1.3), only in *Ch. hungaricus* longer (1.2), with sides slightly diverging posteriorly, widest behind middle. Posterior margin straight or feebly procurved. Medial frontal line indistinct. Frons smooth. Front margin of frons emarginate behind labrum, rather narrowly pigmented, pigmentation not reaching praefrontal setae (2,2,1); or rarely strongly pigmented (*Ch. hungaricus*, *Ch. sexguttatus*, *Ch. faldermanni*), back to the row of praefrontal setae.

Antennal foramen nearly always widely opened. Antennae long, 2nd and 3rd segments elongate, both bearing short setae. Main antennal sensillum small.

Dorsal and ventral stemmata absent. One pair of large main stemmata present. Corneae convex, pigmented spots mostly absent or greyish.

Sides of cranium with only pleurostoma \pm strongly pigmented, rarely (*Ch. hungaricus*, *Ch. sexguttatus*) pigmentation wider. Stemmata not surrounded by pigmentation (in *Ch. hungaricus* stemmata partly surrounded by pigmentation and antennal rings sometimes narrowly closed). Gena with a row of long setae and often with many short setae. Subfossal process absent.

Hypostomal lines distinct anteriorly. Hypostoma may be strongly obliquely striate, but mostly \pm smooth, with some small setae, anteriorly nearly straight, with two paramedian concavities, very narrowly pigmented.

Labrum slightly transverse, subcircular, densely setose peripherally.

Mandibles with \pm pale basal part, bearing some short setae.

Labiomaxillary complex attached to ventral sclerite by about 3 widths of gula. Maxillary palpiger with lateral process feebly developed or absent. Lateral process of 1st segment of maxillary palp mostly indistinct. 1st segment longer than 2nd, 2nd longer than 3rd. Mala subquadrate, densely setose apically.

Submentum feebly pigmented, with two setae. Mentum without lateral sclerites, only in *Ch. hungaricus* and *Ch. sexguttatus* lateral sclerites present. Praementum with distinct basal pigmentation which is more or less widely interrupted medially. Labial palps separated by less than width of 1st segment. Ligula narrow, longer than 1st palpal segment. Both segments of labial palps about equal in length.

Pigmentation of prothorax mostly pale yellow, only in *Ch. sexguttatus* bright orange. Basal rings of setae indistinct. Posterior area of pronotum shining, longitudinally striate. Epipleurum ventrally delimited near its hind margin. Mediopraesternum fused with lateropraesternum. Coxosternum and sternellar fold separate.

Mesonotum divided by a curved line. Metanotum and meso- and metasternum divided by transverse lines. Alar lobes, coxal lobes and pleurum of pterothoracic segments distinct. Epipleurum of mesothorax divided in three parts. Posterior and middle areas of metathoracic epipleurum entirely fused, anterior area separated by a very deep line and almost fused with alar lobe.

Legs always present, but vestigial, in form of unsegmented papillae, often surrounded by short setae. Sometimes tibiotarsus and rudimentary femur may remain separated (often in *Ch. pilosus*), but without pigmentation.

Transverse furrows of dorsal and ventral abdominal ampullae distinct. All ampullae without microasperities, shining, irregularly rugose, with dense small irregular tubercles. Coxal lobes distinctly delimited dorsally. Pleural discs diffuse, or rather distinct on segments 1 to 3, or only on 2nd segment. Thoracic spiracle about twice longer than wide and about 1.5 times longer than 1st abdominal spiracle, in *Ch. hungaricus* spiracles more circular.

About 60 species in Palaearctic Region, larvae of 13 of them at my disposal.

- 1(4) Mouthframe strongly pigmented, pigmentation laterally wider than pleurostoma (Fig. 21 D).
- 2(3) Gula brown *hungaricus*
- 3(2) Gula pale *sexguttatus*
- 4(1) Mouthframe mostly feebly pigmented, lateral pigmentation restricted to pleurostoma. Gula pale.
- 5(6) Pleural discs distinct on 2nd abdominal segment only; dorsal surface of ligula with lateral areas of microasperities reaching apex (similar to *Ch. faldermanni*, but without medial row of setae) *pilosus*
- 6(5) Pleural discs diffuse, or rather distinct on abdominal segments 1 to 3.
- 7(16) Pleural discs distinct on abdominal segments 1 to 3.
- 8(9) Mouthframe almost without pigmentation; front margin of frons not pigmented. . . *favieri*
- 9(8) Mouthframe \pm pigmented; front margin of frons at least narrowly pigmented.
- 10(11) Dorsal surface of ligula entirely asperate (Fig. 21 A) *sartor*
- 11(10) Dorsal surface of ligula at least medially devoid of asperities.
- 12(13) Dorsal surface of ligula almost entirely asperate, but medially with small elongate area devoid of asperities *japonicus*
- 13(12) Dorsal surface of ligula asperate laterally or basally.
- 14(15) Dorsal surface of ligula asperate basally (Fig. 21 B) *figuratus*
- 15(14) Dorsal surface of ligula asperate laterally *motschulskyi*
- 16(7) Pleural discs diffuse, indistinct.
- 17(18) Dorsal surface of ligula asperate laterally (Fig. 21 C) *faldermanni*
- 18(17) Dorsal surface of ligula asperate only basally.
- 19(20) Mouthframe feebly pigmented, pale yellow *herbsti*, *elaeagni*, *varius*
- 20(19) Mouthframe strongly pigmented, brown *hrabovskyi*

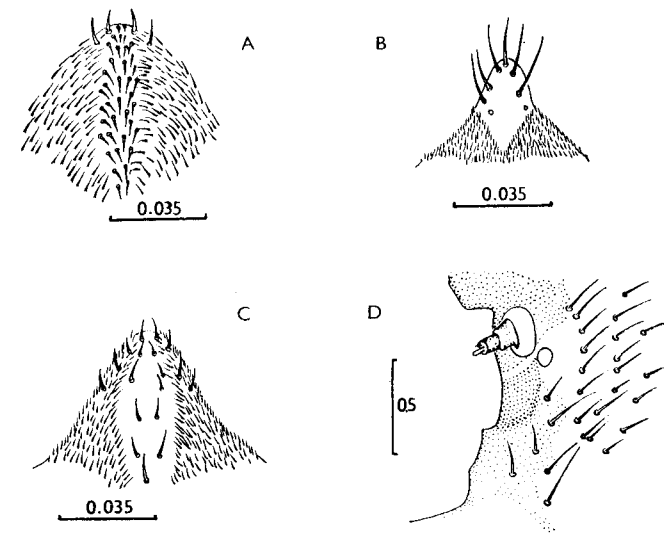


Fig. 21: A - *Chlorophorus sartor*, ligula, dorsal view. B - *Ch. figuratus*, ditto. C - *Ch. faldermanni*, ditto. D - *Ch. sexguttatus*, pleurostoma and gena.

Ch. sartor (MÜLLER, 1766)

Main distinguishing characters in the key.

Mouthframe feebly pigmented. 2nd antennal segment slightly elongate or subquadrate. Gula quadrate. Ventral sclerite (6.5) finely striate. Body length up to 11 mm, width up to 3 mm.

Habits: Polyphagous on deciduous trees. Larvae feed in dead wood. Life cycle lasts apparently 2 years. Adults from June to August.

Distribution: Europe, Caucasus, Transcaucasia, Turkey, North Iran, West Turkmenia, (?) Siberia.

Material: 22. 8. 1976, Bulgaria, Ropotamo, 3/I, from *Paliurus*, lgt. and coll. S; 25. 8. 1976, Bulgaria, Ropotamo, 3/I, from *Quercus*, 2/I, *Ulmus*, 1/I, *Crataegus*, lgt. and coll. S; 7. 7. 1981, CS, Slovakia m., Kamenica n./Hr., 6/I, from *Quercus*, lgt. and coll. S; 13. 1. 1981, SU, Krasnodar, 4/I, from *Elaeagnus*, lgt. A. I. Miroshnikov, coll. IS.

Ch. japonicus (CHEVROLAT, 1863)

Main distinguishing characters in the key.

Mouthframe relatively strongly pigmented, brown. Pleurostoma entirely pigmented. Gula slightly elongate. Ventral sclerite (7) coarsely striate. Body length up to 19 mm, width up to 4 mm.

Habits: Polyphagous on deciduous trees (*Betula*, *Acer*, *Alnus*, *Quercus*, *Lespedeza*, *Aralia*, *Phellodendron*, *Cerasus* and others). Larvae in dead wood. Mature larvae overwinter. Pupation from May to June. Adults from June to August. Life cycle lasts two years.

Distribution: South Sakhalin, Kurile Islands (Kunashir), Japan, Korea, China, Vietnam.

Material: 26. 6. 1977, SU, Kunashir, 6/I, *Kalopanax*, lgt. A. V. Kompantsev, coll. IS.

Ch. figuratus (SCOPOLI, 1763)

Main distinguishing characters in the key.

Mouthframe pale brown, pleurostoma entirely pigmented. Ventral sclerite (8) distinctly striate. Gula subquadrate. Body length up to 18 mm, width up to 4 mm.

Habits: Polyphagous on deciduous trees. Larvae feed in dead wood. Pupation from spring to early summer. Adults from June to August. Life cycle lasts two years.

Distribution: Europe, Caucasus, Transcaucasia, Turkey, North Iran, West Kazakhstan, Siberia.

Material: 28. 8. 1976, Bulgaria, Ropotamo, 2/I, from *Pirus*, lgt. and coll. S; 8. 9. 1980, CS, Slovakia m., Kamenica n./Hr., 3/I, from *Quercus*, lgt. and coll. S.

Ch. motschulskyi (GANGLBAUER, 1886)

Main distinguishing characters in the key.

Mouthframe brown, pleurostoma entirely pigmented. Ventral sclerite (8) striate. Gula subquadrate. Body length up to 20 mm, width up to 3.5 mm.

Habits: So far known only from *Quercus*. Larvae feed in dead wood. Mature larvae overwinter (often in pupal cells). Pupation from May to June. Adults from June to August. Life cycle lasts two years.

Distribution: East Siberia through Ussuri region, Korea, North China.

Material: 5. 6. 1980, SU, Ussuri reg., Sokolchi, 5/I, from *Quercus*, lgt. S. V. Murzin, coll. IS; 26. 5. 1978, SU, Amur reg., Pashkovo, 1/I, from *Quercus*, lgt. S. V. Murzin, coll. IS.

Ch. favieri FAIRMAIRE, 1873

Mouthframe almost without pigmentation, slightly pigmented only near mandibular articulations. Front margin of frons deeply emarginate behind labrum. Gena finely rugose. Ventral sclerite (7.5) deeply transversely striate, glabrous, with strongly procurved anterior margin. Gula subquadrate, pale. Labrum slightly transverse. Mandibles with dark brown basal part. Submentum pale, with two setae. Mentum without pigmentation. Praementum with two small brown lateral sclerites narrowed medially. Pronotum with pale yellow pigmentation. Thoracic spiracle twice longer than wide and about 1.5 times longer than 1st abdominal spiracle. Pleural discs large and rather distinct on abdominal segments 1 to 3. Body length 12.4 mm, width 3.5 mm.

Habits: Larvae feed in dead wood of *Quercus*.

Distribution: Morocco.

Material: 25. 5. 1985, Morocco, Haut Atlas, Tizi n'Test, 1/I, from *Quercus ilex*, lgt. and coll. G. Sama.

Ch. pilosus (FORSTER, 1771)

Main distinguishing characters in the key.

Mouthframe brown, pleurostoma entirely pigmented. Hypostoma very finely striate, about 8 times wider than length of gula. Gula slightly elongate. Body length up to 21 mm, width up to 4.5 mm.

Habits: Polyphagous on deciduous trees (*Quercus*, *Ficus*, *Juglans*, *Castanea*, *Robinia*, *Vitis*, *Prunus*, *Pirus* and others). Larvae feed in dead wood. Life cycle apparently lasts at least two years. Adults from June to August.

Distribution: South-West Europe, North Africa.

Material: 23. 6. 1969, France, Alpes marit., Vallauris, 4/I, from *Mimosa*, lgt. and coll. M. Sláma; 21. 6. 1983, Algeria, near Bejaia, 4/I, from indetermined deciduous tree, lgt. E. Jendek, coll. S; Italia, Romagna, Forli, 1/I, from *Quercus*, lgt. G. Sama, coll. S.

Ch. varius (MÜLLER, 1766)

Main distinguishing characters in the key.

Mouthframe very feebly pigmented, pale yellow. Pleurostoma partly pigmented beneath antennae. Gula quadrate. Ventral sclerite (8) distinctly striate. Body length up to 20 mm, width up to 4.5 mm.

Habits: Polyphagous on deciduous trees and herbaceous plants. Larvae feed in dead wood of *Vitis*, *Acer*, *Quercus*, *Populus*, *Malus*, *Elaeagnus* and other trees, also in stems and roots of *Salicornia*, *Achillea*, *Spartium* and others. Mature larvae overwinter. Pupation in spring and early summer. Adults from June to August. Life cycle lasts two years.

Distribution: Europe, South-West Siberia, Caucasus, Transcaucasia, Near East, North Iran.

Material: 7. 5. 1978, Hungaria, Velencei-tó, 2/I, from indetermined shrub, lgt. and coll. S; 14. 7. 1977, CS, S; 8. 5. 1978, Hungaria, Kóvágószöllös, 1/I, from *Crataegus*, lgt. and coll. S; 29. 6. 1983, SU, Azerbaidzhan, Minge-Slovakia m., Štúrovo, 7/I, from *Juglans*, lgt. and coll. S; 15. 5. 1968, Hungaria, chaur, 5/I, from roots of indet. *Chenopodiaceae*-semishrub, lgt. and coll. S; 15. 5. 1968, Hungaria, Pusztasomodor, 8/I, from *Robinia*, lgt. and coll. M. Sláma.

Ch. herbsti (BRAHM, 1790)

I was unable to find any distinguishing characters from *Ch. varius*.

Habits: Polyphagous on deciduous trees (*Quercus*, *Tilia*, *Ulmus*, *Betula*, *Padus*, *Crataegus* and others). Larvae feed in dead wood. Pupation in spring and early summer. Adults from June to August. Life cycle apparently lasts two years.

Distribution: Europe.

Material: 4. 1977, CS, Bohemia c., Stará Boleslav, 7/I, from *Tilia*, lgt. and coll. S; 19. 4. 1964, CS, Bohemia c., Nižbor, 5/I, from *Carpinus*, lgt. and coll. M. Sláma; 15. 12. 1960, CS, Bohemia c., Stará Boleslav, 3/I, from *Tilia*, lgt. and coll. M. Sláma; 19. 2. 1977, CS, Moravia m., Lednice, 1/I, *Tilia*, lgt. and coll. S.

Ch. elaeagni PLAVILSHCHIKOV, 1956

I was unable to find any distinguishing characters from *Ch. varius*.

Habits: Larvae feed in dead wood of *Elaeagnus* and apparently in some other trees. Pupation in spring and early summer. Adults from June to July. Life cycle lasts apparently 2 years.

Distribution: South-East of European part of USSR, Kazakhstan, Soviet Central Asia.

Material: 13. 4. 1971, SU, Turkmenia, Akibai, 10/I, *Elaeagnus*, lgt. B. M. Mamaev, coll. IS.

Ch. hrabovskyi KRATOCHVÍL, 1985

Very similar to *Ch. varius*, but mouthframe rather strongly pigmented, dark brown. Body length up to 18 mm, width up to 4.5 mm.

Habits: Larvae feed in living roots of *Aellenia* (*Chenopodiaceae*). Pupation early in summer. Life cycle apparently lasts two years.

Distribution: South Turkmenia, South Uzbekistan.

Material: 29. 4. 1971, SU, Turkmenia, Akibai, 12/I, from roots of *Aellenia*, lgt. B. M. Mamaev, coll. IS.

Ch. faldermanni (FALDERMANN, 1837)

Main distinguishing characters in the key.

Mouthframe brown, pleurostoma entirely pigmented. Ventral sclerite (9) distinctly striate. Gula slightly transverse. Body length up to 22 mm, width up to 6 mm.

Habits: Polyphagous on deciduous trees. Larvae feed in dead wood of *Populus*, *Ulmus*, *Elaeagnus*, *Pirus* and many others. One of the most serious insect pests of timber in Central Asia. Life cycle apparently lasts 2 years. Adults from May to September.

Distribution: East Transcaucasia, South-East of European part of USSR, Kazakhstan, Central Asia, North Iran, North Afghanistan.

Material: 2. 3. 1978, SU, Tadzhikistan, Tigrovaya Balka, 14/I, from *Populus*, lgt. D, coll. IS.

Ch. sexguttatus LUCAS, 1849

Front margin of frons deeply emarginate behind labrum, pigmented back to row of praefrontal setae. Gena pigmented back to hind margin of stemma (Fig. 21 D). Ventral sclerite (8) finely striate, densely setose. Gula quadrate, gular lines slightly darkened. Mandibles with dark brown basal part. Submentum yellow, with two rather long setae. Mentum without sclerites. Praementum with two dark brown lateral sclerites.

Pronotum with bright orange pigmentation, pigmented blotches with many distinct small transverse white spots. Thoracic spiracle about twice longer than wide and about twice longer than 1st abdominal spiracle. Pleural discs diffuse. Body length up to 14 mm, width up to 4.5 mm.

Habits: Larvae in stems and roots of herbaceous plants: *Ebenus pinnata* (VILLIERS, 1946), *Ononis* sp. (*Fabaceae*), indetermined *Fabaceae* (G. Sama, private letter). Adults from May to June.

Distribution: Morocco, Algeria.

Material: 2. 6. 1985, Morocco, Haut Atlas, Tizi n'Test, 3/I, *Ononis* sp., lgt. G. Sama, coll. G. Sama and S.

Ch. hungaricus (SEIDLITZ, 1891)

Main distinguishing characters in the key.

Front margin of frons deeply emarginate behind labrum. Ventral sclerite (7) rather strongly striate. Gula slightly transverse. Pleural discs indistinct. Thoracic spiracle about 1.6 times longer than wide and about 1.2 times longer than 1st abdominal spiracle. Body length up to 16 mm, width up to 4 mm.

Habits: Larvae feed in roots of herbaceous plants such as *Ononis*, *Dorycnium* (*Fabaceae*) and apparently others. Adults from June to July. Life cycle lasts 2 years.

Distribution: South and Central Europe.

Material: 28. 8. 1983, CS, Slovakia m., Štúrovo, 12/I, from roots of *Dorycnium*, lgt. and coll. S.

Genus *Hayashiclytus* OHBAYASHI, 1963

Type species: *Clytus acutivittis* KRAATZ, 1879

Body slender, with sparse short setae, without asperities.

Head yellowish, with slightly pigmented pale brown anterior margin. Width of cranium equal to its length, whole head therefore elongate. Sides of cranium broadly rounded near middle, almost parallel. Hind margin straight (Fig. 22 A). Medial frontal line indistinct. Frons smooth, with a row of praefrontal setae (2,2,1). Front margin of frons slightly recurved medially, feebly pigmented. Pigmentation not reaching praefrontal setae, its posterior border diffuse.

Antennal ring widely opened. Antennae long, 2nd antennal segment about twice longer than wide, with small main sensillum. 3rd segment elongate but rather short, about 2.5 times shorter than 2nd.

Dorsal and ventral stemmata absent. One pair of small main stemmata present. Corneae convex, pigmented spots indistinct. Sides of cranium with only pleurostoma pigmented. Gena very finely rugose, with a row of short setae. Subfossal process absent.

Hypostomal lines distinct anteriorly. Ventral sclerite (13) glabrous, almost smooth. Anterior margin straight, with two paramedian concavities, very narrowly pigmented. Gula slightly transverse or subquadrate, pale.

Labrum transversely oval, with pale basal pigmentation, densely setose peripherally.

Mandibles with black basal part.

Maxillary palper and 1st palpal segment with small lateral processes. 1st segment about equal in length to 3rd, longer than 2nd.

Submentum slightly pigmented, with two setae. Mentum without lateral sclerites. Praementum with wide, medially interrupted basal pigmentation. Labial palps separated by more than width of 1st segment. 2nd segment longer than 1st. Ligula longer than 1st segment.

Thorax and abdomen similar to *Chlorophorus*, but legs more distinct. Femur and tibiotarsus present, sclerotized. Femur with two setae. Pleural discs diffuse. Body length up to 23.5 mm, width up to 4.2 mm.

One species in the genus.

H. acutivittis (KRAATZ, 1879)

Habits: Polyphagous on deciduous trees, preferring *Acer*, but also in *Carpinus*, *Pirus*, *Vitis*, *Quercus*, *Fraxinus*, *Ulmus*, *Alnus*, *Betula*, *Aralia*, *Armeniaca*, *Corylus* and others. Larvae feed in dead wood. Mature larvae overwinter. Pupation in May. Adults from June to August. Life cycle lasts 3 years.

Distribution: Soviet Far East, Japan, Korea, North China.

Material: 26. 5. 1969, SU, Ussuri reg., Suputinskii reserve, 9/I, from *Acer*, lgt. B. M. Mamaev, coll. IS.

Genus *Isotomus* MULSANT, 1863

Type species: *Clytus semipunctatus* F., 1798 = *Callidium speciosum* SCHNEIDER, 1787

Very similar to larvae of *Chlorophorus*.

Cranium (1.2–1.3) with straight hind margin. Frons often with dense short setae besides praefrontal setae. Front margin of frons feebly emarginate behind labrum. Sides of cranium with only pleurostoma pigmented. Gula pale. Legs very short, but always segmented; tibiotarsus distinct, sclerotized; sometimes femur also visible. Pleural discs diffuse, indistinct.

About 6 species in Palaearctic Region, larvae of 5 of them at my disposal.

- 1(2) Prothorax with bright yellow pigmentation *theresae*
- 2(1) Prothorax with pale yellow pigmentation.
- 3(6) Lateral processes of maxillae large, process of 1st palpal segment long, very distinct; hypostoma coarsely rugose.
- 4(5) Hypostoma with numerous distinct setae, labial palps separated by less than width of their 1st segment *jarmilae*
- 5(4) Each side of hypostoma with about 6 hardly visible setae; labial palps separated by more than basal width of their 1st segment *barbarae*
- 6(3) Lateral processes of maxilla short, process of 1st palpal segment indistinct; hypostoma very finely rugose.
- 7(8) Main antennal sensillum more than 4 times shorter than 3rd antennal segment . . . *comptus*
- 8(7) Main antennal sensillum about (or less than) 3 times shorter than 3rd antennal segment *speciosus*

Larvae of *Isotomus*-species are extremely similar to each other, and distinguishing characters in the key must be regarded as provisional.

I. theresae (PIC, 1897)

Body length of available non-mature larva 19 mm, width 4 mm.

Habits: So far it seems to be known only from *Quercus*, but probably polyphagous on deciduous trees. Larvae feed in dead dry wood. Adults in June.

Distribution: North Africa.

Material: 16. 6. 1982, Algeria, Akfadou, 1/I, from *Quercus mirbecki*, lgt. G. Sama, coll. S.

I. jarmilae SLÁMA, 1982

Body length of available larvae up to 23 mm, width up to 5 mm.

Habits: Larvae feed in dead dry wood of *Quercus coccifera*, and perhaps are polyphagous on deciduous trees. Adults in June.

Distribution: Crete.

Material: 6. 1984, Crete, Omalos, 7/I, from *Quercus coccifera*, lgt. and coll. M. Sláma.

I. barbarae SAMA, 1977

Body length of examined larvae up to 21 mm, width up to 5 mm.

Habits: Larvae feed in dead wood of *Ostrya*, *Carpinus*, *Fagus* and apparently of other deciduous trees. Pupation from the end of spring to the beginning of summer. Adults from June to August.

Distribution: Italy (Romagna).

Material: 1982, Italy, Monteriola di Sarsina, 2/I, from *Ostrya carpinifolia*, lgt. G. Sama, coll. S.

I. speciosus (SCHNEIDER, 1787)

Body length of available larvae up to 24 mm, width up to 5.5 mm.

Habits: Polyphagous on deciduous trees. Larvae in dead dry wood. Pupation from the end of spring to the beginning of summer. Adults from June to July. Life cycle lasts at least two years, but apparently longer.

Distribution: Europe, Caucasus, Transcaucasia.

Material: 12. 10. 1980, CS, Moravia m., Lednice, 7/I, from *Carpinus betulus*, lgt. J. Hála, coll. S.

I. comptus (MANNERHEIM, 1825)

Body length up to 31 mm, width up to 8 mm.

Habits: Polyphagous on deciduous trees. Often in seasoned timber and wooden structures. Pupation in spring and early summer. Adults from June to August. Life cycle apparently more than 2 years.

Distribution: Crimea, Caucasus, Transcaucasia, Turkey, North Iran.

Material: 9. 5. 1979, SU, Talysh, Avrova, +/I, from *Carpinus*, lgt. D, coll. IS; 2. 7. 1983, SU, Azerbaidzhan, Nabran, 7/I, from *Carpinus*, lgt. and coll. S.

Genus *Cyrtoclytus* GANGLBAUER, 1882

Type species: *Callidium capra* GERMAR, 1824

Body slender, covered with short dense setae, without microasperities.

Head white, with strongly pigmented, dark brown mouthframe. Cranium transverse (1.2–1.3), with sides widely rounded behind middle, with feebly procurved hind margin. Medial frontal line indistinct. Frons entirely smooth. Anterior margin slightly emarginate behind labrum, pigmented up to row of praefrontal setae (2,2,1).

2nd antennal segment about as long as wide, or slightly elongate; 3rd segment

about 1.5 times longer than wide. Both segments with short setae. Main antennal sensillum distinct. Antennal ring closed or rarely very narrowly opened.

Dorsal and ventral stemmata absent. One pair of small main stemmata present. Corneae convex, pigmented spots greyish.

Gena smooth, without poststemmatal protuberance, with a row of strong (but short) setae and with dense small setae, broad pigmentation widely surrounding stemmata. Subfossal process absent.

Hypostoma smooth, very finely rugose, with short setae, anteriorly straight, with small paramedian concavities, darkly pigmented. Gula brown, subquadrate, slightly transverse or slightly elongate.

Labrum transverse, with pale basal pigmentation, densely setose peripherally.

Mandibles with black basal part.

Labiomaxillary complex attached to ventral sclerite by about 3 widths of gula. Lateral processes of maxilla indistinct. 1st segment of maxillary palps about equal in length to 3rd, longer than 2nd.

Submentum finely pigmented, with two setae. Mentum without lateral sclerites. Praementum with wide uninterrupted pigmentation. 1st segment of labial palps about equal in length to 2nd. Ligula longer than 1st segment.

Thorax and abdomen rather similar to those of *Chlorophorus*. All ambulatory ampullae microreticulate, dull.

Legs indistinct, in form of unsegmented papillae. Pleural discs diffuse. Thoracic spiracle about twice longer than wide and about 1.5 times longer than 1st abdominal spiracle.

Three species in Palaearctic Region, larvae of 2 of them at my disposal.

1(2) Cranium more transverse (1.3); 2nd antennal segment elongate; body length up to 25 mm, width up to 5 mm *caproides*

2(1) Cranium less transverse (1.2), 2nd antennal segment as long as wide; body length up to 22 mm, width up to 4 mm *capra*

C. caproides (BATES, 1873)

Distinguishing characters in the key.

Habits: Polyphagous on deciduous trees (*Betula*, *Acer*, *Ulmus* and apparently others). Larvae feed in dead wood. Pupation from June to July. Adults from July to September. Life cycle lasts two years.

Distribution: Sakhalin, South Kurile Islands, Japan.

Material: 26. 9. 1972, SU, Kunashir, 6/I, from *Ulmus*, lgt. B. M. Mamaev, coll. IS; 24. 9. 1976, SU, Kunashir, 1/I, from *Betula*, lgt. A. V. Kompantsev, coll. IS.

C. capra (GERMAR, 1824)

Distinguishing characters in the key.

Habits: Polyphagous on deciduous trees (*Betula*, *Ulmus*, *Alnus*, *Salix*, *Padus*, *Juglans*, *Quercus*, *Tilia*, *Aralia*, *Vitis* and many others). Larvae feed in dead wood. Pupation from May to June. Adults from June to August. Life cycle lasts 2 years.

Distribution: Europe, (?) North Caucasus, North Kazakhstan, Siberia, North Mongolia, North China, North Korea.

Material: 26. 5. 1969, SU, Ussuri reg., Suputinskii reserve, 2/I, *Acer* and *Fraxinus*, lgt. B. M. Mamaev, coll. IS; 1. 9. 1975, SU, Khabarovsk reg., Gur river, 2/-, from *Betula*, lgt. D, coll. IS; 16. 7. 1979, SU, Baikalsk, 2/-, *Alnus*, lgt. and coll. S.

Genus *Brachyclytus* KRAATZ, 1879

Type species: *B. singularis* KRAATZ, 1879

Body with dense short setae, without microasperities.

Head yellowish, with strongly pigmented black mouthframe. Cranium about 1.3 times wider than long, with sides little diverging posteriorly, widest near straight hind margin. Medial frontal line indistinct. Frons smooth, with front margin straight, with some scattered setae and a row of praefrontal setae (2,2,1), setae of that row surrounded by pigmentation of front margin.

Antennal ring closed. Antennae rather long, all segments elongate, with short setae. Main antennal sensillum very small.

Dorsal and ventral stemmata absent. One pair of small main stemmata present. Corneae convex, pigmented spots greyish.

Pleurostoma smooth. Gena widely pigmented behind stemmata, without post-stemmatal protuberance, finely rugose, with a row of strong setae and with some small scattered setae. Subfossal process absent.

Ventral sclerite (9) glabrous, smooth. Anterior margin widely pigmented, slightly emarginate medially. Gula transverse, dark brown.

Labrum transverse, densely setose along its periphery.

Mandibles black, with two basal setae.

Labiomaxillary complex attached to ventral sclerite by less than two widths of gula. Mala subquadrate, strongly broadened anteriorly. Palpiger with conspicuous process, process of 1st palpal segment indistinct. 1st palpal segment transverse, 2nd subquadrate, 3rd elongate.

Submentum slightly pigmented, with two setae. Mentum without lateral sclerites. Praementum with narrow basal pigmentation. Labial palps separated by more than width of their 1st segment. 1st segment shorter than 2nd. Ligula longer than 1st segment.

Thorax and abdomen similar to those of *Chlorophorus*, but legs totally absent. Meso- and metathorax dorsally and ventrally and all abdominal ampullae micro-

reticulate, but medially partly microgranulate. Pleural discs indistinct. Thoracic spiracle about twice longer than wide and about 1.7 times longer than 1st abdominal spiracle. Body length 15 mm, width 4 mm.

One species in the genus.

B. singularis KRAATZ, 1879

Habits: Monophagous on *Vitis*. Larvae feed in wood. Pupation from August to September. Adults overwinter in pupal cells, fly from May to July.

Distribution: Ussuri reg., South Sakhalin, South Kurile Islands, Japan, Korea, North China.

Material: 1. 8. 1969, SU, Ussuri reg., Ugolnaya, 1/I, from *Vitis*, lgt. L. A. Anufriev, coll. IS.

Genus *Clytus* LAICHARTING, 1784

Type species: *Leptura arietis* L., 1758

Body robust, with \pm dense fine setae. Lateral areas of prothorax partly covered with microasperities.

Head white, with strongly pigmented brown mouthframe. Pigmentation mostly wide, but in *C. rhamni* rather narrow. Cranium transverse. Frons smooth, with front margin procurved, mostly pigmented back to row of praefrontal setae (2,2,1) and often with some small setae behind them. Medial frontal line indistinct, or distinct near its hind end.

Antennal ring closed or narrowly opened, only in *C. rhamni* widely opened. Antennae long, with distinct main sensillum. 2nd and 3rd antennal segments with a few setae.

Dorsal and ventral stemmata rarely discernible. One pair of main stemmata present. Corneae convex, pigmented spots mostly greyish. Gena and pleurostoma \pm smooth, without poststemmatal protuberance, only in *C. raddensis* with small poststemmatal protuberance and a deep furrow behind it. Gena with a row of long setae and with some scattered setae, widely pigmented behind stemmata, or without pigmentation. Subfossal process absent.

Ventral sclerite glabrous, or with some hardly visible setae, obliquely rugose, or \pm strongly longitudinally striate along anterior margin, or coarsely irregularly rugose.

Labrum transverse, its basal sclerotization often indistinct.

Mandibles black, with dark brown basal part, bearing two or three setae.

Maxillary palpiger and 1st segment of maxillary palp with conspicuous lateral processes, or sometimes process of 1st segment indistinct. Mala about as long as wide, or transverse, broadened apically, with straight anterior margin bearing sparse setae.

Submentum yellow, with two setae. Mentum mostly without lateral sclerites.

Praementum with \pm wide basal pigmentation. Ligula rather distinct, mostly longer than 1st segment of labial palp, only in *C. raddensis* very small, indistinct.

Thorax and abdomen very similar to those of *Chlorophorus*. Prothorax always feebly pigmented, with pale yellow blotches. Basal rings of setae indistinct. Glabrous area of pronotum longitudinally rugose, shining or partly dull posteriorly, rarely entirely dull. Legs totally absent, only in *C. tropicus* present in form of unsegmented papillae. Terga and sterna of meso- and metathorax and all abdominal ampullae microreticulate, sometimes medial areas of ampullae shining. In *C. rhamni* microreticulation diffuse, rather indistinct. Spiracles without marginal chambers. Pleural discs diffuse, but sometimes small discs of 1st abdominal segment poorly visible.

About 30 species in Palaearctic Region, 9 of them at my disposal.

- 1(8) Anterior margin of hypostoma strongly longitudinally striate or coarsely rugose.
- 2(5) Anterior margin of hypostoma strongly longitudinally striate (Fig. 22 B).
- 3(4) Microreticulation of abdominal ampullae partly diffuse, ampullae (especially ventral ones) partly shining *arietis*
- 4(3) Microreticulation of ampullae rather distinct and all ampullae entirely dull. *ambigenus*
- 5(2) Anterior margin of hypostoma irregularly rugose (Fig. 22 C).
- 6(7) Gena strongly pigmented behind stemmata *arietoides*
- 7(6) Gena without pigmentation behind stemmata, or rather feebly pigmented (with pale yellow spots) *lama*
- 8(1) Anterior margin of hypostoma smooth.
- 9(12) Gena without pigmentation behind stemmata.
- 10(11) Pigmentation of pleurostoma wide, much wider than antennal opening; stemmata small, their diameter about equal to width of 2nd antennal segment *tropicus*
- 11(10) Pigmentation of pleurostoma narrow, about as wide as antennal opening; stemmata larger than cross-section of 2nd antennal segment *rhamni*
- 12(9) Gena \pm widely pigmented behind stemmata.
- 13(16) Gena \pm smooth behind stemmata.
- 14(15) Ventral sclerite glabrous, or with small indistinct setae; stemmata oval, their diameter about twice shorter than diameter of antennal foramen *vesparum*
- 15(14) Ventral sclerite with long paramedian setae, stemma round, its diameter more than 3 times shorter than diameter of antennal foramen *gulekanus*
- 16(13) Gena coarsely rugose behind stemmata, with deep furrows (Fig. 22 D). *raddensis*

C. lama MULSANT, 1847

Head white, with strongly pigmented dark brown mouthframe. Cranium (1.2) with sides slightly diverging posteriorly, widest near straight hind margin. Front margin of frons slightly procurved, pigmented back to row of praefrontal setae, glabrous behind them. Medial frontal line indistinct.

Antennal ring opened. Antennae long, 2nd segment about 1.4 times longer than wide, with distinct main sensillum. 3rd segment about twice longer than wide, about as long as width of 2nd segment. Both segments with short fine setae.

Dorsal and ventral stemmata absent. Gena smooth, without pigmentation behind

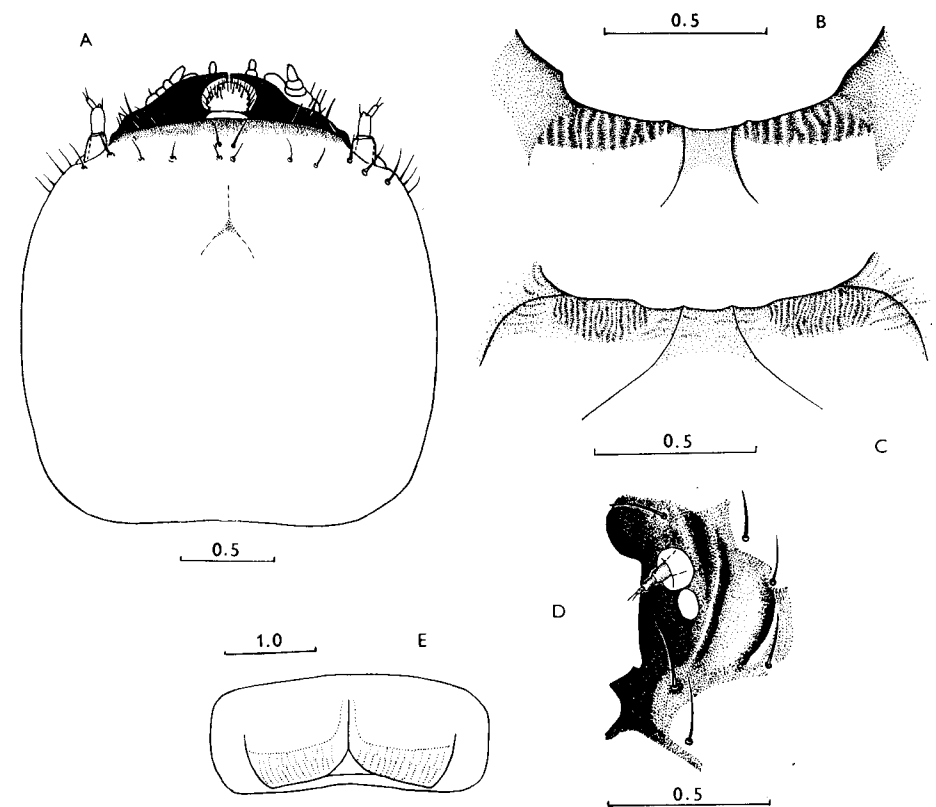


Fig. 22: A - *Hayashiclytus acutivittis*, head, dorsal view. B - *Clytus arietis*, ventral cranial sclerite. C - *C. arietoides*, dtdo. D - *C. raddensis*, pleurostoma and gena. E - *Dere thoracica*, prothorax, dorsal view.

stemmata, or with small brown-yellow spots, with a row of long fine setae and some small scattered setae. Poststemmatal protuberance absent. Pleurostoma finely rugose.

Ventral sclerite (10) procurved anteriorly, pigmented along whole anterior margin and here coarsely irregularly rugose; with a row of fine setae. Gula brown, strongly transverse to strongly elongate.

Labrum transverse, with short peripheral setae and pale basal sclerotization. Labiomaxillary complex attached to ventral sclerite by about 6 widths of gula (if gula elongate) to slightly more than width of gula (if gula transverse). Maxillary palpiger with conspicuous lateral process. Lateral process of 1st palpal segment small, often indistinct. 1st and 2nd segments transverse. 3rd segment about as long as 1st, longer than 2nd. Labial palps separated by about one width of their 1st segment. 1st segment subquadrate, about as long as elongate 2nd segment or slightly shorter. Ligula distinct, longer than 1st palpal segment.

Prothorax with yellow pigmentation. Glabrous area of pronotum dull, finely

rugose. Thoracic spiracle at least twice longer than 1st abdominal spiracle. Marginal chambers absent. Body length up to 20 mm, width up to 5 mm*).

Habits: Polyphagous on coniferous trees (*Picea*, *Abies*, *Larix*). Larvae feed subcortically and then in sapwood where they construct pupal cells. Life cycle lasts two years. Mature larvae overwinter. Adults from June to July.

Distribution: Europe, West of European part of USSR.

Material: 16. 6. 1979, 17. 7. 1977, CS, Slovakia, Liptovský Hrádok, 19/I, in wood of *Picea*-stem, lgt. and coll. S; 22. 9. 1979, CS, Slovakia, Donovaly, 4/I, in *Picea*, lgt. and coll. S; 30. 7. 1976, CS, Slovakia, Kremnica, 2/I, in *Picea*, lgt. and coll. S.

C. tropicus (PANZER, 1795)

Head anteriorly yellow, with strongly pigmented dark brown mouthframe. Cranium (1.4) with sides slightly diverging posteriorly, widest near straight hind margin. Front margin of frons pigmented back to row of praefrontal setae, glabrous behind them. Medial frontal line indistinct.

Antennal ring opened. Antennae long, 2nd segment about twice longer than wide, with distinct main sensillum. 3rd segment more than twice longer than wide, about as long as width of 2nd segment. Both segments bearing short fine setae.

Dorsal and ventral stemmata absent. Gena smooth, without pigmentation behind stemma, with a row of long fine setae and with some scattered setae among them. Pleurostoma smooth. Poststemmatal protuberance absent.

Ventral sclerite (10) with almost straight front margin pigmented along whole width; finely obliquely rugose, with some scattered setae. Gula transverse, brown or with brown anterior margin.

Labrum with pale basal sclerotization. Labiomaxillary complex attached to ventral sclerite by about 3 widths of gula. Maxillary palpiger and 1st palpal segment with conspicuous processes. 1st segment transverse, 2nd subquadrate, 3rd elongate. 3rd segment about equal in length to 1st, longer than 2nd. Both segments of labial palps elongate, about equal in length. Labial palps separated by about one width of their 1st segment. Ligula short, about as long as 1st palpal segment.

Prothorax with pale yellow pigmentation. Glabrous area of pronotum longitudinally striate, anteriorly shining. Legs present in form of unsegmented papillae. Thoracic spiracle about 1.5 times longer than 1st abdominal spiracle. Body length up to 26 mm, width up to 5.5 mm.

Habits: According to PLAVILSHCHIKOV (1940) and DEMELT (1966), polyphagous on deciduous trees (*Quercus*, *Prunus*, *Pirus*, *Cerasus* and apparently others), but oaks at least preferred. Larvae feed subcortically in dead trunks and thick branches. Adults from May to July.

Distribution: Europe, West of European part of USSR.

*) The extreme variability of some characters described in this species seems to be due to some slightly malformed larvae reared in the laboratory for more than a year under somewhat unsuitable conditions. In normal larvae the gena is practically unpigmented behind the main stemma, the gula is subquadrate, and the labiomaxillary base is attached to the ventral sclerite by about 2 anterior widths of the gula.

Material: 9. 7. 1977, CS, Moravia m., Lednice, 5/I, under bark of *Quercus*, lgt. and coll. S; 19. 4. 1964, CS, Bohemia c., Stará Boleslav, 3/I, under bark of *Quercus*, lgt. and coll. M. Sláma.

C. arietis (L., 1758)

Head white, with strongly pigmented mouthframe. Cranium (1.4) with sides widely rounded behind middle, with slightly procurved hind margin. Front margin of frons pigmented back to row of praefrontal setae, glabrous behind them. Medial frontal line distinct near its hind end.

Antennal ring closed or rather narrowly opened. Antennae long, 2nd segment about twice longer than wide, with distinct main sensillum. 3rd segment twice longer than wide. Larvae from Caucasus with antennal ring widely opened, gena narrowly pigmented behind stemmata; stemmata rather small; antennae shorter (another species?). Both segments bearing short fine setae.

Dorsal and ventral stemmata absent. Gena smooth, widely pigmented behind stemmata. Width of pigmentation greater than diameter of stemma. Pleurostoma smooth. Poststemmatal protuberance absent. Ventral sclerite (10) glabrous, with slightly procurved widely pigmented strongly longitudinally striate anterior margin (Fig. 22 B). Gula brown, longer than its anterior width.

Labrum with narrow basal sclerotization. Labiomaxillary complex attached to ventral sclerite by about 3 widths of gula. Maxillary palpiger and 1st palpal segment with conspicuous lateral processes. 1st segment transverse, 2nd about as long as wide, 3rd elongate. All segments about equal in length. Labial palps separated by about one width of their 1st segment. 1st segment as long as wide, 2nd elongate, both segments about equal in length. Ligula short, but distinct.

Prothorax with pale yellow pigmentation. Glabrous area of pronotum longitudinally striate, anteriorly shining. Some medial areas of dorsal ampullae shining. Thoracic spiracle more than 1.5 times longer than 1st abdominal spiracle. Legs totally absent. Body length up to 18 mm, width up to 5 mm.

Habits: Polyphagous on deciduous trees. Larvae feed subcortically, then in wood. Pupation in wood. Pupae overwinter, emergence in spring. Life cycle lasts two years. Adults from May to July.

Distribution: Europe, Caucasus, Transcaucasia, Kopetdag, Turkey, North Iran.

Material: 7. 7. 1981, CS, Slovakia m., Kamenica n/Hr., 12/I, from *Quercus*, lgt. and coll. S; 17. 4. 1976, CS, Bohemia c., Dubá, 2/I, host not determ., lgt. and coll. S; 10. 3. 1980, SU, Krasnodar, 2/I, from *Quercus*, lgt. A. I. Miroshnikov, coll. IS.

C. arietoides REITTER, 1899

Head white, with strongly pigmented brown mouthframe. Cranium (1.3) with sides broadly rounded behind middle, with straight hind margin. Front margin of frons pigmented back to row of praefrontal setae, glabrous behind them. Medial frontal line distinct near its hind end.

Antennal ring closed. Antennae long. 2nd and 3rd segments about twice longer than wide, with short fine setae. Main sensillum distinct.

Dorsal and ventral stemmata slightly visible, with black pigmented spots. Main stemmata small, but corneae convex, pigmented spots black. Gena narrowly pigmented behind stemmata, without poststemmatal protuberance. Gena and pleurostoma finely rugose.

Ventral sclerite (10) glabrous, with widely pigmented procurved anterior margin. Hypostoma coarsely irregularly rugose. Gula brown, transverse.

Labrum with narrow basal sclerotization. Labiomaxillary complex attached to ventral sclerite by about 3 widths of gula. Maxillary palpiger and 1st palpal segment with conspicuous processes. 1st segment transverse, 2nd as long as wide, 3rd elongate. All segments about equal in length. Mala strongly broadened anteriorly. Labial palps separated by about one width of their 1st segment. 1st segment as long as wide, 2nd elongate, longer than 1st. Ligula short, as long as 1st palpal segment.

Prothorax with pale yellow pigmentation. Glabrous area of pronotum longitudinally striate, anteriorly shining. Legs totally absent. Thoracic spiracle about 1.5 times longer than 1st abdominal spiracle. Body length up to 20 mm, width up to 5 mm.

Habits: Polyphagous on coniferous trees (*Larix*, *Pinus*, *Picea*, *Abies*). Larvae feed subcortically in dead trees. Pupation in sapwood. Pupae overwinter. Emergence in spring and first half of summer. Adults from May to August.

Distribution: Siberia, North Mongolia, North China, Korea, Japan (Hokkaido).

Material: 20. 8. 1973, SU, Tuva, Ishtii-Khem, 3/I, in *Larix*, lgt. D, coll. IS.

C. vesparum REITTER, 1889

Head white, with strongly pigmented brown mouthframe. Cranium (1.3) with sides broadly rounded behind middle, with straight posterior margin. Front margin of frons pigmented back to row of praefrontal setae, glabrous behind them. Medial frontal line distinct near its hind end.

Antennal ring opened or closed. 2nd antennal segment slightly longer than wide, bearing conspicuous main sensillum. 3rd segment about twice as long as wide. Both segments with short fine setae.

Dorsal and ventral stemmata absent. Gena \pm widely pigmented behind stemmata, rugose. Poststemmatal protuberance slightly developed. Pleurostoma finely rugose.

Ventral sclerite (9) finely obliquely rugose, with procurved narrowly pigmented anterior margin, with some very small setae. Gula brown, transverse or elongate.

Labrum transverse, with pale basal sclerotization. 1st and 2nd segments of maxillary palps transverse, 3rd elongate; 3rd segment longer than 2nd, 1st longer than 3rd. Labial palps separated by about half width of their 1st segment. 1st segment transverse, 2nd slightly elongate, longer than 1st. Ligula longer than 1st palpal segment.

Prothorax with pale yellow pigmentation. Glabrous area of pronotum finely longitudinally rugose, anteriorly shining, posteriorly dull, microreticulate. Legs totally absent. Thoracic spiracle about 1.5 times longer than wide and about twice longer than 1st abdominal spiracle. Body length up to 20 mm, width up to 4 mm.

Habits: Polyphagous on deciduous trees (*Quercus*, *Ficus carica* and apparently others). Larvae feed in dead wood of dry branches. Mature larvae overwinter. Pupation in spring and early summer. Adults in May-June. Life cycle lasts at least two years.

Distribution: Caucasus, Transcaucasia, North Iran, apparently North Turkey.

Material: 23. 4. 1981, SU, Gruzia, Kintrish, 13/I, *Ficus carica*, lgt. D, coll. IS.

C. ambigenus CHEVROLAT, 1882

Head white, with widely pigmented brown mouthframe. Front margin of frons pigmented back to row of praefrontal setae, almost glabrous behind them. Medial frontal line distinct near its hind end.

Antennal ring closed, but may be probably narrowly opened. Antennae long. 2nd segment about twice as long as wide, 3rd segment more than twice longer than wide, about as long as width of 2nd segment. Main sensillum distinct.

Dorsal and ventral stemmata absent. Main stemmata with black pigmented spots, corneae convex. Gena with a row of long fine setae and with some small setae behind them, pigmentation behind stemma about as wide as two diameters of stemma.

Ventral sclerite (6) glabrous, widely pigmented anteriorly and here strongly regularly longitudinally striate. Gula transverse, brown.

Labrum transverse, its basal sclerotization rather pale. Labiomaxillary complex attached to ventral sclerite by about 2 widths of gula. Maxillary palpiger and 1st palpal segment with conspicuous processes. 3rd palpal segment about equal in length to 2nd, shorter than 1st. 3rd segment elongate, 2nd subquadrate, 1st transverse. Submentum yellow, with 3 setae. Mentum with pale lateral sclerites. Labial palps separated by half width of their 1st segment. 1st segment transverse, about equal in length to elongate 2nd segment. Ligula large, longer than 1st palpal segment.

Prothorax with pale yellow pigmentation. Glabrous plate of pronotum longitudinally rugose, shining. Legs totally absent. Thoracic spiracle about twice longer than 1st abdominal spiracle. Body length of available larva 21 mm, width 5.3 mm.

Habits: Polyphagous on deciduous trees, so far known from *Acer* and *Quercus*. Larvae feed in dead dry wood. Adults in May.

Distribution: North Africa.

Material: 1982, Algeria, Akfadou, 1/I, in *Acer obtusatum*, lgt. G. Sama, coll. S.

C. gulekanus PIC, 1904

Body covered with rather dense setae. Head white, with widely pigmented brown mouthframe. Frons with strongly procurved front margin, its pigmentation not reaching row of praefrontal setae, posteriorly frons glabrous. Medial frontal line indistinct.

Antennal ring closed. Antennae long, 2nd and 3rd segments about twice as long as wide. Main sensillum distinct.

Dorsal and ventral stemmata absent. Main stemmata small, pigmented spots indistinct. Pleurostoma and gena smooth. Gena with a row of strong setae and with small setae behind them, its pigmentation about twice wider than stemma.

Ventral sclerite (7) narrowly pigmented anteriorly, finely obliquely rugose, with some long paramedian setae. Gula brown, subquadrate.

Labrum slightly transverse, its basal sclerotization indistinct. Labiomaxillary complex attached to ventral sclerite by about 3 widths of gula. Maxillary palpiger and 1st palpal segment with conspicuous processes. 1st palpal segment transverse, 2nd subquadrate, 3rd elongate. 1st segment about equal in length to 3rd, longer than 2nd. Labial palps separated by about one width of their 1st segment. 1st segment transverse, shorter than elongate 2nd segment. Ligula large, longer than 1st segment.

Prothorax with pale yellow pigmentation, pronotal glabrous plate shining, longitudinally rugose. Legs totally absent. Thoracic spiracle about 1.5 times longer than wide and about 1.5 times longer than 1st abdominal spiracle. Body length of available larva 17 mm, width 6 mm.

Habits: Apparently polyphagous on deciduous trees.

Distribution: Turkey.

Material: Turkey, Namrun, 1/I, *Ficus carica*, lgt. P. Schurmann, coll. M. Sláma.

C. rhamni GERMAR, 1817

Head white, with rather narrowly pigmented anterior margin. Sides of cranium with only pleurostoma pigmented, broadly rounded behind middle. Frons smooth, with procurved anterior margin, its pigmentation not reaching row of praefrontal setae. Medial frontal line indistinct or visible posteriorly.

Antennal ring opened. 2nd antennal segment about 1.5 times longer than wide, with distinct main sensillum. 3rd segment about twice longer than wide, with a long seta.

Dorsal and ventral stemmata absent. Main stemmata not surrounded by pigmentation. Gena with a row of long setae, finely rugose. Pleurostoma smooth.

Ventral sclerite finely obliquely rugose, with some small setae, very narrowly pigmented anteriorly. Gula pale yellow, slightly longer than wide.

Basal sclerotization of labrum indistinct. Labiomaxillary complex attached to ventral sclerite by about 3 widths of gula. Maxillary palpiger and 1st palpal segment with conspicuous processes. 1st palpal segment longer than 2nd, but shorter than 3rd. 1st and 2nd segments transverse, 3rd elongate. Submentum yellow, with two setae. Mentum without lateral sclerites, praementum with wide basal sclerotization. Labial palps separated by about one width of their 1st segment. 1st segment subquadrate, 2nd elongate, both segments about equal in length. Ligula small, about as long as 1st segment.

Glabrous plate of pronotum shining, longitudinally rugose. Legs totally absent. Terga and sterna of meso- and metathorax and all abdominal ampullae shining, irregularly rugose. Microreticulation diffuse, indistinct. Thoracic spiracle about 1.5 times longer than wide and about 1.3 times longer than 1st abdominal spiracle. Body length up to 15 mm, width up to 3.3 mm.

Habits: Polyphagous on deciduous trees (*Quercus*, *Castanea*, *Ulmus*, *Ficus*, *Prunus*, *Pirus*, *Crataegus*, *Padus*, *Frangula* and others). Larvae feed in dead wood of smaller diameter. Adults from May to August.

Distribution: Europe, Caucasus, Transcaucasia, North Kazakhstan, North Iran, Turkey.

Material: 22. - 25. 8. 1976. Bulgaria, Ropotamo, 3/I, *Pyrus*, *Prunus*, *Quercus*, lgt. and coll. S.

C. raddensis PIC, 1904

Head white, with strongly pigmented dark brown anterior margin. Cranium slightly transverse (1.2), with almost parallel sides, rounded near straight hind margin. Frons pigmented back to row of praefrontal setae, glabrous behind them, with slightly procurved to even recurved front margin. Medial frontal line indistinct.

Antennal ring closed. 2nd and 3rd antennal segments about twice longer than wide.

Dorsal and ventral stemmata absent. Pigmentation of gena behind stemma more than 3 times wider than its diameter. Gena coarsely rugose, with deep furrows, with some short setae behind a row of long setae.

Ventral sclerite (9) glabrous, relatively smooth, finely obliquely rugose, narrowly pigmented anteriorly. Gula about as long as wide, slightly darker than hypostoma.

Basal sclerotization of labrum indistinct. Labiomaxillary complex attached to ventral sclerite by about 3 widths of gula. Maxillary palpiger with conspicuous lateral process. Process of 1st palpal segment indistinct. 1st and 2nd segments transverse, 3rd elongate. 1st segment longer than 2nd, shorter than 3rd. Labial palps separated by about one width of their 1st segment. 2nd segment longer than 1st. Ligula small, shorter than 1st segment.

Prothorax with pale yellow pigmentation. Glabrous area of pronotum shining, longitudinally rugose. Legs absent. Thoracic spiracle about 1.5 times longer than wide and about 1.5 times longer than 1st abdominal spiracle. Body length up to 20 mm, width up to 5 mm.

Habits: Polyphagous on deciduous trees (*Quercus*, *Fraxinus*, *Betula*, *Malus*, *Pirus*, *Crataegus*, *Ulmus*, *Juglans* and others). Larvae in dead dry wood. Mature larvae overwinter. Pupation from May to June. Adults from June to August. Life cycle lasts 2 years.

Distribution: East Siberia through Ussuri reg., North China, Korea.

Material: 24. 5. 1976, SU, Khabarovsk reg., Bychikha, 2/I, *Maackia*, lgt. A. V. Kompantsev, coll. IS; 26. 5. 1978, SU, Amur reg., Pashkovo, 1/-, *Quercus*, lgt. S. V. Murzin, coll. IS.

Genus *Neoclytus* THOMSON, 1860

Type species: *Clytus erythrocephalus* F., 1801 = *Callidium acuminatum* F., 1775

Large, exclusively American genus. One species introduced in Europe.

N. acuminatus F., 1775

Body robust, with dense short setae. Some lateral areas of prothorax covered with microasperities.

Head white, with strongly pigmented dark brown anterior margin. Cranium transverse (1.3), with sides diverging posteriorly, widest near procurved hind margin. Frons smooth, its pigmentation not reaching row of praefrontal setae (2,2,1), posteriorly glabrous, with strongly procurved front margin. Medial frontal line indistinct.

Antennal ring opened. Antennae long, with distinct main sensillum. 2nd and 3rd segments about twice longer than wide, bearing some setae.

Dorsal and ventral stemmata poorly developed. One pair of main stemmata present, corneae convex, pigmented spots greyish.

Gena without pigmentation behind stemmata, finely rugose, without poststemmatal protuberance, bearing numerous short setae. Pleurostoma pigmented beneath stemma, smooth. Subfossal process absent.

Ventral sclerite (6) coarsely obliquely rugose, with some long paramedian setae, with narrowly pigmented anterior margin. Gula very narrow, more than 3 times longer than wide, pale, with brown anterior margin.

Labrum slightly transverse, with narrow basal sclerotization.

Mandibles black, with dark brown basal part, bearing 2 setae.

Labiomaxillary complex attached to ventral sclerite by about 8 widths of gula. Lateral process of maxillary palpiger distinct. Lateral process of 1st palpal segment small, indistinct or absent. All segments of maxillary palps about equal in length. 1st segment transverse, 2nd subquadrate, 3rd elongate. Mala longer than its basal width, slightly broadened anteriorly, with almost straight anterior margin.

Submentum yellow, with two setae. Lateral sclerites of mentum \pm distinct. Praementum with widely separated basal sclerites. Labial palps separated by about one width of 1st segment. Both segments about equal in length, 1st transverse, 2nd elongate. Ligula short, shorter than 1st segment.

Thorax and abdomen similar to those of *Chlorophorus*. Prothorax with yellow pigmentation. Anterior part of lateropraesternum also with two pale yellow blotches.

Basal rings of setae indistinct. Glabrous area of pronotum almost without longitudinal striation, dull, finely microreticulate. Legs present in form of unsegmented papillae. Terga and sterna of meso- and metathorax and all abdominal ampullae distinctly microreticulate. Pleural discs diffuse, but deep pits may be present. Body length up to 26 mm, width up to 6 mm.

Habits: Polyphagous on deciduous trees (*Fraxinus*, *Quercus*, *Juglans*, *Betula*, *Fagus*, *Acer*, *Vitis*, *Lonicera*, *Prunus*, *Salix*, *Pirus* and many others). Young larvae under bark, but soon bore into the sapwood. Adults emerge from April to August. According to CRAIGHEAD (1950), "about three months is required to complete the development from egg to adult . . .". In colder regions, however, life cycle lasts one year.

Distribution: South and East of USA, South of West Europe.

Material: 23. 11. 1983, Yugoslavia, Montenegro, Petrovac, 3/I, lgt. J. Hladil, coll. S.

Genus *Dere* WHITE, 1855

Type species: *Dere thoracica* WHITE, 1855

Body covered with sparse fine setae, some lateral areas of prothorax with microasperities.

Head white, with brown mouthframe. Frons smooth, pigmented back to row of praefrontal setae (2,2,1), with some small setae among them. Anterior margin procurved. Medial frontal line indistinct.

Antennal ring widely opened. Antennae long, 2nd segment about 1.5 times longer than wide, with conspicuous main sensillum.

Dorsal and ventral stemmata absent. One pair of main stemmata present, corneae slightly convex, pigmented spots indistinct.

Gena finely rugose, without poststemmatal protuberance, not pigmented behind stemma, with a row of long setae and with some short setae. Pleurostoma smooth. Subfossal process absent.

Ventral sclerite (8) finely transversely rugose, with some indistinct setae. Broad pigmentation of its anterior margin widely interrupted by pale gula.

Labrum transverse, with short fine peripheral setae, without basal pigmentation. Mandibles black, with brown basal part bearing 2 setae.

Labiomaxillary complex attached to ventral sclerite by about 3 widths of gula. Maxillary palpiger and 1st segment of palp with conspicuous lateral processes. 1st and 2nd segments of maxillary palp transverse, 3rd elongate. 2nd segment about equal in length to 3rd, shorter than 1st. All segments rather feebly sclerotized. Mala subquadrate, with straight anterior margin bearing some setae.

Submentum with two setae. Mentum without sclerotization. Praementum with wide basal sclerotized band. Segments of labial palps about as long as wide, 1st segment longer than 2nd. Ligula very short, indistinct. Labial palps separated by about half width of their 1st segment.

Prothorax without pigmentation. Glabrous area of pronotum densely regularly

striate, shining; with a deep median line, with dull narrow microreticulated band along posterior margin, and with a triangular "prepostnotal fold" (Fig. 22 E) (term of DUFFY, 1957). Epipleurum of prothorax triangular, not fused with lateropraesternum. Coxosternum fused with neither sternellar fold nor epimeron. Ventral margin of alar lobe, epipleurum and lateral margin of lateropraesternum microasperate.

Terga and sterna of meso- and metathorax and all abdominal ampullae microreticulate.

Alar lobes of meso- and metathorax, as well as three divisions of epipleurum and coxal lobes defined.

Furrows of ambulatory ampullae seem to be feebly developed (single available larva slightly contracted). Abdominal ampullae not strongly raised.

Legs indistinct, in form of unsegmented papillae. Lateral regions of abdominal segments with two deep oblique furrows. Coxal lobes distinct. Pleural discs rather distinct on abdominal segments 2 to 3. Spiracles large. Thoracic spiracle about 1.5 times longer than wide and about 1.5 times longer than 1st abdominal spiracle. Marginal chambers absent. Body length of available larva 7.3 mm, width 3.0 mm.

About 8 Oriental species, one of them also in Palaearctic Region.

D. thoracica WHITE, 1855

Habits: Polyphagous on deciduous trees (*Quercus*, *Fagus*, *Elaeagnus*, *Prunus*, *Vitis*, *Albizzia*, *Acacia* and others). Larvae feed in wood. Adults from April to July.

Distribution: China, Korea, Japan.

Material: 28. 5. 1978, Japan, Akasai-valley, Hyogo-pref., 1/?, *Albizzia*, lgt. Y. Kuroda, coll. S.

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
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