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**Illustrated key to the genera
of the subtribe Amblytelina of Palaearctic
(Hymenoptera, Ichneumonidae, Ichneumoninae, Ichneumonini)**

A.M. TERESHKIN

A b s t r a c t : Detailed descriptions of 18 species and 16 Amblytelina genera of Palaearctic are presented in this article. New taxa *Limerodops violentus* nov.sp., *Triptognathops gobiensis* nov.sp. and *Achaisusoides epistomalis* nov.gen. et nov.sp. are described. All considered taxa are illustrated by standard color tables including a total drawing of species and most meaningful in the taxonomy of the group parts of the body (head in two foreshortenings, propodeum and 1-2 segments of abdomen), executed in accordance with a unified scheme. Additional drawings of other structures characterizing taxon of certain rank are presented as needed. Thus, a graphic representation corresponds to the textual description of each taxonomic character. Amblytelina taxonomic characters used for definition of generic structure of the group are specified. Basing on this, conclusion on the possibility of usage of certain taxonomic characters and their combination to identify subtribal belonging were made.

The article is illustrated with 179 drawings including 77 black and white drawings, illustrating morphology peculiarities of different systematic groups, and 102 colored drawings tabulated in 17 tables, illustrating morphological peculiarities of taxa under consideration.

For genera of Amblytelina of Forest Zone of Eastern Europe the data about biotopical distribution and dynamic of seasonal activity are adduced. Data about hosts of separate species, hibernation of females on imaginal stage, based on critical analysis of literature data and original observations are presented.

K e y w o r d s : Ichneumonidae, Ichneumoninae, Ichneumonini, Amblytelina, genera, description, picture.

Introduction

The present work is carried out as a continuation of the cycle of works directed at preparation of unified descriptions and illustrations of Palaearctic genera of Ichneumoninae Stenopneusticae (TERESHKIN 2004, 2008, 2009). Simultaneous presence of the description and illustration of taxon's characters, carried out under the uniform scheme as much as possible facilitates understanding of its features and a place in hierarchy of groups.

Morphological diversification of Ichneumoninae is generated not by diversity of constant trait combinations, but by free, almost occasional combination of the same traits. This

phenomenon is connected with a mode of evolution in the treated group that led to a plenty of closely related and hardly differentiated species. Furthermore, the establishment of superspecific taxa is more difficult than distinguishing of species (HEINRICH 1967; RASNITSYN 1978). Therefore, one of the goals of the current work was to provide maximally complete illustrations of the entire range of morphological traits variability used in taxonomy of the group. In particular, detailed description of each character of a taxon and simultaneous presence of scientific illustration of its morphological features serve the goal.

The unified scheme of the taxa description and the used terminology are considered in detail in the article "Illustrated key to the tribes of subfamilia Ichneumoninae and genera of the tribe Platylabini of world fauna (Hymenoptera, Ichneumonidae)" (TERESHKIN 2009). The strict sequence of the description of characters with a punctuation corresponding to parts of a body and to their segments is obligatory. The descriptions of taxa are performed according to the principle of identification keys construction. If, at least in one taxon of one rank, there is any character, then at the description of all of the other taxa, a reference on its absence is given.

For genera of Amblytelina of Forest Zone of East Europe (Byelorussia) the data about biotopical distribution and dynamic of seasonal activity are adduced. Data are received as the result of almost 30-years regular collections, including using of Malaesa traps practically in all main types, both forest and open ecosystems. Abundance of each genus in region was calculated based on total number of ichneumon flies specimens of a genus, collected during of all period of collections, divided by the number of revealed species. Data about hosts of individual species, hibernation of females on imaginal stage, based on critical analysis of literature data and original observations are presented.

Subtribe Amblytelina (VIERECK)

Amblytelina VIERECK 1918 - Proc. Biol. Soc. Wash. **31**: 74.

Type genus: *Amblyteles* WESMAEL

Amblytelina: HEINRICH 1967 - Ichn. Stenop. of Africa **1**: 26, 3: 486, 648.

Amblytelina: HEINRICH 1977 - Ichn. Florida and Neigh. States **9**: 88.

Amblytelina: RASNITSYN 1981 - Opr. Faun. SSSR **3** (3): 612.

Modern representation about features of morphology and the group's status, accepted in the article, is developed by G.Heinrich (1967, 1977). Representatives of subtribe have world-wide, mainly holarctic distribution. In Palaearctic Region the species of 16 genera, including described below *Achaiusoides* nov.gen. are distributed.

Subtribe is characterized by amblypygous abdomen of females in combination with, as rule, indistinct or absent thyridia and usually small or superficial gastrocoeli. Clypeus is always normal. Areolet of front wings is pentagonal, with broad base. Hind coxae of females are without scopa. Middle field of postpetiolus is striated or longitudinally-wrinkled, sometimes punctured, when the subsequent tergites have tendency to less rough sculpture than of Ichneumonina. The sternites are with tendency to strong sclerotization, 4th sternite, but sometimes 2nd and 3rd, usually without fold. Hypopygium of males of many genera is with tendency to form projection medially.

Representatives of subtribe are mainly parasites of Noctuidae, depositing eggs in the caterpillars of the hosts. For the species of most of genera of Temperate Zone of Holarctic, the hibernation of females on imaginal stages is characteristic.

Generic structure of Amblytelina subtribe

Morphological peculiarities

Flagellum

Females. All representatives of Amblytelina subtribe have bristle-shaped flagellum. Flagellum of overwhelming majority of genera can be characterized as thin or slender *Achaisus*, *Ctenichneumon*, *Diphyus* (part), *Fileanta*, *Hepiopelmus*, *Limerodes*, *Limerodops* (of *unilineatus* Grav. as very slender), *Obtusodonta*, *Tricholabus*, *Triptognathops*, in representatives of five genera – *Achaisusoides*, *Amblyteles*, *Diphyus* (part), *Bureschias* and *Triptognathus* – as moderately thick and in *Eutanyacra* and *Spilichneumon* – as thick. Flagellum as a rule slightly or only just widened behind middle (*Achaisusoides*, *Amblyteles*, *Bureschias*, *Ctenichneumon*, *Hepiopelmus*, *Limerodops* (*unilineatus* GRAV.), *Tricholabus*, *Triptognathus*), or not widened at all (*Achaisus*, *Fileanta*, *Limerodes*, *Limerodops* (part), *Spilichneumon*, *Triptognathops*). Only the females of genus *Eutanyacra*, flagellum can be qualified as strongly widened behind middle. As a rule, flagellum of Amblytelina females is flattened ventrally behind middle, slightly or only just visible (*Achaisusoides*, *Amblyteles*, *Bureschias*, *Diphyus* (in different degree), *Eutanyacra*, *Fileanta*, *Hepiopelmus*, *Limerodops* (part), *Obtusodonta*, *Spilichneumon*, *Tricholabus*, *Triptognathus*). Flagellum of *Limerodes*, *Limerodops* (*unilineatus*) and *Triptognathops* is not flattened ventrally. Flagellum is attenuated to apex or sharply, as peculiar to *Achaisus*, *Amblyteles*, *Ctenichneumon*, *Eutanyacra*, or gradually, as peculiar to the representatives of *Fileanta*, *Hepiopelmus*, *Limerodes*, *Limerodops*, *Tricholabus*, *Triptognathops* and *Triptognathus*. **Basal segments** of flagellum are usually short, from slightly elongated, when the length of segment is less than two times more than the width at apex – in *Achaisusoides*, *Amblyteles*, *Bureschias*, *Diphyus*, *Eutanyacra*, *Obtusodonta*, *Triptognathus* to moderately elongated, when the length of segment is two or three times more than the width at apex – in *Ctenichneumon*, *Fileanta*, *Hepiopelmus*, *Limerodes*, *Limerodops* and *Tricholabus*. Most short segments of flagellum are in females of *Spilichneumon* genus, all segments of that is not longer than width. Separate group is presented by the females of *Limerodops unilineatus* (GRAV.) and species of *Triptognathops* basal segment of which is long, more than three times longer than the width at apex.

At females of Amblytelina segments of flagellum from base to middle or to white annulus are differentiated from sharply, in *Achaisusoides*, *Bureschias*, *Eutanyacra*, *Fileanta* and *Obtusodonta*, to distinctly differentiated in *Achaisus*, *Ctenichneumon*, *Diphyus*, *Limerodes*, *Spilichneumon*, *Tricholabus*, *Triptognathops* and *Triptognathus*.

Usually flagellum of females is shorter than the front wing. Very short, more than 1,6 times shorter, flagellum of *Bureschias*, *Diphyus* and *Spilichneumon*. Shorter than the front wing 1,2-1,5 times, flagellum in *Achaisus*, *Fileanta*, *Obtusodonta*, *Achaisusoides*, *Eutanyacra*, *Limerodops* and *Triptognathops*. Rarely, it is long, equal by length to front wing in *Ctenichneumon* and *Hepiopelmus*, or 1,2 longer than the front wing in *Limerodes* and *Tricholabus*. Flagellum of all the genera is shorter than body length.

White annulus or semiannulus on flagellum of most representatives of genera is usually developed, developed or not develop in genera *Bureschias*, *Triptognathus* and *Triptognathops*, rarely absent (*Amblyteles*, *Hepiopelmus*, *Obtusodonta*).

Most number of flagellar segments is in genera *Hepiopelmus* (55) and *Fileanta* (50).

Males. Sexual dimorphism of Amblytelina flagellum is expressed in a shape and proportions of flagellum, presence or absence of white annulus or tyloides. Flagellum of males is as a rule or with less distinctly differentiated segments, or ribbed ventrally in different degree. In males of *Achaisus* and *Hepiopelmus* flagellum is ribbed (nodulose) practically from the base with transverse ridges topped with short bristles on ventral side. In the other genera, flagellum is not ribbed, often with closely merged segments. Tyloides are absent only in representatives of *Tricholabus* genus. In other genera tyloides are usually developed in majority of species. More frequently tyloides are narrow or bacilliform. Bacilliform tyloides are found in most of genera – *Amblyteles*, *Diphyus*, *Eutanyacra*, *Limerodops*, *Obtusodonta*, *Spilichneumon* and *Triptognathus*. In genera *Limerodops*, *Eutanyacra* and *Spilichneumon* tyloides are practically from the base of flagellum, from segments 2-3, sometimes from 4th. Long, narrow, almost bacilliform tyloides are characteristic to males of genera of *Achaisus*, *Bureschias*, *Ctenichneumon*, *Fileanta* and *Limerodes*. Longish-oval tyloides are characteristic to males of *Hepiopelmus* and large to *Triptognathops* (*bicolor* KRIECHB.). The white annulus or semiannulus on flagellum of *Achaisus*, *Ctenichneumon*, *Diphyus*, *Tricholabus* is developed both at females and at males. In genera *Eutanyacra*, *Fileanta*, *Limerodes* and *Limerodops* it is developed only at females.

Proceeding from the described characters, flagellum of Amblytelina subtribe representatives can be characterized in the following way:

Flagellum: Of males and females bristle-shaped, often with white annulus, developed sometimes only at females. Flagellum of females up to middle with distinctly differentiated segments, of males or with closely merged segments or ribbed ventrally, in some genera sharply, practically from base ribbed and with transverse ridges topped with short bristles on ventral side. Tyloides on males' flagellum more often developed, as a rule narrow, long or bacilliform, rarely, as exception, longish-oval to large.

Head

Head contour of Amblytelina from front is slightly transverse in most genera. More often breadth of a head 1,1-1,2 times more than height. Breadth of head exceeds its height 1,3 times in genus *Diphyus* and in *Triptognathops* (*gobiensis* nov.sp.). The greatest degree of exciding of head breadth relative to its height is in genus *Bureschias* – 1,4 times. Head contour from front as a rule is narrowed downwards. Straightly, or almost straightly it is narrowed in *Achaisus*, *Amblyteles*, *Ctenichneumon*, *Fileanta*, *Limerodops*, *Triptognathops*, *Hepiopelmus*, *Fileanta*, *Diphyus* and *Limerodes*, roundly – in *Achaisoides*, *Obtusodonta*, *Spilichneumon*, *Tricholabus*, *Eutanyacra*, *Spilichneumon* and *Triptognathus*. Rounded, transverse, not narrowed downwards contour from front is in species of *Bureschias*.

Visible from front part of genae, characterizing theirs "swelling" can be considerable, when genae are visible up to one third of eye in *Obtusodonta*, to very considerable, when genae are visible up to middle of eye in *Bureschias* and *Spilichneumon*. Genae from front

(along malar space) are usually long (at *Amblyteles*, *Achaisius*, *Ctenichneumon*, *Eutanyacra*, *Fileanta* and *Hepiopelmus*), or moderately long (at *Achaisioides*, *Limerodes*, *Limerodops*, *Obtusodonta*, *Tricholabus*, *Triptognathops* and *Triptognathus*). Only in *Bureschias* and *Spilichneumon* genae are short. In species of *Amblyteles* and *Achaisioides* genae from front are sinuously narrowed, and in *Bureschias* – swollen.

Length of genae (malar space), as minimum distance from lower margin of an eye to mandible base is from maximum of 0,4 of height of an eye in *Bureschias* and *Fileanta* to minimum of 0,1 of height of an eye in *Achaisioides*. Length of genae of other genera of Amblytelina is in interval of 0,2-0,3 of height of an eye, approximately in equal ratio, 6 and 7 genera respectively.

Head contour from lateral is angle-shaped in *Spilichneumon* and, vastly, in *Bureschias* with clypeus almost parallel to longitudinal axis of the body.

Vertex from lateral in all palaearctic genera is straightly sloped to occipital carina just behind lateral ocelli. Only one exception is *Achaisioides* with roundly sloped vertex to occipital carina.

Temples from above are long or very long, longer than longitudinal diameter of an eye (*Amblyteles*, *Ctenichneumon*, *Diphyus*, *Eutanyacra*, *Fileanta*, *Limerodops*, *Obtusodonta*, *Spilichneumon*, *Triptognathops*, *Triptognathus*), or equal to it (*Achaisioides*, *Hepiopelmus*, *Limerodes*, *Tricholabus*), or as exception, only just (1,2) less than longitudinal diameter of an eye (*Achaisius*). Temples from above are straightly or almost straightly narrowed backwards behind eyes in *Amblyteles*, *Ctenichneumon*, *Diphyus*, *Fileanta*, *Triptognathops* and *Triptognathus*, strongly roundly narrowed in *Achaisius* and *Achaisioides* and slightly roundly narrowed in *Eutanyacra*, *Hepiopelmus*, *Limerodops*, *Obtusodonta*, *Spilichneumon*, *Tricholabus* and *Triptognathus*. Temples are swollen and roundly narrowed in genera *Bureschias* and *Limerodes*. In most genera hind margin of temples is parallel to hind margin of an eye – *Amblyteles*, *Bureschias*, *Ctenichneumon*, *Diphyus*, *Eutanyacra*, *Hepiopelmus*, *Limerodes*, *Limerodops*, *Tricholabus* and in *Obtusodonta*, *Triptognathops* and *Triptognathus* at lower part. Only in genera *Achaisius*, *Fileanta* and *Spilichneumon* temples from lateral are broadened from lateral downwards.

Occipital carina from above is always roundly impressed to hind ocelli, or deeply (*Achaisius*, *Achaisioides*, *Ctenichneumon*, *Diphyus*, *Eutanyacra*, *Hepiopelmus*, *Limerodops*, *Tricholabus*), or slightly (*Amblyteles*, *Bureschias*, *Diphyus*, *Fileanta*, *Limerodes*, *Spilichneumon*, *Triptognathops*, *Triptognathus*). Occipital carina of subtribe representatives is always sharp. Sharp and high elevated, but not bent upwards from above carina is in genus *Triptognathus*. For species of genus *Triptognathops* sharp, high elevated, and bent upwards from above occipital carina is characteristic. Occipital carina meets with hypostomal carina not reaching base of mandible practically in all genera. Only in *Tricholabus* genus, occipital carina meets with hypostomal carina on mandible base. In genus *Fileanta* occipital carina does not meet with hypostomal carina and abrupt far before mandible base. Between it and hypostomal carina, broad impression is formed.

Hypostomal carina is not visible from side in *Achaisius*, *Achaisioides*, *Amblyteles*, *Diphyus*, *Eutanyacra*, *Hepiopelmus*, *Limerodes*, *Limerodops* and *Triptognathops*, distinctly visible in *Ctenichneumon*, *Fileanta*, *Obtusodonta*, *Triptognathus* and only just visible in *Bureschias* and *Spilichneumon*.

Abcissula is high, sharp, long in genera *Fileanta*, *Obtusodonta*, *Spilichneumon*, *Triptognathops* and *Triptognathus*.

Genae by length (malar space) is equal to mandible base width in genera *Achais*, *Ctenichneumon*, *Hepiopelmus*, *Limerodes*, *Tricholabus*, *Triptognathops* and *Triptognathus*, shorter than mandible base width in genera *Achaisoides*, *Bureschias*, *Diphyus*, *Eutanyacra*, *Limerodops*, *Obtusodonta*, *Spilichneumon* and longer in genera *Amblyteles* and *Fileanta*.

Mandibles of Amblytelina is very various by shape from normal with two teeth, to pointed with one tooth. Different types of females' mandibles are presented most visually in dichotomous table and on figures 1-16.

Key (descriptions of) to types of Amblytelina mandibles

1(22). Mandibles with two teeth.

2(13). Evenly or gradually narrowed to apex, in middle not swollen, upper tooth pointed, longer than lower one.

3(6). The most part of mandible parallel-sided.

4(5). Mandibles narrow, narrowed from base to apex, the most part parallel-sided with long upper tooth and short lower one, divided by narrow impression – *Achais* (fig. 1).

5(4). Mandibles rather broad, parallel-sided at central part, with long upper tooth and short lower one, divided by narrow impression – *Ctenichneumon* (fig. 2).

6(3). Evenly narrowed to apex.

7(10). Rather short and broad.

8(9). Mandibles rather short and broad, gradually narrowed to apex with two teeth, lower considerably shorter than upper one and slightly moved inside – *Tricholabus* (fig. 3).

9(8). Mandibles rather short, gradually narrowed from base to apex, with long upper tooth and short, flattened with rounded apex lower one – *Achaisoides* (fig. 4).

10(7). Long (normal).

11(12). Mandibles slender, roundly curved and gradually narrowed from base to apex, upper tooth considerably longer than lower one, lower teeth weak – *Amblyteles* (fig. 5).

12(11). Mandibles normal, gradually narrowed from base to apex, upper tooth considerably longer than lower one – *Diphyus*, *Hepiopelmus*, *Limerodes*, *Limerodops* (fig. 6-9), *Spilichneumon* (part), *Eutanyacra* (part).

13(2). Swollen in middle, or upper tooth flattened with more or less blunted apex.

14(19). Broadened (swollen) in middle.

15(16). Teeth of equal length – *Bureschias* (fig. 10).

16(15). Teeth of different length.

- 17(18). **Upper tooth longer than lower one** – *Spilichneumon* (part).
 18(17). **Lower tooth longer than upper one, flat, broad** – *Spilichneumon (occisor)* (fig. 11).
 19(14). **Not broadened in middle, upper tooth broad, flattened, not or slightly pointed, lower normal or in a form of notch**.
 20(21). **Lower tooth developed, sharp** – *Eutanyacra* (часть) (fig. 12).
 21(20). **Lower tooth in a form of notch or absent** – *Obtusodonta* (fig. 13).
 22(1). **Mandibles with single tooth, narrowed to pointed apex** – *Fileanta*, *Triptognathus*, *Triptognathops* (fig. 14-16).

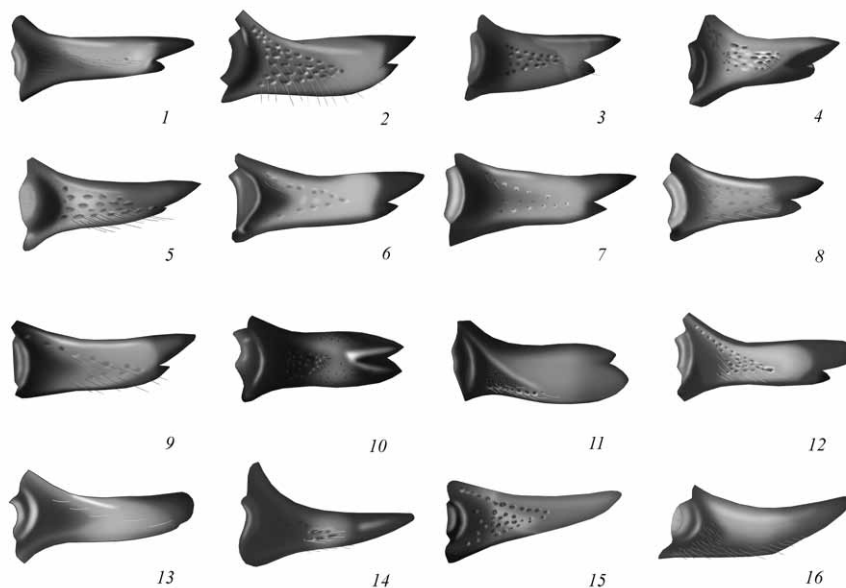


Fig. 1-16: Types of Amblytelina genera mandibles: (1) *Achaisius oratorius*, (2) *Ctenichneumon funereus*, (3) *Tricholabus strigatorius*, (4) *Achaisioides epistomalis*, (5) *Amblyteles armatorius*, (6) *Diphyus amatorius*, (7) *Hepiopelmus melanogaster*, (8) *Limerodes arctiventris*, (9) *Limerodops elongatus*, (10) *Bureschias subcylindricus*, (11) *Spilichneumon occisor*, (12) *Eutanyacra crispatoria*, (13) *Obtusodonta equitatoria*, (14) *Fileanta radoszkowskii*, (15) *Triptognathus uniguttatus*, (16) *Triptognathops gobiensis*.

Mandibles of males of genera with specifically modified mandibles of females (e.g. *Spilichneumon*) are more often of normal shape. Thus, shape of mandibles, owing to its variety, connected with spectrum of the hosts of subtribes representatives cannot be considered a character unambiguously defining their subtribal belonging.

Maxillary palps are normal in most genera. Only in *Triptognathops* and *Triptognathus* there are very long and slender and in genus *Achaisioides* the second segment is hypertrophied, triangle and it is a generic character.

Clypeus of subtribe representatives is more or less flat as a rule, as it is characteristic for Ichneumonina tribe. Though, to consider clypeus as entirely flat there is possibly only in genera *Bureschias*, *Eutanyacra* and *Spilichneumon*. In other genera of subtribe by this character it is possible to distinguish some groups. In the genus *Achaisusoides* clypeus of females is distinctly convex, in *Triptognathus* it is convex at base, in *Tricholabus* it is convex medially, in *Amblyteles* it is convex moderately. In most genera it is possible to treat clypeus as slightly or only just convex (*Achaisus*, *Ctenichneumon*, *Diphyus*, *Fileanta*, *Hepiopelmus*, *Limerodes*, *Limerodops*, *Obtusodonta*, *Triptognathops*). In the overwhelming majority of genera width of clypeus is 2-3 times more than its length. Only in *Limerodes* clypeus is more than three times more than its length. In genera *Bureschias* and *Spilichneumon* clypeus is impressed relative to face. Front margin of *Bureschias*' clypeus is uniformly rounded in a form of an arch, in some *Spilichneumon* it is with thinned front margin and slightly projecting apex medially, in *Limerodes* it is with thinned slightly emarginate front margin and median denticle, in *Triptognathops* it is with strongly impressed, thinned front margin and rounded corners, in *Tricholabus* it is with straight front margin and thickened, oblique lateral sides and in *Eutanyacra*, *Hepiopelmus* and *Triptognathus* it is with straight front margin and rounded corners. In other genera (*Achaisus*, *Achaisusoides*, *Amblyteles*, *Ctenichneumon*, *Diphyus*, *Fileanta*, *Limerodops*, *Obtusodonta*) clypeus is with straight front margin and distinctly expressed corners. In majority of genera clypeus is separated from face by slight impression (*Achaisus*, *Amblyteles*, *Diphyus*, *Eutanyacra*, *Fileanta*, *Hepiopelmus*, *Limerodes*, *Limerodops*, *Obtusodonta*), and in *Triptognathus* it is separated from face by distinct impression. And only in *Ctenichneumon* and *Achaisusoides* it is separated from face by suture and impression. In *Achaisusoides* clypeus separated from the quadrangular middle field of face unusually sharply. Only in *Tricholabus* clypeus is practically not separated from middle field of face.

Clypeal foveae are elongated usually, sharp and deep. In genus *Tricholabus* they are round, sharp, deep and in *Bureschias* they are not developed.

Labrum more often protrudes from under the clypeus, strongly protrude (long) in the genera *Achaisusoides*, *Amblyteles*, *Ctenichneumon*, *Triptognathops*, and *Triptognathus*, or slightly protrude (short) in the genera *Achaisus*, *Eutanyacra*, *Fileanta*, *Hepiopelmus*, *Limerodes*, *Limerodops*, *Spilichneumon*, *Diphyus* and *Tricholabus*. Labrum of *Bureschias* not protrudes from under clypeus. Labrum is more often rounded along front margin, or narrow, more narrow than front margin of clypeus, usually in the genera *Ctenichneumon*, *Fileanta*, *Hepiopelmus*, *Obtusodonta*, *Spilichneumon* and *Diphyus*, or wide, equal by width to front margin of the clypeus in *Achaisus*, *Achaisusoides*, *Amblyteles*, *Eutanyacra*, *Limerodops*, *Triptognathops* and *Triptognathus*. Narrow triangular or roundly-triangular labrum is in the genera *Limerodes* and *Tricholabus* accordingly.

Middle field of face of most representatives is either strongly elevated above lateral fields (in *Achaisus*, *Bureschias*, *Spilichneumon*, *Achaisus*, *Eutanyacra*, *Hepiopelmus*, *Limerodes*, *Triptognathops* and *Triptognathus*), or slightly elevated (*Amblyteles*, *Ctenichneumon*, *Diphyus*, *Fileanta*, *Limerodops*, *Obtusodonta*, *Tricholabus*). In monobasic (monotypic) genus *Amblyteles* middle field of face is slightly expressed. A special case is the genus *Achaisusoides* with strongly differentiated fields of face and quadrangu-

lar middle field, sharply elevated above lateral fields. Relatively narrow middle field, narrower than lateral one is marked in the genera *Achaius*, *Amblyteles*, *Diphyus*, *Eutanyacra*, *Fileanta*, *Limerodes*, *Limerodops*, *Tricholabus*, wide middle field, wider or equal to lateral one in middle is in genera *Achaius*, *Amblyteles*, *Diphyus*, *Eutanyacra*, *Fileanta*, *Limerodes*, *Limerodops*, *Tricholabus*, *Achaiusoides*, *Bureschias*, *Spilichneumon* and *Triptognathops*.

Antennal cavities more often are deeply impressed, not great or of moderate size, more often far not reach level of front ocellus. Rarely, they are big, deeply impressed in *Hepiopelmus*, *Eutanyacra* (*crispatoria* L.) and *Limerodops*. Only in *Limerodes* they are moderately impressed. Laterally, slightly above antennal fossae, antennal cavities can have roundly knoll, registered in representatives of such genera as *Achaius*, *Ctenichneumon*, *Eutanyacra*, *Fileanta*, *Hepiopelmus*, *Limerodops* and *Obtusodonta*. The representatives of all genera are with tooth (tubercle) between antennal fossae. In *Achaiusoides*, *Achaiusoides*, *Bureschias*, *Obtusodonta*, *Spilichneumon* and *Triptognathus* interantennal tooth is maximally expressed among the genera of subtribe. In *Ctenichneumon*, *Diphyus*, *Eutanyacra* and *Hepiopelmus* interantennal tubercle is distinct, in *Achaius*, *Amblyteles*, *Fileanta*, *Limerodes*, *Limerodops*, *Tricholabus* and *Triptognathops* – very weak.

Ocelli of most representatives of genera are of normal, middle size. In *Obtusodonta* they can be qualified as ocelli of large size, in *Hepiopelmus* as strongly convex. In *Bureschias* ocelli can be qualified as proportionally small, far apart from compound eyes. An exception is *Triptognathops gobiensis* nov.sp. with hypertrophied ocelli, the character that is one of the reasons to extract the separate species.

Ocellar triangle in most genera of Amblytelina is only just elevated (almost not expressed). Ocellar triangle is distinctly expressed only in *Tricholabus* and some species of *Spilichneumon*.

Sculpture of head surface of subtribe representatives are without microsculpture as a rule. Only one exception is monotype genus *Achaiusoides* nov.gen. with expressed microsculpture on the middle field of face. Smooth shining surface of face is characteristic to the species of *Hepiopelmus*. Commonly surface of a head of the subtribe's species is wrinkled or punctured in different degree, without distinct microsculpture. Surface of clypeus is usually punctured in varying degree, shining, sometimes, in *Achaius*, with slight shine.

Pubescence of a head is expressed in different degree, usually slight. Long, dark pubescence is characteristic to the species of the genus *Triptognathops*.

Proceeding from the described characters, head of Amblytelina subtribe representatives can be characterized in the following way:

H e a d : Head contour from front slightly transverse; temples long, with rare exception (*Achaius*) longer or equal to longitudinal diameter of an eye; vertex as a rule linearly sloping to occipital carina just behind the level of hind ocelli. Occipital carina sharp, from above roundly impressed to hind ocelli, but far not reach level of eyes and hind ocelli; practically in all genera (except of *Tricholabus*) occipital carina meeting with hypostomal carina before base of mandible, rarely (*Fileanta*) reduced in lower part; man-

dibles extremely varying by shape from normal with two teeth to modified in females and to unidentate; clypeus transverse, more often with straight front margin, from flat to slightly convex; labrum more often protrude from under clypeus; antennal cavities usually deeply impressed, not big or of moderate size, far not reach front ocellus level; representatives of all genera with tooth or tubercle between antennal fossae; ocelli of most genera of normal, middle size, with exception of large ocelli of *Obtusodonta* and hypertrophied ocelli of *Triptognathops gobiensis* nov.sp.; ocellar triangle in most genera only just elevated (almost not expressed). Surface of a head, as a rule, without microsculpture.

Thorax

Prothorax

Pronotum

Pronotum of Amblytelina has no subtribal characters and sufficiently conservative by morphology.

Collar of pronotum of representatives of genera of *Amblyteles*, *Bureschias*, *Diphyus*, *Fileanta*, *Obtusodonta* and *Spilichneumon* is distinctly long (fig. 17, 18, 22, 23, 29, 32). Collar of pronotum in other genera it is possible to consider as moderately long or short.

Transversal furrow of pronotum does not bear any appreciable structures as, for example, keels. More often transverse furrow is narrow and deep (*Achaisus*, *Achaisusoides*, *Amblyteles*, *Ctenichneumon*, *Diphyus*, *Eutanyacra*, *Limerodops*, *Triptognathus*). Deep and broad transverse furrow is in genera *Diphyus*, *Tricholabus*, to very deep and broad in *Triptognathops*. Shallow and narrow transverse furrow is in genera *Bureschias*, *Hepiopelmus* and *Obtusodonta*, shallow and broad – in *Fileanta* and *Spilichneumon*.

Pronotal ridge (upper margin of pronotum) of the genera of Amblytelina is not swollen, narrow. Only in representatives of genera of *Achaisusoides* and *Spilichneumon* it is some thickened.

Pronotal base of majority of genera is gradually sinuously curved. Only in *Tricholabus* pronotal base is almost straight with very sharp lower angle.

Epomiae are sharp, more often high elevated in majority of genera. Weak epomiae are only in *Achaisusoides* nov. gen.

Sculpture of lateral surface varies from sculptured by sparse superficial punctures at upper half in *Obtusodonta* to roughly wrinkly-punctured in *Limerodops*, *Triptognathops* and strongly wrinkled in *Achaisus* and *Ctenichneumon* (at lower part).

Mesothorax

Mesonotum

Mesonotum of Amblytelina varies from almost flat to strongly convex. Flattened mesonotum is in genera *Bureschias* and *Spilichneumon*, part of *Triptognathops* and females of *Obtusodonta*. Slightly convex mesonotum is in genera *Diphyus*, *Eutanyacra*, *Fileanta*, *Triptognathus* and part of *Triptognathops*. More often mesonotum varies from moderately to strongly convex (*Achaisus*, *Achaisusoides*, *Amblyteles*, *Ctenichneumon*, *Hepiopelmus*, *Limerodes*, *Limerodops* and *Tricholabus*). In majority of the genera meso-

notum is longer than width or only just longer. Mesonotum is longer than width 1,1 times in *Achaisius*, *Eutanyacra*, *Fileanta*, *Obtusodonta*, *Triptognathus*, 1,2 and more times in *Achaisioides*, *Bureschias*, *Ctenichneumon*, *Hepiopelmus*, *Limerodes*, *Limerodops*,

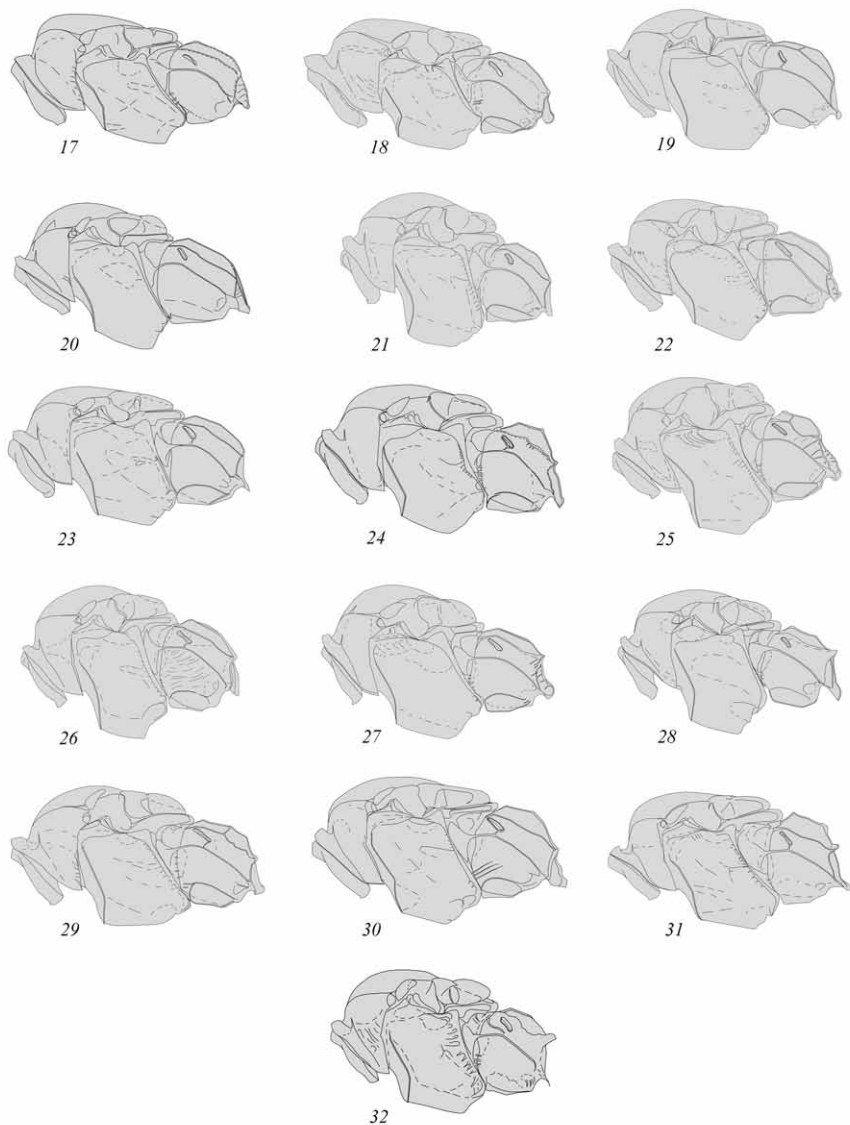


Fig. 17-32: Thorax of Amblytelina genera from lateral: (17) *Bureschias subcylindricus*, (18) *Spilichneumon occisor*, (19) *Limerodes arctiventris*, (20) *Tricholabus strigatorius*, (21) *Ctenichneumon funereus*, (22) *Diphyus amatorius*, (23) *Obtusodonta equitatoria*, (24) *Eutanyacra crispatoria*, (25) *Hepiopelmus melanogaster*, (26) *Limerodops elongatus*, (27) *Achaisius oratorius*, (28) *Achaisioides epistomalis*, (29) *Fileanta radoszkowskii*, (30) *Triptognathus uniguttatus*, (31) *Triptognathops gobiensis*, (32) *Amblyteles armatorius*.

Spilichneumon, *Tricholabus* and *Triptognathops*. Rarely mesonotum is with equal length and width in *Diphyus* (e.g. *amatorius* Müll.).

Notauli of majority of Amblytelina are only marked (or developed) only at base. In genera *Fileanta* and *Triptognathus* they are not developed at all. Sharp in front third notauli are in the genera *Achaisusoides* and *Ctenichneumon*.

Lateral furrow of mesonotum is sharply expressed in *Fileanta*, *Tricholabus* and *Triptognathops*. In *Limerodes* and *Limerodops* it is sharply expressed behind tegulae.

Surface of mesonotum is sculptured practically in all variants. Densely punctured mesonotum is characteristic for species of *Achaisus*, *Achaisusoides*, *Bureschias*, *Ctenichneumon*, *Diphyus*, *Limerodes*, *Limerodops*, *Triptognathops* and *Triptognathus*. Extremely densely punctured mesonotum is characteristic for *Hepiopelmus* and *Eutanyacra* (*rasnytsini* Heinrich). Dull surface of mesonotum is in *Achaisus*, polished with sparse punctures – in *Eutanyacra* and *Obtusodonta*, delicately punctured by smooth punctures – in *Spilichneumon* (*occisor* F.). Surface of mesonotum of *Limerodes* is with developed microsculpture. **Prepectus** (epicnemium) does not show any specific structures. Only in *Ctenichneumon* and *Spilichneumon* genera it protrudes to lateral surface in a considerably extent, thus, that its considerable part visible from lateral.

Axillary tongue is usually expressed in varying degree. In majority of genera it is weak or only just marked. Axillary tongue is distinctly expressed in *Ctenichneumon*, *Tricholabus* and *Triptognathops*. In *Achaisus*, *Amblyteles*, *Limerodes* and *Limerodops* it is practically not developed.

Mesopleurae

Subalarum varies in form from narrow, sharp to thickened in considerable extent. It is possible to mark out four structural variants of subalarum: thick not sharpened (*Achaisusoides*, *Amblyteles*, *Diphyus*, *Spilichneumon*), moderately thick (normal) not sharpened (*Eutanyacra*, *Obtusodonta*, *Tricholabus*, *Triptognathops*, *Triptognathus*), thin (narrow), not sharpened (*Achaisus*, *Bureschias*, *Ctenichneumon* (almost sharpened)), and thin, sharp – only in *Hepiopelmus* genus.

Speculum of majority of genera is punctured, shining (*Achaisusoides*, *Eutanyacra*, *Hepiopelmus*, *Spilichneumon*, *Tricholabus*). In *Achaisus* speculum is punctured, dull, sculptured almost as another part of mesopleurae, in *Diphyus* and *Limerodops* speculum is densely punctured, in *Obtusodonta* it is slightly superficially punctured, in the genera *Ctenichneumon* and *Limerodes* – smooth, shining, in the genera *Amblyteles*, *Bureschias*, *Fileanta*, and *Triptognathus* speculum is wrinkly-punctured. In *Triptognathops* area of speculum is strongly convex and speculum is punctured by big punctures.

Mesopleural fovea of majority of genera is deep. Area of mesopleural fovea is more often narrowly and deeply impressed (*Bureschias*, *Ctenichneumon*, *Diphyus*, *Eutanyacra*, *Fileanta*, *Hepiopelmus*, *Limerodes*, *Limerodops*, *Obtusodonta*, *Spilichneumon*). In *Tricholabus* area of mesopleural fovea is moderately impressed in representatives of *Triptognathops* – only just impressed.

Bend of lower part of mesopleurae in approximately half of genera is not sharp but distinct (*Achaisus*, *Achaisusoides*, *Ctenichneumon*, *Diphyus*, *Limerodops*, *Triptognathops*, *Triptognathus*), in another genera it is not expressed (*Amblyteles*, *Eutanyacra*, *Hepiopelmus*, *Limerodes*, *Obtusodonta*, *Spilichneumon*, *Tricholabus*).

Sternauli in genera of Amblytelina are from sharply developed to middle of mesopleurae in *Bureschias* to fully their absence in genera *Achaisusoides*, *Diphyus* and *Obtusodonta*. Sharp on 2/3 of mesopleurae sternaui are in *Fileanta*, *Triptognathops* (*gobiensis* nov.gen.) and *Triptognathus*. More often sternaui are expressed in a shape of sometimes indistinct impressions up to middle or front third of mesopleurae – in *Eutanyacra*, *Hepiopelmus*, *Limerodes*, *Achaisus*, *Spilichneumon*, *Triptognathops* (*bicolor* KRIECHB.) and *Limerodops*. Sometimes they are marked only at base (*Amblyteles*, *Ctenichneumon*, *Tricholabus*).

Sculpture of surface of mesopleurae is very various, without distinct microsculpture. Mesopleurae are punctured in genera *Achaisusoides*, *Ctenichneumon*, *Limerodes*, *Tricholabus*, densely wrinkly-punctured in *Ctenichneumon* and *Eutanyacra*, roughly punctured in *Fileanta*, shining, longitudinally striated at lower half in genera *Obtusodonta* and *Spilichneumon*, roughly-wrinkled in *Triptognathops* and roughly wrynkly-punctured in *Triptognathus*.

Scutellum of Amblytelina is not carinated laterally. Profile of scutellum from lateral varies from high elevated with convex horizontal surface to only just elevated with almost flat surface. Scutellum of majority of genera is smoothly (roundly) sloped to post-scutellum. Only one exception is *Hepiopelmus* with triangle from lateral profile of scutellum (fig. 25). Scutellum of *Achaisus*, *Amblyteles*, *Ctenichneumon*, *Hepiopelmus*, *Limerodops* and *Tricholabus* is high elevated (fig. 20,21, 25-27, 32). In *Achaisusoides*, *Diphyus*, *Eutanyacra*, *Fileanta*, *Triptognathops* and *Triptognathus* scutellum is possible to consider as moderately elevated (fig. 22, 24, 28-31). In genera *Bureschias*, *Spilichneumon*, *Limerodes* and *Obtusodonta* scutellum is slightly elevated, or only just elevated (fig. 17-19, 23). Scutellum of males is usually more high elevated than of females.

Postscutellum is usually with normally developed lateral foveae and does not bear any specific signs.

Metanotum

Hind margin of metanotum is with triangular projections opposite lateral longitudinal carinae of propodeum, different in their width.

Propodeum

Propodeum of Amblytelina as well as in other Ichneumonini is of box-shaped (broken) type. At the same time, its form is various enough.

Profile of propodeum with sharp, distinct break is in genera *Achaisus*, *Achaisusoides*, *Bureschias*, *Diphyus*, *Eutanyacra*, *Fileanta*, *Obtusodonta* (fig. 17, 22-24, 27-29). Roundly convex or gradually (smoothly) curved backwards profile of propodeum is in genera *Ctenichneumon*, *Limerodes*, *Limerodops*, *Spilichneumon*, *Tricholabus* (fig. 18-21, 26). In genera *Ctenichneumon*, *Limerodes* and *Tricholabus* carina dentipara externa is almost parallel to carina metapleuralis, reminding propodeum of Protichneumonini (fig. 19-21).

Horizontal part of propodeum of overwhelming majority of genera is shorter than area superomedia in middle: *Tricholabus* (1,2), *Limerodes* (1,3), *Triptognathus* (1,5), *Triptognathops* (1,5-1,9), *Ctenichneumon*, *Diphyus*, *Eutanyacra*, *Obtusodonta* (1,7),

Limerodops, *Achaisusoides* (1,8), *Amblyteles* and *Hepiopelmus* (2 times). Horizontal part is equal to vertical one in *Achaisus* and *Fileanta*. In *Bureschias* and *Spilichneumon* horizontal part of propodeum is longer than vertical one, at general tendency to lengthening and flattening of a thorax. Horizontal part of propodeum of majority of genera is strongly enough convex and area superomedia is elevated above lateral fields. In East-Palaearctic genus *Achaisusoides* horizontal part of propodeum (area superomedia + areae dentiparae) gets most flattened form because of the extended apices of propodeum in apices of areae dentiparae and areae spiraculiferae.

Set of propodeum carinae is presented in genera of Amblytelina by various combinations. Set of propodeum carinae practically never occurs to be complete, those or other carinae are reduced or only just marked. Coxal carina is absent in *Amblyteles* and *Tricholabus*, it is only just marked or weak in genera *Limerodops*, *Triptognathops* and *Bureschias*. Costulae are absent in representatives of majority of genera: *Achaisus*, *Achaisusoides*, *Amblyteles*, *Bureschias*, *Ctenichneumon*, *Diphyus*, *Eutanyacra*, *Fileanta*, *Limerodops*, *Obtusodonta*, *Spilichneumon*, *Tricholabus*, *Triptognathus* and *Triptognathops*. Very weak costulae are in *Limerodes*. Most sharply from all the genera costula is expressed in *Hepiopelmus*. In *Spilichneumon* carina closing area superomedia from backwards (apical transverse carina) is absent or only just marked. In genus *Hepiopelmus* lateral carinae of basal area are absent, and in the genera *Limerodes* and *Obtusodonta* lateral carinae of area posteromedia are not developed. In monotypic genera *Achaisusoides* and *Amblyteles* carinae of horizontal part of propodeum are sinuous, indistinct against the background of general rough sculpture of propodeum.

Areas of propodeum in shape are subjected to considerable variability. Area basalis of representatives of majority of genera is long and deep. In *Tricholabus* and *Bureschias* basal area is long, in *Limerodes* and *Limerodops* it is moderately long. Two special cases are basal area of *Hepiopelmus* with tooth (knoll), like many of representatives of Cratichneumonina (when determinating it is often confused with some *Virgichneumon* HEINRICH) and of *Achaisusoides* with short and convex basal area. Shape of area superomedia is subjected to considerable variability. Area superomedia can be considerably elevated as in *Eutanyacra* or other way, elevated slightly, as of *Achaisus*. By form, area superomedia can be quadrangular in *Bureschias*, *Ctenichneumon*, *Diphyus*, *Hepiopelmus*, *Limerodops*, *Obtusodonta*, *Spilichneumon*, *Triptognathops* and *Triptognathus*, to square in *Diphyus* and *Triptognathus*. Hexagonal area superomedia is in genera *Achaisus*, *Achaisusoides* (horseshoe-shaped) and *Tricholabus*. In genera *Eutanyacra*, *Fileanta* and *Limerodes* it is slightly or indistinctly hexagonal. Area superomedia is transverse in *Achaisusoides*, *Eutanyacra* and *Ctenichneumon* (to square). It is elongated in *Achaisus*, *Bureschias*, *Fileanta*, *Limerodes*, *Obtusodonta*, *Spilichneumon* and *Tricholabus*.

The relevant value for generic structure of Amblytelina is presence or absence of teeth at apices of areae dentiparae, and also theirs shape.

Apex of area dentipara of majority of genera of Amblytelina is without a tooth or apophysis. Only type species of the genus' areae dentiparae at apices are with strong, usually curved upwards **apophyses** (fig. 32, 35). Area dentipara at apex is with **strong tooth** in species of genus *Triptognathops*, or **denticle** – in *Eutanyacra* (*crispatoria* L.) (fig. 24, 31, 39, 48). Areae dentiparae in the genus *Achaisus* in apices are with short, practically not unbent upwards teeth (**teeth-like projections**) coinciding in direction with its external carina. Species of genera *Fileanta* and *Spilichneumon* can have in apices of areae dentiparae **teeth-like broadenings**, and *Diphyus* (*amatorius*) and *Triptognathus* **lamellar**

broadenings on the place of apophyses (fig. 30, 47). Separately there is genus *Achaisusoides* nov. gen., propodeum of which in the apices of areae dentiparae is extended into broad teeth-like formations (fig. 28, 34).

Spiracles of Amblytelina as well as in the majority of genera of tribe Ichneumonini are long. Large long spiracles (length on an external contour 2,5 times exceeds their width) are in *Achaisus*, *Achaisusoides* and *Ctenichneumon*. Not big, but long spiracles are in *Tricholabus*. Small slit-shaped spiracles (length 3-4 times more than width) are in *Limerodes*. For the majority of genera of subtribe, long (large) slit-shaped spiracles (length exceeds width 3-4 times) are characteristic.

Surface of propodeum is characterized by various sculpture, more often wrinkled, or wrinkly-punctured, always without microsculpture. The wrinkled sculpture of propodeum is characteristic for genera *Bureschias*, *Hepiopelmus* and *Spilichneumon*, roughly-

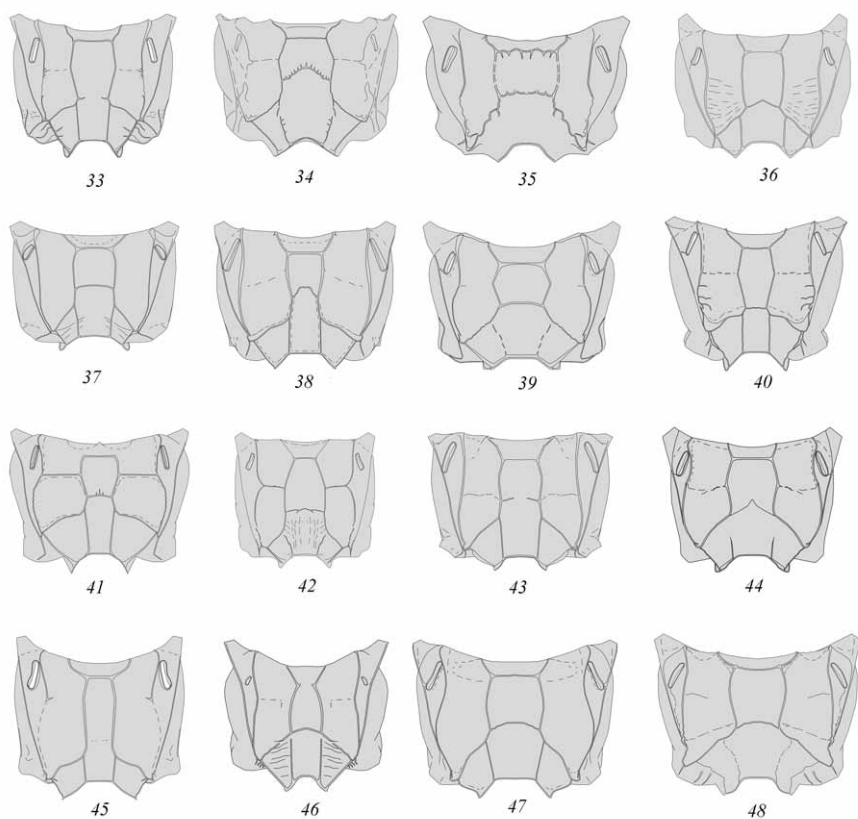


Fig. 33-48: Propodeum of Amblytelina genera: (33) *Achaisus oratorius*, (34) *Achaisusoides epistomalis*, (35) *Amblyteles armatorius*, (36) *Bureschias subcylindricus*, (37) *Ctenichneumon funereus*, (38) *Diphyus amatorius*, (39) *Eutanyacra crispatoria*, (40) *Fileanta radoszkowskii*, (41) *Hepiopelmus melanogaster*, (42) *Limerodes arctiventris*, (43) *Limerodops elongatus*, (44) *Obtusodonta equitatoria*, (45) *Spilichneumon occisor*, (46) *Tricholabus strigatorius*, (47) *Triptognathus uniguttatus*, (48) *Triptognathops gobiensis*.

wrinkled – for genera *Eutanyacra*, *Fileanta*, *Triptognathops* and *Triptognathus*, roughly wrinkly-punctured – for *Limerodops*, wrinkly-punctured – for *Ctenichneumon*, *Diphyus*, *Limerodes* and *Tricholabus*. Slightly wrinkly-punctured surface of propodeum is characteristic for species of *Obtusodonta*. For species of *Achaius* densely-wrinkled, dull surface of propodeum is characteristic. Separately, there are monobasic genera *Achaiusoides* and *Amblyteles* with a rough cellular-wrinkled sculpture of propodeum.

Vertical parts of surface of propodeum of *Triptognathops*' species are with long enough and rare dark hairs. In *Spilichneumon (occisor* F.) thorax is with long reddish-brown pubescence.

Metapleurae, as a rule, are differed by sculpture from other parts of propodeum. Metapleurae are more often with less rough sculpture than other part of propodeum. In species of *Triptognathops* and *Triptognathus* a sculpture of metapleurae is also roughly-wrinkled as well as the rest part of propodeum.

Proceeding from the described characters, thorax of Amblytelina subtribe's representatives can be characterized in the following way:

T h o r a x : Collar of pronotum normal with smooth hind margin without any structures as lamellar projections above transverse furrow of pronotum; transverse furrow of pronotum smooth, not crossed by longitudinal carinae; pronotal ridge not swollen, usually narrow; epomiae always sharp (exception *Achaiusoides* nov. gen. with weak epomiae); pronotal base always smoothly sinuous. Mesonotum from flat to strongly convex, some (1,1-1,2 times) longer than width; notauli of majority of genera slightly impressed only at base or not developed with exception of sharp in front third notauli of *Achaiusoides* and *Ctenichneumon*; axillary tongue usually expressed to some extent, in majority of genera it weak or only just marked; subalarum from thin, sharp to thickened in considerable extent; mesopleural foveae in representatives of majority of genera deep; mesopleurae from below without sharply expressed bend; sternauli or not developed, or expressed only to middle of mesopleurae; scutellum laterally not carinated, in profile from high elevated with convex horizontal surface to only just elevated with almost flat one. Hind margin of metanotum with triangular projections opposite lateral longitudinal carinae of propodeum. Propodeum distinctly box-shaped (of broken type), in profile from roundly convex to more or less fattened dorsally, more often with convex horizontal surface; set of carinae of propodeum usually not complete, those or other carinae reduced or only just marked, in majority of genera costulae or coxal carina often absent; areae dentiparae at apices with apophyses, teeth, teeth-like projections, lamellar broadenings or more often without them; spiracles long, large, usually slit-shaped, rarely not big (*Tricholabus*, *Limerodes*). Surface of propodeum with various sculpture, more often wrinkled or wrinkly-punctured, always without microsculpture.

Legs

The legs of majority of genera can be characterized as normal. In representatives of the same genus the legs can be characterized both moderately stout (*Triptognathus baicalicus* (KOK.)) and slender and long (*Triptognathus uniguttatus* (GRAV.)). For genera *Fileanta*, *Limerodes*, *Tricholabus* and *Triptognathops* long, slender legs are characteristic. For genus *Achaiusoides* nov.gen. legs with thickened femora, tibiae and tarsi are characteristic.

Coxae of hind legs of majority of genera are normal, in females always without scopa. Only *Triptognathops*' hind coxae are distinctly elongated and coxae of all legs of *Spilichneumon occisor* (FABRICIUS) are with long reddish-brown pubescence.

Femora of hind legs are normal. Only hind femora of *Fileanta* are long, narrow, more than 6 times longer than width.

Tibiae do not have any specific peculiarities. Only *Triptognathops*' all tibiae are with long, thin spinules, and for *Triptognathus* middle tibiae more strong spinules than for tibiae of front and hind legs are characteristic.

Tarsi of majority of genera also do not have any specific peculiarities. Only *Triptognathops* and *Triptognathus* have long and thin hind tarsi and first segment of hind tarsi of *Triptognathops*' females are compressed from sides.

Claws of tarsi are always smooth. Usually claws are smoothly gradually curved. In genus *Achaisus* claws are thin, strongly curved at apex, in *Diphyus* (*amatorius* MÜLL.) and *Ctenichneumon* (*funereus* GEOFFROY) sharply curved at middle, and in *Achaisusoides* they are small, sharply curved almost at right angle at apical third.

Thus, legs of Amblytelina subtribe's representatives can be characterized in the following way:

Legs: From moderately stout to rather long and slender. Claws of tarsi always smooth. Hind coxae of females always without scopa.

Wings

Morphology of wings of representatives of Amblytelina, as well as other Ichneumoninae is conservative enough.

Areolet is usually big and always pentagonal, or slightly asymmetrical usually at the expense of more short external vein of apex. More often base of areolet is wide. Rarely areolet is with more or less narrow base *Amblyteles*, *Fileanta*, *Obtusodonta*, *Triptognathops*. Most big areolet is in the genera *Triptognathus* (with wide base) and *Triptognathops* (with narrow base).

Radius, more correctly its section from areolet to apex, is straight or almost straight in *Amblyteles*, *Eutanyacra*, *Fileanta*, *Limerodes*, *Limerodops*, *Triptognathus*. For most genera slightly sinuous radius is characteristic. Rarely, radius is distinctly or strongly curved at apex (*Spilichneumon occisor* (F.)), or strongly sinuous (*Obtusodonta*).

Radial cell is usually narrow and long in *Achaisus*, *Achaisusoides*, *Ctenichneumon*, *Diphyus*, *Fileanta*, *Limerodes*, *Limerodops*, *Tricholabus*, *Triptognathops*, rarely broad in *Amblyteles*, *Eutanyacra*, *Hepiopelmus*, *Obtusodonta* and *Triptognathus*.

Stigma is differed by size, colour and its saturation. In *Amblyteles*, *Diphyus*, *Eutanyacra*, *Obtusodonta*, *Triptognathus*, *Triptognathops* it is broad, in *Achaisusoides*, *Fileanta*, *Achaisus*, *Limerodes*, *Tricholabus*, *Bureschias* and *Spilichneumon* – narrow.

Ramulus in *Bureschias*, *Ctenichneumon*, *Limerodes*, *Limerodops*, *Obtusodonta* is only just marked, in *Achaisus* and *Hepiopelmus* – absent. In *Diphyus*, *Spilichneumon* and *Tricholabus* ramulus is distinct and in *Achaisusoides*, *Amblyteles*, *Eutanyacra*, *Fileanta*, *Triptognathops* and *Triptognathus* it is very long, in comparison with representatives of other genera.

Nervulus of majority of genera is postfurcal to some extent. Usually sharply postfurcal nervulus is in the genera *Amblyteles* and *Ctenichneumon*. Interstitial nervulus is in the genera *Bureschias*, *Hepiopelmus*, *Limerodops* (*unilineatus* GRAV.) and *Triptognathus*.

Membrane of wing of overwhelming majority of genera is not darkened, hyaline. In the genera *Amblyteles*, *Diphyus*, *Eutanyacra* it is often yellowish. In *Achaisusoides* and *Triptognathus* membrane of wing is slightly darkened and in *Triptognathops* it is distinctly darkened.

Length of front wing is always shorter than body length and usually longer than length of flagellum, rarely it is approximately equal by length to flagellum (*Achaisus*, *Ctenichneumon*, *Hepiopelmus*, *Tricholabus*) and only in *Limerodes* front wing is distinctly shorter than length of flagellum.

Proceeding from the described characters, wings of Amblytelina subtribe's representatives can be characterized in the following way:

W i n g s : Areolet always pentagonal, more often big; radius from straight to slightly sinuous; nervulus of front wing more often postfurcal, rarely interstitial; membrane of wing generally hyaline, rarely yellowish or darkened in different degree in *Triptognathus* and *Triptognathops*. Front wing always shorter than body length and with rare exception (*Limerodes*) shorter than length of flagellum.

Abdomen

This part of Amblytelina's body possesses the greatest quantity of the characters defining of a genus belonging to this subtribe. Abdomen is always amblypygous, rarely, in *Obtusodonta* and *Bureschias* – semiamblypygous.

Shape of abdomen

Shape of abdomen of Amblytelina is very diverse. More often shape of abdomen from above can be characterized as l o n g i s h - o v a l (in genera *Achaisus*, *Ctenichneumon*, *Diphyus*, *Hepiopelmus*, *Obtusodonta*, *Spilichneumon*) or b r o a d l y - o v a l (in genera *Amblyteles*, *Diphyus*, *Eutanyacra*, *Triptognathops*, *Triptognathus*). In representatives of *Limerodops* abdomen is n a r r o w , l o n g , n a r r o w e d t o a p e x , to parallel-side, in males often swollen at apex. In *Limerodes* abdomen is narrow, long, c o m p r e s s e d f r o m s i d e s (ophionoid). F u s i f o r m from above abdomen is in females of *Bureschias*. Long, almost p a r a l l e l - s i d e d abdomen is in *Achaisusoides epistomalis* nov. sp. Abdomen of some females of *Hepiopelmus* can be qualified as d r o p - s h a p e d . A special case is genus *Tricholabus* with narrow, parallel-sided abdomen.

Shape of second tergite of abdomen from above more often is transverse, length of tergite is less than width at apex. Rarely it is with equal length and breadth (at some *Ctenichneumon*), or longer than width at apex – in *Achaisusoides*, *Ctenichneumon* (part), *Limerodes*, *Limerodops* and *Tricholabus*.

Constrictions at area of front tergites are characteristic for species of *Ctenichneumon* with strongly convex tergites and for abdomen of *Tricholabus* with strong constrictions between tergites 2-4, reminding habitually abdomen of *Ulesta* CAMERON (Ichneumonina).

Apex of abdomen usually is with apical tergites well seen from above. Tergite seventh

far protrudes from under six for the length of the sixth or for the length of scutellum in *Achaisius*, *Achaisioides*, *Limerodes* and *Limerodops*. In species of *Eutanyacra* and *Fileanta* apex of abdomen is compressed from sides. In species of *Eutanyacra* tergite 6 is retracted, and in *Diphyus* (*amatorius* MÜLL.) tergite 7 from above only just protrude.

First tergite

Petiolus of first tergite, as in all representatives of tribe is always not flattened, to very narrow at base in genera *Amblyteles*, *Limerodes*, *Obtusodonta*, *Tricholabus*. In representatives of the majority of genera the first tergite from sides is with a distinct bend between petiolus and postpetiolus (*Achaisius*, *Achaisioides*, *Bureschias*, *Ctenichneumon*, *Eutanyacra*, *Hepiopelmus*, *Obtusodonta*, *Spilichneumon*, *Triptognathops*). In genera *Amblyteles*, *Limerodops* and *Triptognathus* a bend between petiolus and postpetiolus is sharp. Smoothed bend between petiolus and postpetiolus is in genera *Diphyus*, *Fileanta* and *Limerodes*. At last in *Tricholabus*, the first tergite from lateral is almost straight.

Lateral carinae of first tergite are developed in different degree. Sharp lateral carinae are characteristic in genera *Amblyteles*, *Bureschias*, *Diphyus*, *Spilichneumon*, *Triptognathops* and *Triptognathus*. Dorsomedian carina practically is not expressed, dorsolateral carinae is smoothed and ventrolateral one distinct in genera *Achaisioides* and *Eutanyacra*. In *Achaisius* and *Ctenichneumon* dorsal carina is sharp and dorsolateral one is only just marked. In *Hepiopelmus* only ventrolateral carina is distinctly developed. In *Fileanta* lateral carinae are distinct but not sharp, in *Limerodops*, *Obtusodonta*, *Tricholabus* – smoothed. And, at last in *Limerodes* lateral carinae are not expressed.

Lateral surface by structure varies from smooth in *Limerodes* and *Tricholabus* to sculptured by sharp ribs in genera *Achaisius*, *Amblyteles*, *Bureschias*, *Ctenichneumon*, *Diphyus*, *Eutanyacra*, *Fileanta*, *Spilichneumon*, *Triptognathops* and *Triptognathus*. By weak ribs, lateral surface of petiolus are sculptured in genera *Achaisioides*, *Hepiopelmus*, *Limerodops* and *Obtusodonta*.

Postpetiolus of first tergite from above is sharply broadened in *Amblyteles*, *Ctenichneumon*, *Eutanyacra*, *Triptognathops* and *Triptognathus*. In genera *Achaisius*, *Bureschias*, *Hepiopelmus*, *Limerodops*, *Spilichneumon* and *Tricholabus* postpetiolus from above is sharply, but gradually broadened. In species of *Achaisioides*, *Limerodes*, *Fileanta* petiolus is gradually transformed to postpetiolus (fig. 49, 52, 60). In all genera, as in the majority of Ichneumoninae, **distance between spiracles** is more than distance from spiracles to apex of tergite. Triangular from above postpetiolus is characteristic for *Amblyteles*, *Fileanta* and *Hepiopelmus*. More often postpetiolus behind spiracles is quadrangular (*Bureschias*, *Diphyus*, *Eutanyacra*, *Obtusodonta*, *Triptognathops*, *Triptognathus*). Separate case is genus *Limerodes* with roundish from above shape of postpetiolus. **Middle field of postpetiolus** of females of representatives of genera *Tricholabus* and *Limerodes* is not expressed (fig. 51, 52). In representatives of other genera it is expressed in a varying degree and always more wide than the lateral fields. In the genera *Bureschias*, *Hepiopelmus* and *Spilichneumon*, middle field of postpetiolus is not carinated and slightly elevated, in *Achaisius*, *Achaisioides*, *Diphyus*, *Fileanta*, *Limerodops*, *Obtusodonta* – distinctly elevated. Middle field of postpetiolus is sharply expressed and high elevated in females of genera *Ctenichneumon*, *Amblyteles*, *Eutanyacra*, *Triptognathops* and *Triptognathus*. The major character, characterising subtribe Amblytelina (as of Ichneumonina) is longitudinal striation of middle field of postpetiolus. At the same time, this character is characteristic not for all the genera.

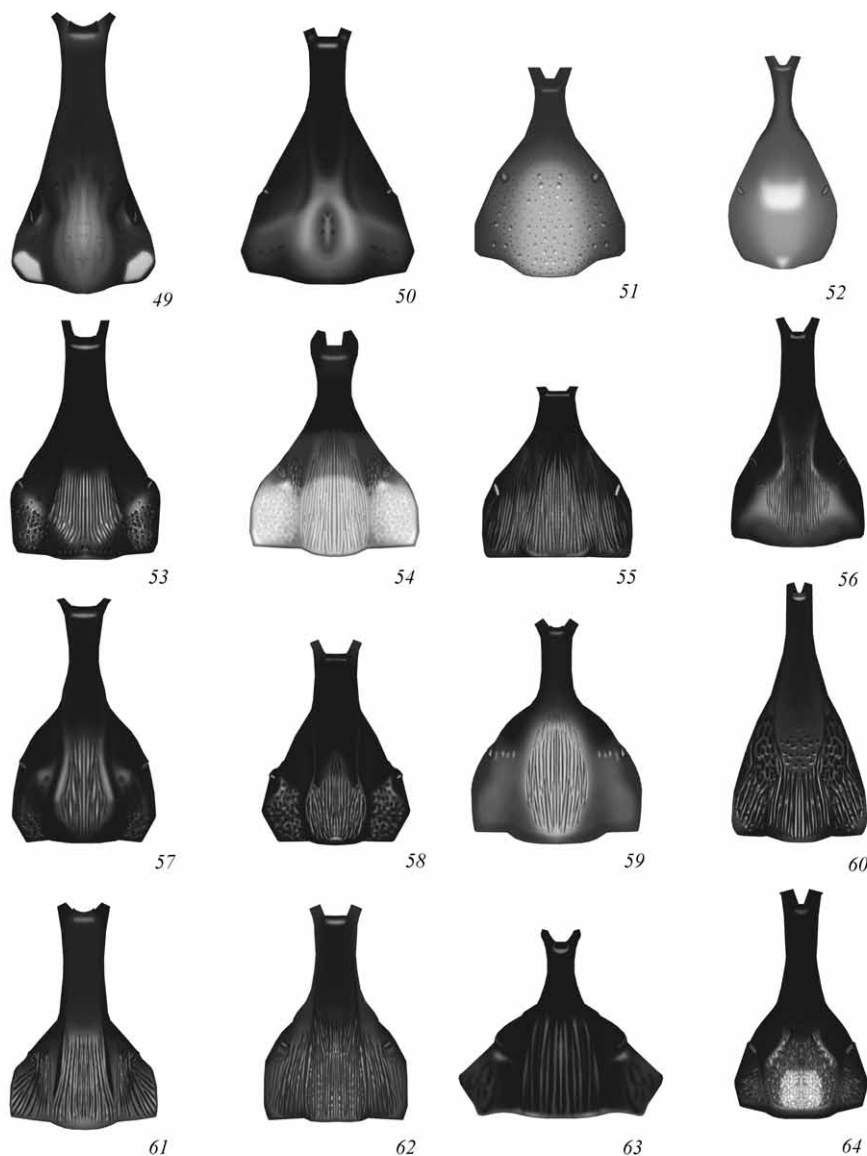


Fig. 49-64: First segment of abdomen of Amblytelina genera: (49) *Achaisioides epistomalis*, (50) *Hepiopelmus melanogaster*, (51) *Tricholabus strigatorius*, (52) *Limerodes arctiventris*, (53) *Diphyus amatorius*, (54) *Eutanyacra crispatoria*, (55) *Bureschias subcylindricus*, (56) *Spilichneumon occisor*, (57) *Limerodops elongatus*, (58) *Ctenichneumon funereus*, (59) *Obtusodonta equitatoria*, (60) *Fileanta radoszkowskii*, (61) *Triptognathus uniguttatus*, (62) *Triptognathops gobiensis*, (63) *Amblyteles armatorius*, (64) *Achaisius oratorius*.

Longitudinal striation of postpetiolus' surfaces is shown in different variants. In females of *Fileanta* middle field is longitudinally wrinkly-punctured, in *Amblyteles* irregularly roughly longitudinally striated, in *Ctenichneumon* and most of *Diphyus* it is regularly longitudinally striated, in *Limerodops* and *Obtusodonta* it is delicately longitudinally striated and, finally, in *Bureschias*, *Fileanta*, *Triptognathops* and *Triptognathus* middle field of postpetiolus of females is sharply longitudinally striated, and in two last genera the lateral fields of postpetiolus are sharply longitudinally striated in addition.

For five palaearctic genera of subtribe, longitudinal striation of middle field is not characteristic. The surface of a middle field of postpetiolus of *Achaius* is characterised as irregularly superficially sinuously-wrinkled, of *Achaiusoides* nov.gen. – as smooth with indistinct rugosity and the sparse smoothed punctures. In *Hepiopelmus* middle field of postpetiolus is with impression in middle, with a smooth surface, with rare smoothed punctures and, at last, in *Tricholabus* a middle field with indistinct sparse punctures, smooth, shining, and in *Limerodes* a middle field is entirely smooth. In some genera, for which longitudinally striated postpetiolus is characteristic, some species have irregularly-wrinkled structure of a surface, for example *Diphyus latebricola* (WESM.). While middle field of postpetiolus in females is longitudinally striated, its surface in males more often is with more smoothed and irregular structure (for example in genus *Eutanyacra*). Usually, middle field of males is more highly elevated and sharply expressed than in females (for example species of genus *Spilichneumon*).

Second tergite

Gastrocoeli and thyridia, theirs size and form are important taxonomic characters of Amblytelina on generic level. In majority of genera **gastrocoeli** are **slightly impressed** or **superficial** (*Achaius*, *Achaiusoides*, *Amblyteles*, *Bureschias*, *Diphyus*, *Fileanta*, *Limerodes*, *Obtusodonta*, *Spilichneumon*, *Triptognathops*, *Triptognathus*). More often they are small, only just impressed and situated **near base of second tergite** (*Amblyteles*, *Bureschias*, *Diphyus*, *Spilichneumon*, *Triptognathops*, *Triptognathus*), rarely they are **long**, removed from the base of tergite, as in *Achaiusoides*. Less often gastrocoeli are **deep**, long in *Limerodops*, or short in *Hepiopelmus* and *Eutanyacra*. For species of genus *Ctenichneumon* extremely strongly impressed gastrocoeli with convex arcuate interval between them, and for *Tricholabus* very deep and broad gastrocoeli, closing to the base of tergite are characteristic. Separate case is the genus *Limerodes*, with gastrocoeli **in a form of indistinct longitudinal lateral impression**. **Thyridia** of Amblytelina are more often absent (*Amblyteles*, *Bureschias*, *Ctenichneumon*, *Triptognathops*, *Limerodes* (sometimes only just marked in the form of roundish impression), rudimentary (*Diphyus*, *Eutanyacra*, males of *Limerodops*), weak or only just marked (*Fileanta*, females of *Limerodops*, *Spilichneumon*, *Triptognathus*). At the same time, thyridia in a number of genera and species are distinctly expressed (distinct) – in *Diphyus* (*latebricola* WESM., *amatorius* MÜLL.), *Obtusodonta*, *Tricholabus*, to sharply expressed and short – in *Achaius*, *Achaiusoides* and *Hepiopelmus*. **Breadth of interval between gastrocoeli and thyridia** is usually more than their width. Only one exception is genus *Tricholabus* with gastrocoeli and thyridia equal by breadth to interval between them. **Interval between thyridia** in *Ctenichneumon* and parts of *Limerodops* is with sharp longitudinal wrinkling (striated). More often an interval is with slight wrinkling (*Achaius*, *Triptognathops*), very densely and indistinctly superficially punctured (*Triptognathops*), as an exception –

smooth (*Limerodes*). Sometimes an interval is irregularly-wrinkled the same as surface of gastrocoeli (*Achaisuoides*).

Lunulae are present in this or that kind in the majority of genera of Amblytelina. More often they are large (*Amblyteles*, *Limerodes*, *Achaius*, *Achaisuoides*) or of moderate size (*Bureschias*, *Tricholabus*, *Triptognathops*, *Ctenichneumon*, *Eutanyacra*, *Fileanta*, *Hepiopelmus*), rarely small (*Diphyus*, *Obtusodonta*), or only just marked (*Obtusodonta*, *Triptognathus*).

Sculpture of second tergite can be qualified as **densely punctured** (*Achaisuoides*, *Amblyteles*, *Diphyus* (part), *Eutanyacra*, *Fileanta* (dull), *Limerodes* and *Obtusodonta* (superficially), *Tricholabus*), **wrinkly-punctured** (*Bureschias* (superficially and longitudinally), *Ctenichneumon* (longitudinally), *Hepiopelmus* and *Limerodops* (delicately), *Spilichneumon* (*occisor* F.)), **very densely and indistinctly superficially-punctured** (*Triptognathops*, *Triptognathus*) and in *Achaius* as **indistinctly superficially-punctured**.

Surface of second tergite is usually without microsculpture.

Apex of abdomen

Apical tergites of abdomen are specialized in genus *Limerodops*. In majority of species of this genus tergites 4-7 laterally bending far onto the ventral side, thus transforming the apical part of abdomen into a pipe, gradually narrowing from segment to segment. In *Limerodops*' males apex of abdomen is slightly swollen because of increased genitals.

Sheath of ovipositor of Amblytelina of overwhelming majority of genera do not protrude behind apex of abdomen. They only just protrude only in genus *Hepiopelmus*. Only one exception is females of genus *Limerodes*, sheath of ovipositor of which considerably protrude behind apex of abdomen.

Hypopygium of females is long, with rare exception (*Bureschias*, *Obtusodonta*), completely overlap slit of ovipositor. Hypopygium is usually not compressed from sides and more or less flattened. Rarely it is compressed from sides and sharpened in *Eutanyacra*, *Fileanta*, *Limerodes* and *Obtusodonta*. From below hypopygium is truncated in genera *Achaius*, *Achaisuoides*, *Bureschias* and *Ctenichneumon*, in *Hepiopelmus* it is almost rectangular with slightly protruding apex. Hypopygium of *Tricholabus* from below is long, triangular with sharp apex and membranous hind margin, in *Limerodops* narrow, long, overlapping sheath of ovipositor.

Pubescence of females' hypopygium has great importance for generic structure of subtribe. In genera *Achaisuoides*, *Hepiopelmus* and *Obtusodonta* hypopygium is with uniform, long pubescence, in *Triptognathops* it is uniformly covered long dark bristles, in *Fileanta* it is covered by stiff bristles, in *Triptognathus* it is with fascicle hairs at apex and, at last, for genus *Eutanyacra* hypopygium with a fringe, or bunch, of stiff bristles at apex is characteristic.

The morphology of males' hypopygium is a key character at definition of their subtribal belonging. Hypopygium of males shows the tendency to lengthening its central part towards apex to various extent, forming almost continuous gradient from widely rounded apex to long narrow apical process in its center (fig. 65-77). In males of *Ctenichneumon*, *Amblyteles* and *Fileanta* hypopygium is most widely rounded apically and in the latter genus it is with considerable lengthening in the central part and with slightly truncated

apex. Hypopygium of males of *Triptognathops* is with extended central part widely cut off at apex. In *Achaisus*, *Hepiopelmus*, *Limerodops* and *Diphyus* hypopygium apically is with triangularly extended central part. In *Tricholabus* hypopygium apically is with triangularly extended central part and characteristic knoll-shaped swelling at apex. Hypopygium of males of *Limerodes* with short apical process, of *Eutanyacra* – with a long wide process apically, and finally, in *Spilichneumon* and *Triptognathus* apically with long narrow process.

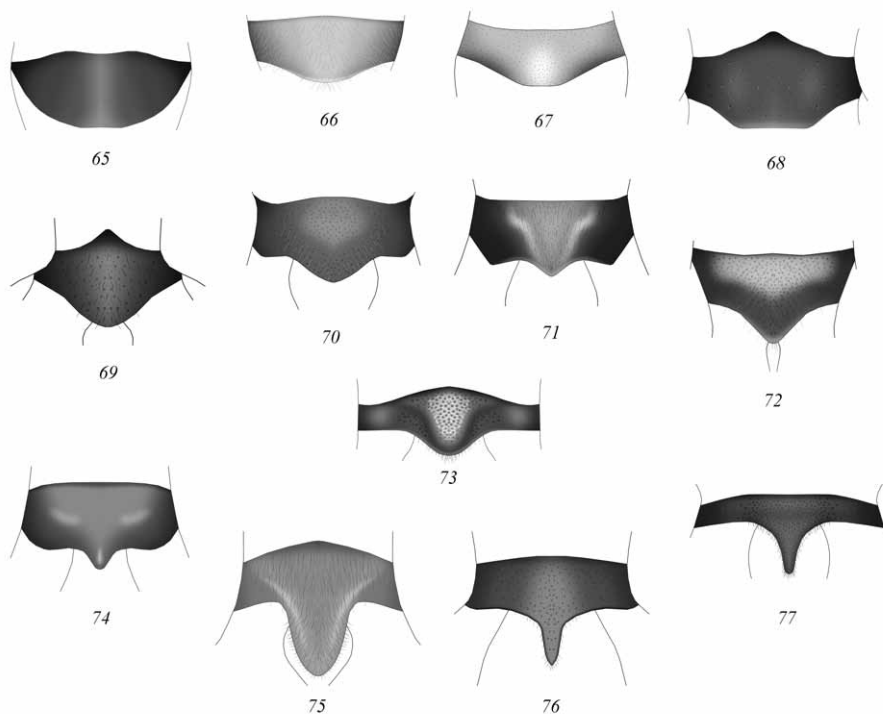


Fig. 65-77: Hypopygium of males of Amblytelina genera: (65) *Ctenichneumon funereus*, (66) *Amblyteles armatorius*, (67) *Fileanta radoszkowskii*, (68) *Triptognathops gobiensis*, (69) *Achaisus oratorius* (70) *Hepiopelmus melanogaster*, (71) *Limerodops elongatus*, (72) *Diphyus amatorius*, (73) *Tricholabus strigatorius*, (74) *Limerodes arctiventris*, (75) *Eutanyacra crispatoria*, (76) *Spilichneumon occisor*, (77) *Triptognathus uniguttatus*.

Sternites

Sternites in genera of subtribe Amblytelina have tendency to more stronger sclerotization than in other subtribes of Ichneumonini. Sternites of females of some species of *Ctenichneumon* are sclerotized in a maximal degree – all sternites without a longitudinal fold. Only 2nd sternite with a fold is in a number of species of *Diphyus*, in *Limerodops* (*elongatus* BRISCHKE) and species of *Triptognathops*. Sternites 2nd and 3rd are with longitudinal fold (plica) in *Achaisusoides*, parts of *Diphyus*, parts of *Eutanyacra* and *Spilichneumon* and females of *Triptognathus*. In females of *Achaisus* 2nd sternite is un-

sclerotized on the larger part, and 3rd – medially. In genus *Hepiopelmus* 2nd sternite is completely unsclerotized, and sternites 3-4 on the larger part. In a number of genera, females are with a longitudinal fold on sternites 2-4 (*Bureschias*, *Eutanyacra* (*crispatoria* L.), *Limerodops* (*unilineatus* GRAV.), *Obtusodonta*, *Tricholabus*). In genus *Amblyteles* sternites 2-3 are completely unsclerotized medially, and in *Limerodes* sternites 2-4 completely unsclerotized. The most number of sternites with a longitudinal fold is in females of genus *Fileanta* (2-5).

In males the longitudinal fold is often developed on greater number of sternites than in females (for example: *Eutanyacra* (2-4), *Spilichneumon* (2-4), *Triptognathus* (2-4)).

Proceeding from the described characters, abdomen of Amblytelina subtribe's representatives can be characterized in the following way:

A b d o m e n : Of females amblypygous, from broadly-oval to narrow, or almost parallel-sided or to elongated and strongly narrowed to apex. Middle field of postpetiolus more often striated or longitudinally-wrinkled, sometimes punctured, irregularly-wrinkled or smooth. Gastrocoeli comparatively small, only just marked or absent, narrower than interval between them, only in *Ctenichneumon* THOMSON and *Tricholabus* THOMSON strongly impressed, and at the letter equal to interval between gastrocoeli; thyridia more often weak or absent, rarely, in *Achaius* CAMERON, *Achaiusoides* nov.gen. and *Hepiopelmus* WESMAEL to sharply expressed and short; tergites of abdomen usually slightly, rarely (*Ctenichneumon* THOMSON) medially, roughly sculptured. Hypopygium of females always without longitudinal fold, rarely compressed from sides, in males always not cut straightly apically, but elongated to apex of different degree with tendency to forming long, sharpened median process as in holarctic genera *Eutanyacra* CAMERON, *Spilichneumon* THOMSON and *Triptognathus* BERTHOUMIEU; sternites with tendency to more strong sclerotization than in another subtribes, therefore longitudinal fold developed only on sternites 2-3, sometimes only on sternite 2, or absent at all. In some genera and also in males, longitudinal fold can be developed on greater (to 5th) number sternites.

On the basis of the considered characters, the key to Palaearctic genera of subtribe is offered below. We have included to the key two genera with doubtful subtribal belonging, included in subtribe Amblytelina by some authors – *Acolobus* WESMAEL (VALEMBERG 1983, 1986) and *Hybophorellus* SCHULZ (HEINRICH 1962; RASNITSYN 1981). We consider the first genus, as belonging with most reasons to subtribe Cratichneumonina, and the last – to Hoplismenina. In the key they are marked by «*». Relative to the genus *Probolus* WESMAEL, included by G. HEINRICH (1977) in Amblytelina, we hold with A. RASNITSYN, considering it in the tribe Eurylabini (RASNITSYN 1981). This point of view is being supported by us breeding a female of *Probolus culpatorius* (L.) from hibernating pupa of Noctuidae, contrary to most genera of Amblytelina.

Key to the genera of Amblytelina of Palaearctic

- 1 Clypeus extremely impressed comparatively to face with concave surface. Head profile from lateral angle-shaped with strong interantennal process. Sternites 2-4 with fold. Mandibles broad, slightly convex at middle with two equal teeth (fig. 10). Middle field of postpetiolus sharply longitudinally striated 6. *Bureschias* HEINRICH 1936 (Palaearctic)
- Clypeus not impressed comparatively to face, if slightly impressed (some *Spilichneumon*), then without concave surface, lower tooth of mandible longer than upper one and sternite 4 without fold 2

- 2 Clypeus strongly convex in longitudinal and cross directions approximately to height of middle field of face. Mandible narrow, particularly at middle, the most part almost parallel-sided practically from base, with weak, moved inside lower tooth (as of *Platylabini*). Hypopygium of female very long, reach apex of abdomen. Propodeum with strong teeth. Hypopygium of male with slightly rounded apex, practically not extended; flagellum with oval tyloides *Hybophorellus* SCHULZ 1911* (Holarctic)
- Clypeus normal, flat or slightly convex 3
- 3 Clypeus with subapical denticle, with rounded or slightly emarginated front margin. Middle field of postpetiolus smooth 4
- Clypeus with straight front margin, without denticle. Middle field of postpetiolus smooth or with sparse punctures, irregularly-wrinkled or sharply longitudinally striated .. 5
- 4 Tergites 3-5 sharply transverse, abdomen compressed dorsoventrally. Thyridia sharp, transverse. Front margin of clypeus rounded *Acolobus* WESMAEL 1845* (Palaeartic)
- Tergites from above long, abdomen compressed from sides. Gastrocoeli and thyridia reduced, thyridia, if expressed, drop-shaped. Clypeus with thinned slightly emarginated front margin and sharp subapical denticle. Mandibles normal, slightly narrowed to apex (fig. 8). Postpetiolus smooth, rounded from above, without expressed middle field (fig. 52) 1. *Limerodes* WESMAEL 1845 (Palaeartic)
- 5 Propodeum with strong, curved upwards apophyses (fig. 32, 35). Mandibles narrow, with two teeth (fig. 5). Middle field of postpetiolus of females more often sharply longitudinally striated (fig. 63), of males from sharply longitudinally-wrinkled to densely wrinkly-punctured. Body with rich yellow pattern 12. *Amblyteles* WESMAEL 1845 (Palaeartic)
- Propodeum without strong, curved upwards apophyses, with or without teeth, or with broadenings of carinae of different modifications in apices of areae dentiparae 6
- 6 Middle field of postpetiolus not sharply longitudinally striated, smooth or with sparse smoothed punctures, rarely slightly irregularly wrinkled. Thyridia distinct. Scutellum of females distinctly or high elevated above postscutellum (fig. 20, 25, 27, 28) 7
- Middle field of postpetiolus or sharply longitudinally striated, or longitudinally-wrinkled, rarely irregularly-wrinkled in males (*Eutanyacra*). Thyridia weak or absent. Scutellum usually slightly elevated above postscutellum, rarely strongly elevated (*Ctenichneumon*, *Limerodops*) 10
- 7 Gastrocoeli large, deep, thyridia developed. Propodeum without teeth and broadened carinae at apices of area dentiparae. Hind tibiae without white rings. Sternites 2-4 with longitudinal fold or unsclerotized on the larger part 8
- Gastrocoeli not deep or superficial. Areae dentiparae at apex with small teeth (fig. 27, 33) or propodeum at apices of areae dentiparae extended to broad teeth-like projections (fig. 28, 34). Hind tibiae with white rings. Only sternites 2-3 of females with longitudinal fold 9
- 8 Gastrocoeli and thyridia narrower than interval between them. Basal area with tubercle. Mandibles normal, upper tooth distinctly longer than lower one (fig. 7). Middle field of postpetiolus distinct, smoothed, often with median impression (fig. 50), in males wrinkled. Sternites 2-4 usually unsclerotized on the larger part. Hypopygium of males without narrow long process (fig. 70) 3. *Hepiopolmus* WESMAEL 1845 (Palaeartic, Oriental Region)
- Gastrocoeli and thyridia wider than interval between them, gastrocoeli very deep. Basal area without tubercle. Mandibles strong with two teeth, upper considerably longer than lower one. (fig. 3). Middle field of postpetiolus slightly elevated and not carinated, indistinct, without impression (fig. 51). Front tergites of abdomen with strong constrictions between them. Sternites 2-4 with longitudinal fold. Hypopygium of females from below long, triangle with acute apex and membranous hind margin; hypopygium of males with extended central part apically and characteristic knoll-shaped swelling at apex (fig. 73) 2. *Tricholabus* THOMSON 1894 (Palaeartic)

- 9 External carina of area dentipara not changing direction transform to short tooth (denticle) (fig. 27, 33). Area superomedia of females elongated without costulae (fig. 33). Second segment of maxillary palps not hypertrophied. Mandibles normal, narrow, upper tooth longer than lower one (fig. 1). Surface of head, thorax and base of abdomen dull in considerable extent. Hypopygium of males extended to apex, but without narrow long process (fig. 69) 4. *Achaius* CAMERON 1903 (Palaeartic, Oriental Region)
- Propodeum at apices of areae dentiparae extended to broad teeth-like projections (fig. 28, 34). Area superomedia transverse (fig. 34). Second segment of maxillary palps hypertrophied, triangular. Mandibles rather short, with long upper tooth and short, flattened with rounded apex lower one (fig. 4) 5. *Achaiusoides* gen.nov. (East Palaeartic)
- 10 Mandibles with two teeth 11
- Mandibles with one tooth, or only just rudiment of lower one (notch) (fig. 13-16) 15
- 11 Gastrocoeli deeply impressed with strong arcuate interspace between them, thyridia fully absent. Anterior tergites of abdomen with strong constrictions between them. Propodeum strongly convex in profile (fig. 21). Mandibles from narrow to moderately broad and parallel-sided at central part (fig. 2), upper tooth sharp, longer than lower one. Flagellum of males ribbed practically from base. Hypopygium of males gradually narrowed from base to apex, without triangle projection at centre of apical part and long apical process (fig. 65) 10. *Ctenichneumon* THOMSON 1894 (Holarctic, Oriental, Neotropical Regions)
- At deep gastrocoeli thyridia developed to some extent or rudimentary, interspace between them not arcuate. Anterior tergites of abdomen without strong constrictions between them. Mandibles from normal (fig. 6, 9) to modified in different extent (fig. 11, 12). Hypopygium of males with triangularly protruding central part at apex (*Limerodops*, *Diphyus*) (fig. 71, 72) to long apical process (*Eutanyacra*, *Spilichneumon*) (fig. 75, 76) 12
- 12 Mandibles of females or with blunted and flattened apical tooth (*Eutanyacra*) (fig. 12), or strong, swollen at central part, with tendency to blunting and shortening of teeth (*Spilichneumon*) (fig. 11), rarely normal (*Eutanyacra rasnitsyni* HEINRICH, *Spilichneumon celenae* PERKINS). Hypopygium of males with long median process at apex (fig. 75, 76) 13
- Mandibles of females and males normal, gradually narrowed to apex, with long upper tooth and shortened lower one (fig. 6, 9). Hypopygium of males without long process at apex (fig. 71, 72) 14
- 13 Hypopygium of females with bunch of long stiff bristles at apical part. Propodeum shortened (fig. 24). Apex of abdomen slightly compressed from sides, apical tergites sometimes retracted. Area superomedia usually wider than length, sometimes square. Middle field of postpetiolus distinctly expressed and in females longitudinally striated (fig. 54), in males more often irregularly-wrinkled 11. *Eutanyacra* CAMERON 1903 (Holarctic, Oriental Region, Australia)
- Hypopygium of females without bunch of long stiff bristles at apical part. Horizontal part of propodeum usually longer, or at least only just shorter declivous one (fig. 18). Area superomedia nothing wider than length, elongated (fig. 45), rarely square. Abdomen with tendency to elongation, apical tergites not retracted. Middle fields of postpetiolus longitudinally striated (fig. 56), in females slightly marked, in males distinctly elevated 7. *Spilichneumon* THOMSON 1894 (Holarctic, Oriental Region)
- 14 Abdomen of females strongly elongated and more often narrowed to apex, of males narrow, elongated, but parallel-sided. Tergites 2-3 longer than width. Tergites 4-7 of abdomen of most species laterally bending far onto the ventral side, thus transforming the apical part of abdomen into a pipe. Tergite seventh is very long, bending in profile downwards 8. *Limerodops* HEINRICH 1949 (Holarctic)

- Abdomen usually more wide, tergite 3-6 not elongated. Tergite 7 of normal size, not bending in profile downwards 9. *Diphyus* KRIECHBAUMER 1890
(Holarctic, Oriental and Ethiopian Regions)
- 15 Mandibles with rudiment of lower tooth, in females of shovel-shaped (fig. 13), in males with pointed apex. Ocelli of males increased. Hypopygium of females not fully overlaps ovipositor slit, of males without long process. Body with reach red pattern 13. *Obtusodonta* HEINRICH 1962
(Holarctic)
- Mandibles of females and males with pointed apex, without rudiment of lower tooth or notch (fig. 14-16) 16
- 16 Sternites 2-5 with fold. Middle field of postpetiolus from longitudinally wrinkle-punctured to sharply longitudinally striated. Tergites 2-3 densely punctured, dull. Head strongly almost straightly narrowed downwards and backwards. Occipital carina far not reach hypostomal carina, with impression between it and high abscissula. Hypopygium of male slightly extended, without long process (fig. 67) 14. *Fileanta* CAMERON 1901
(Palearctic, Oriental Region)
- Sternites 5 always without fold. Middle and lateral fields of postpetiolus of females sharply longitudinally striated. Surface of tergites 2-3 very densely and indistinctly punctured with slight shine. Occipital carina merged with hypostomal one, not reduced at lower part 17
- 17 Propodeum with long and sharp teeth. Head strongly narrowed downwards and backwards with very high elevated and bent upwards occipital carina. Hind femora long and slender (thin). Areolet with narrow base. Only sternite 2 can be with fold. Hypopygium of males at apex without long process, with cut apex, trapeziform (fig. 68) 16. *Triptognathops* HEINRICH 1978
(Palearctic)
- Propodeum without teeth, only with broadened carinae on theirs place. Head more slightly narrowed downwards and strongly, almost straightly or roundly backwards. Occipital carina not bent upwards. Hind femora not thinned. Areolet with wide base. Hypopygium of males with long process (fig. 77) 15. *Triptognathus* BERTHOUMIEU 1904
(Palearctic)

Biology and ecology:

Hosts

Ichneumon flies of Amblytelina subtribe, having amblypygous abdomen oviposit eggs in the hosts at the stage of a caterpillar and thus, are predominately caterpillar-pupal parasites. Proceeding from the critical analysis of a catalogue of B. HERTING (1976), with most full literary data about hosts and theirs parasites and the data from the article of A.P. RASNITSYN (1981), it is possible to say that 38 species of subtribe from 11 genera are connected in a theirs life cycle with 89 species of Lepidoptera from 9 families, mainly Noctuidae (tabl. 1).

On 70th species of Noctuidae 33 species of Amblytelina from 12 genera are registered. Correspondingly, 5 species from 4 genera are connected with 5 species of Lasiocampidae, 5 species from 5 genera – with 4 species of Geometridae, 3 species from 3 genera – with 4 species of Arctiidae, 3 species from 3 genera – with 4 species of Nymphalidae, 3 species from 2 genera – with 2 species of Sphingidae. Individual species of hosts are registered in families Lymantriidae, Saturniidae and Papilionidae. Individual species of parasites are also connected with them.

Table 1: Hosts of Amblytelina

Families of Lepidoptera	Numb. of species	Genera of Amblytelina (species)	Numb. of species
Arctiidae	4	<i>Triptognathus</i> (1), <i>Diphyus</i> (1), <i>Hepiopelmus</i> (1)	3
Geometridae	4	<i>Ctenichneumon</i> (1), <i>Diphyus</i> (1), <i>Eutanyacra</i> (1), <i>Amblyteles</i> (1), <i>Obtusodonta</i> (1)	5
Lasiocampidae	5	<i>Achaius</i> (1), <i>Amblyteles</i> (1), <i>Limerodops</i> (1), <i>Hepiopelmus</i> (1), <i>Ctenichneumon</i> (1)	5
Lymantriidae	1	<i>Limerodops</i>	1
Noctuidae	70	<i>Achaius</i> (1), <i>Amblyteles</i> (1), <i>Ctenichneumon</i> (7), <i>Diphyus</i> (12), <i>Eutanyacra</i> (3), <i>Hepiopelmus</i> (1), <i>Limerodes</i> (1), <i>Limerodops</i> (2), <i>Obtusodonta</i> (1), <i>Spilichneumon</i> (5), <i>Tricholabus</i> (1), <i>Triptognathus</i> (1)	33
Nymphalidae	4	<i>Amblyteles</i> (1), <i>Ctenichneumon</i> (1), <i>Diphyus</i> (1)	3
Papilionidae	1	<i>Ctenichneumon</i> (1)	1
Saturniidae	1	<i>Achaius</i> (1)	1
Sphingidae	2	<i>Ctenichneumon</i> (1), <i>Diphyus</i> (2)	3
Total:	89	12	38

Amblytelina in the Forest Zone of Eastern Europe

Abundance

Based on results of 20-years collectings by standard methods in the maximal possible number of ecosystems of Forest Zone it is established that Amblytelina by an abundance in the nature constitute 3,9 % from total Ichneumoninae Stenopneusticae. The integrated

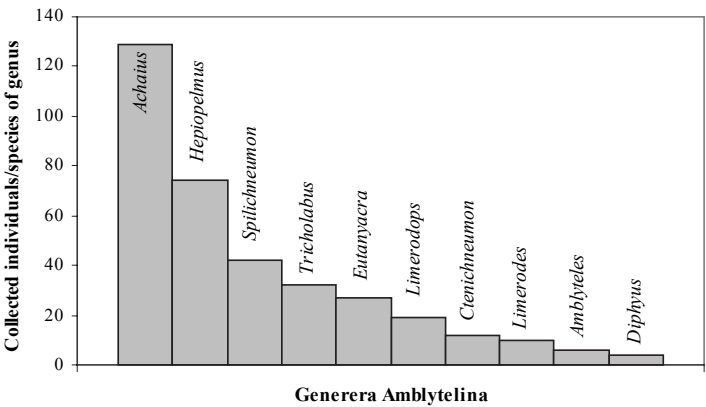


Fig. 78: Abundance of Amblytelina in the natural ecosystems of Forest Zone.

indicator of abundance in the nature (quantity of the collected individuals / quantity of revealed species of a genus) among genera of Ichneumoninae Stenopneusticae constitutes from 5 % for genus *Achaius* with insignificant number of species and with a considerable

abundance (4th place among genera of Ichneumoninae Stenopneusticae), up to 0,2 % at *Diphyus* with the greatest number more often rare species among genera of subtribe (60th place among genera of Ichneumoninae Stenopneusticae) (fig. 78).

Biological preference

Revealed species of Amblytelina are occurred both in forest, and in open (meadows and personal plots) ecosystems, preferring forest (84,1 and 15,9 % from total of the collected ichneumon flies accordingly) (tabl. 2).

Table 2: Biological distribution of Amblytelina.

Formations:	Pine forests	Spruce forests	Alder forests	Personal plots	Meadows	Oak forests	Mixed forests	Birch forests	Others
Total ind., %	58,7	10,7	9,8	9,1	6,8	3,0	0,8	0,6	0,5
Number of species	25	10	14	11	10	10	4	2	2

In the greatest quantity both on number of species and on abundance, species of Amblytelina are presented in forest biotopes (12 species and 72 % from total of the collected ichneumon flies). Among forest ecosystems the greatest quantity of Amblytelina is registered in forests of a pine formation – 58,7 % from total number of the collected ichneumon flies and 25 species. Species of genera *Ctenichneumon* (62 %), *Limerodes* (70 %) and *Tricholabus* (75 % from total number of collected individuals) are preferred open ecosystems.

Seasonal activity

One peak of seasonal activity (see below) that is peculiar, as a rule, to the species whose females hibernate on imaginal stage, is characteristic for all revealed representatives of subtribe. Seasonal activity of females begins in the end of April – the beginning of May, reaches at the majority of species of peak in July and ends in the beginning of October.

General activity of males has similar character with more sharply expressed peak of activity in July.

Table 3: Seasonal activity of Amblytelina.

Month	IV	V	VI	VII	VIII	IX	X	XI
Number of genera	2	8	9	11	9	9	6	2
Number of species	3	21	22	29	28	17	8	4
Females (%)	1,2	13,1	23,7	29,6	17,8	10,9	2,2	1,5
Males (%)		1,2	21,2	38,0	26,4	7,0	6,4	0,3
Total (%)		0,8	7,5	22,5	33,6	21,7	9,1	4,1

Hibernation

Hibernation of females is considered as one of characters, characterizing genera of

Ichneumoninae. The data about a finding of females on hibernation are known from the literature for genera *Amblyteles*, *Spilichneumon* (2), *Diphyus* (9), *Eutaniacra* (3), *Obtusodonta* (1), *Achaisus* (1), *Ctenichneumon* (5) and *Triptognathus* (1 species) (RASNITSYN 1964). For all long-term period, we have found hibernating females only from genera *Diphyus* (3), *Spilichneumon* (1) and *Limerodops* (1 species). At the same time for a number of genera, such as *Ctenichneumon*, there are the facts confirming the statements of G. HEINRICH (1961) that females of a genus do not hibernate (see below), along with data from the literature about a finding of hibernating females in 5 species of a genus (RASNITSYN 1964).

Genera of Amblytelina

1. *Limerodes* WESMAEL

Limerodes WESMAEL 1884 - Mem. Acad. Bruxelles **18**: 111.

Type species: (*Ichneumon ophoniventris* WESMAEL) = *arctiventris* BOIE.

Limerodes: RASNITSYN 1981 - Opr. Faun. SSSR, **3**(3): 565, 623.

D i s t r i b u t i o n : Palaearctic.

I n t r o d u c t i o n :

Clypeus with denticle on front margin, abdomen strongly compressed from sides, like by shape to abdomen of ichneumon flies of ophonoid complex with atrophied gastrocoeli and thyridia with polished surface are characteristic for the genus. Propodeum is without apophyses and teeth, convex in profile with external carina of area dentipara that parallel to carina metapleuralis. Flagellum of females is long and thin, longer than front wing, coiled of dried samples; of males it is not ribbed (very slightly ribbed) with narrow tyloides.

M o r p h o l o g y :

F l a g e l l u m : Long, slender, strongly attenuated and pointed toward apex, behind middle not widened; flagellum longer than the front wing. Of males not ribbed ventrally (very slightly ribbed) with narrow light tyloides.

H e a d : Head contour from front rather slightly narrowed downwards; vertex from lateral almost straightly oblique behind ocelli; temples from above slightly roundly narrowed behind eyes, long; mandibles normal, theirs considerable part almost parallel-sided, upper tooth distinctly longer than lower one; clypeus with sharpened slightly emarginated front margin and median denticle; middle field of face distinctly convex and separated from clypeus and lateral fields by broad impressions.

T h o r a x : Mesonotum slightly convex, longer than width, notauli only just marked at base, surface of mesonotum densely punctured, with slight shine; sternaui in a form of slight impressions up to middle of mesopleurae; axillary tongue not expressed; scutellum of females slightly elevated above postscutellum, from above almost flat, laterally not carinated, of males more high elevated. Hind margin of metanotum with projections. Propodeum convex in profile, without sharp break with complete set of carinae; horizontal part of propodeum sorter than area posteromedia in middle; area superomedia indistinctly hexagonal, slightly elongated, narrowed and often rounded in front; areae dentiparae at apices without apophyses or teeth; external carina of area dentipara parallel to carina metapleuralis; spiracles long and narrow.

Legs: Long and slender. Hind coxae of females without scopa.

Wings: Areolet very big, pentagonal, symmetrical; nervulus postfurcal; radius slightly sinuous.

Abdomen: From above narrow, strongly compressed from sides, amblypygous, polished. Postpetiolus smooth, rounded from above, without expressed middle field. Gastrocoeli only in a form of slight longitudinal impression more distinctly expressed at males, thyridia practically not expressed, only at times in a form of slight punctiform impression; surface of tergites very delicately superficially punctured, polished. Sternites 2-4 strongly unsclerotized; hypopygium of females strongly compressed from sides with sharply pointed apex, at males from below with short apical process.

Coloration: Apical light pattern of abdomen absent. Tergites 1-3 (of males 1-4) and most part of legs red.

Size: Body length 10-13,5 mm

Biology and ecology:

Hosts: For a single species of genus *L. arctiventris* (BOIE) from the literature there are data on its breeding from 3 species of Noctuidae – *Oligia literosa* HW., *Photedes elymi* TR. and *Ph. minima* HW. (RASNITSYN 1981).

Species composition and abundance: Genus is presented by a single species – *L. arctiventris*. By abundance in collections, genus occupies 8th place among Amblytelina and 47th place among genera of Ichneumoninae St. in the region (10 individuals / 1 species of genus).

Biotopical distribution: *Limerodes* prefers open ecosystems. From forest ecosystems it is noted only in the nettle alder forests (Alnetum urticosum).

Seasonal activity and hibernation: Activity of females is registered only in September-October, of males – in July-September. Hibernating females are not found. Probably, the species has one generation during a season with hibernating females.

***Limerodes arctiventris* (BOIE) (Plate 1)**

Ichneumon arctiventris BOIE 1841 - Naturh. Tidsskr. **3**: 319, ♀, ♂.

Limerodes ophioniventris: WESMAEL 1844 - Nouv. Mém. Acad. Sci., Bruxelles **18**: 112.

Limerodes arctiventris: RASNITSYN 1981 - Opr. Faun. SSSR **3** (3): 623.

Female

Flagellum: Slender, bristle-shaped, with 45 segments, not flattened ventrally and practically not widened beyond middle, with traces of white annulus on segments 8-10(11) dorsally; first segment approximately 3 times longer than the width at apex, segment 13 square from lateral; segments of flagellum distinctly differentiated; flagellum of dried samples coiled. Flagellum 1,2 times longer than the front wing and 1,6 times shorter than body length.

Head: Head contour from front slightly narrowed downwards, only just transverse, only 1,1 times wider than height; malar space from front 4,3 times shorter than height of an eye (0,2); temples from front visible some higher of eye's base, genae from front narrowed almost straightly; head contour from above thick, 1,9 times wider than length in middle, slightly roundly narrowed backwards. Vertex from lateral rather straightly

sloping from hind border of ocelli to occipital carina; temples long, in the middle equal to longitudinal diameter of an eye, from middle parallel to hind margin of an eye, from above slightly, roundly narrowed behind eyes (convex); occipital carina sharp all round, from above slightly roundly impressed, far not reach level of eyes and hind ocelli; hypostomal carina not visible from lateral, occipital carina meeting with hypostomal carina before base of mandible; abscissula 1,3 times shorter than mandible base width; malar space equal to mandible base width; mandibles rather broad, upper tooth considerably longer than lower one, impression between teeth narrow; clypeus only just convex, 3,2 times wider than length, with slightly emarginated and thinned front margin, middle denticle and distinctly expressed lateral corners, slightly impressed at apex, separated from middle field of face by slight broad impression; clypeal foveae big, deep; labrum short, triangle, narrower than front margin of clypeus; middle field of face distinctly elevated, narrower than lateral fields, separated by slight impressions; antennal cavities not big, moderately impressed, reach borders of eyes and far not reach front ocellus level, without tubercles laterally and with slight interantennal tubercle; margins of antennal fossae distinctly elevated above face surface; ocelli of normal size, distinctly convex, diameter of lateral ocellus 1,4 times less than distance from ocellus to eye; ocellar triangle almost not expressed. Surface of face and clypeus with exception of apical part in middle with big punctures, upper part of face wrinkly-punctured between middle and lateral fields, face and clypeus shining without microsculpture; frons punctured, temples smoothly, superficially punctured, polished.

T h o r a x : Collar of pronotum rather long, from above with rounded front margin; transverse furrow of pronotum rather deep; pronotal ridge not swollen; epomiae sharp, high; pronotal base sharply and gradually curved; lateral surface of pronotum wrinkly-punctured, polished. Mesonotum slightly convex, 1,2 times longer than width; notauli only in a form of only just visible impressions at base; lateral furrow of mesonotum behind tegulae very deep; surface of mesonotum densely punctured, punctures almost merge, with microsculpture between punctures, with slight shine; axillary tongue not developed; prepectal carina upwardly not reach front margin of mesopleurae; subalarum high, narrow, but not sharpened; speculum smooth on the larger part, shining; mesopleural fovea sharp, area around it narrowly impressed; mesopleural suture straight, deep, interrupted by sharp ribs in lower third; mesopleurae at bottom without distinct bend; sternauli in a form of very slight impressions up to middle of mesopleurae; mesopleurae densely punctured by big punctures, shining; scutellum slightly elevated above postscutellum, from above almost flat, gradually slanted to postscutellum, not carinated laterally. Hind margin of metanotum with triangular projections opposite of lateral longitudinal carinae. Propodeum from lateral convex without distinct break, length of horizontal part 1,3 times shorter than length of area posteromedia in middle; all carinae of propodeum except costulae and lateral carinae of area posteromedia, sharp; basal area deep; area superomedia indistinctly hexagonal, elongated, narrowed and rounded in front; costulae weak, situated in middle or behind middle of area superomedia; external carina of area dentipara parallel to metapleural carina, apices of areae dentiparae without teeth; spiracles long, narrow, along external contour 2,7 times longer than width. Horizontal surface of propodeum, except area superomedia, with big punctures, shining; surface of area superomedia with very slight indistinct wrinkling; metapleurae densely punctured by big punctures; propodeum shining.

L e g s : Slender. Claws gradually uniformly curved.

W i n g s : Areolet big, pentagonal, with wide base, symmetrical; stigma narrow, light;

radial cell narrow, long; radius very slightly sinuous; nervulus postfurcal; ramulus only just marked; all veins moderately dark to light in hind wing; membrane of wing hyaline. Front wing shorter than length of flagellum and considerably less than body length.

A b d o m e n : Amblypygous, from above narrow, long, compressed from sides, tergite 7 from above protrude on length of scutellum; second tergite long, at apex 1,7 times narrower than length in middle; sheath of ovipositor visible from above. First tergite from lateral with gradual transform of petiolus to postpetiolus, narrow at base, from lateral not bordered by carinae; from above petiolus gradually widened to rounded postpetiolus; distance between spiracles 1,5 times more than distance from spiracles to hind margin of tergite; middle field of postpetiolus not expressed, only just marked at apex; surface of first tergite not sculptured, polished. Gastrocoeli in a form of indistinct narrow longitudinal lateral impression, sometimes with thyridia in a form of only just marked rounded punctiform impressions at their apices; lunulae big, in a form of unsculptured impression in the middle of lateral surface of tergite; surface of second tergite densely punctured by superficial punctures, polished; other tergites with very delicate superficial punctures, shining. Hypopygium from lateral with sharp apex, strongly compressed from sides; sternites, except fifth, strongly unsclerotized.

C o l o r a t i o n : Head black with narrowly reddish frontal orbits; thorax entirely black except brownish collar and white scutellum; tergites 1-2 of abdomen and tergite 3, except apex, red, other tergites black or brownish black; legs, except coxae and trochanters 1, red, hind femora and tibiae darkened at apex.

S i z e : Body length: 12,5; front wing: 6,9; flagellum: 8,0 mm.

M a l e

Flagellum of male with long row of narrow bacilliform tyloides on segments 6-16(17), very slightly ribbed on side opposite tyloides, without white annulus, brownish-red; scutellum more elevated; hypopygium with short apical process. White coloration more rich: scapus ventrally, mandibles, labrum, face entirely, frontal orbits up to middle, collar of pronotum, tegulae, subalarum, scutellum and postscutellum. Tergite 4 of abdomen red on the larger part. Front coxae with white spot; hind femora darkened on the larger part.

2. *Tricholabus* THOMSON

Tricholabus THOMSON 1894 - Opusc. Ent., **19**: 2103, 2113.

Type species: *Tricholabus femoralis* THOMSON.

Tricholabus: HEINRICH 1961 - Can. Ent., Suppl. **23**: 387-388.

Tricholabus: HEINRICH 1977 - Ichn. Florida and Neighb. States, **9**: 93-94.

Tricholabus: RASNITSYN 1981 - Opr. Faun. SSSR **3** (3): 564, 623-624.

D i s t r i b u t i o n : Holarctic and Neotropical Region.

I n t r o d u c t i o n :

Genus *Tricholabus* THOMSON occupies uncertain taxonomic position. Such characters as rather convex scutellum, convex horizontal part of propodeum, amblypygous abdomen and practically not sculptured postpetiolus are making it closer to Platylabini. Sloped propodeum with parallel lateral longitudinal carina and carina metapleuralis is characteristic to representatives of Protichneumonini and to genus *Lymantrichneumon* HEINRICH (Ichneumonina). A. RASNITSYN (1981) refers it conventionally to Amblytelina subtribe on the base of the morphology of males and females hypopygium. At the same time, smooth

unstriated postpetiolus, deep gastrocoeli with developed thyridia and slight sclerotization of sternites of abdomen contradict to this concept. Moreover, habitually, with exception of amblypygous abdomen and apical bands on apex of abdomen, the genus is similar to *Ulesta* CAMERON (Ichneumonina), particularly to *Tricholabus coreanus* (Uchida) **stat. nov.** (= *Tricholabus strigatorius coreanus* (Uchida)) species from Russian Far East with strong constrictions between front tergites of abdomen of females.

M o r p h o l o g y :

F l a g e l l u m : Bristle-shaped, slender, strongly attenuated to apex, only just widened beyond middle and in females only just flattened. Flagellum of females and males with white semiannulus. Flagellum of males ribbed ventrally practically from the base, without tyloides.

H e a d : Contour of head from front strongly roundly narrowed downwards; temples behind eyes from above roundly narrowed in a hind half. Occipital carina from above deeply and roundly impressed, merge with hypostomal carina on mandible base (in contrast to other genera of the subtribe); mandibles rather short and broad with two teeth, upper considerably longer than lower one; malar space sharply separated from the lateral fields of face; clypeus with straight front margin and thickened, oblique lateral margins, practically not separated from the middle field of face by impression.

T h o r a x : Mesonotum moderately convex, longer than width; notauli only just marked at base; subalarum high, moderately thick, not sharpened; sternauli only just marked at base; scutellum rather high elevated above postscutellum, convex, not carinated laterally and gradually sloped to postscutellum. Hind margin of metanotum with projections. Propodeum in profile roundly convex; coxal carina absent, costulae absent (European species) or present; basal area long; area superomedia hexagonal, from middle narrowed and rounded anteriorly, elongated; areae dentiparae at apices without teeth with external carina almost parallel to carina metapleuralis; spiracles not great, narrow.

L e g s : Slender, long, hind coxae of females without scopa; claws of all the legs, smooth, thin, gradually curved.

W i n g s : Areolet pentagonal with broad base; radius slightly sinuous; nervulus postfurcal; membrane of wing hyaline.

A b d o m e n : Of females amblypygous, narrow. Middle field of postpetiolus with rare sparse, punctures, slightly elevated and not carinated. Gastrocoeli large, very deep, almost not oblique, with equal width and length; thyridia sharp, equal or wider than interval between them. Sternites 2-4 of abdomen strongly unsclerotized with sharp longitudinal fold (plica); hypopygium of females from below long, triangular with acute apex and membranous hind margin; hypopygium of males with extended apex and characteristic knoll-shaped swelling on it.

C o l o r a t i o n : Body of European species black with red 1-3rd tergites of abdomen (in East Palaearctic to entirely black) and white apical bands on tergites 4-7. Legs black or red.

S i z e : 10-12 mm.

B i o l o g y a n d e c o l o g y :

H o s t s : For *T. strigatorius* (GRAV.) the 3 species of Noctuidae are known as the hosts – *Heliothis virescens* HUFN., *H. dipsacea* L. and *Callistege mil* CL. (TOWNES et al 1965; RASNITSYN 1981).

Species composition and abundance: The genus is presented in region of researches by only one species – *T. strigatorius* (GRAV.). By abundance in the collections, the genus is on 4th place among Amblytelina and on 24th place among genera of Ichneumoninae St. in the region. (32 individuals / 1 species of genus).

Biotopical distribution: Genus prefers open ecosystems (meadows and personal plots) – 75 % from collected individuals. From forest ecosystems, it is registered in pine, oak and alder forests.

Seasonal activity and hibernation: Activity of both males and females of *T. strigatorius* is observed since June till September. Males have two peaks of activity in June and September accordingly, that allows to suppose presence of two generations. Hibernating females of *Tricholabus* are not found during of all period of investigations.

***Tricholabus strigatorius* (GRAVENHORST) (Plate 2)**

Ichneumon strigatorius GRAVENHORST 1829 - Ichneumonologia europaea 1: 352.

Tricholabus strigatorius: THOMSON 1894 - Opusc. Ent. 19: 2113.

Tricholabus strigatorius: PERKINS 1960 - Roy. Ent. Soc. London 7, 2 (aii): 207.

Tricholabus strigatorius: RASNITSYN 1981 - Opr. Faun. SSSR 3 (3): 623-624.

F e m a l e

Flagellum: Slender, bristle-shaped, with 45 segments, black with white semianulus on segments (9)8-12(13), behind white annulus slightly broadened and fattened ventrally; first segment 2,5 times longer than the width at apex, last but one segment elongated. Flagellum 1,2 times longer than front wing and 1,5 times shorter than body length.

Head: Head contour from front strongly roundly narrowed downwards, transverse, 1,2 times wider than height; genae (malar space) 5 times shorter than height of an eye (0,2); head from above slightly transverse, 2,7 times wider than length in middle, but 1,7 times than along an external contour. Vertex from lateral straightly slanting down to occipital carina from hind ocelli; temples rather long, in middle approximately equal to longitudinal diameter of an eye, from above roundly narrowed behind eyes, from lateral parallel to hind margin of an eye; occipital carina sharp at all distance, from above deeply roundly impressed, but not reach level of eyes and hind ocelli, merged with hypostomal carina on mandible base; length of genae equal to mandible base width; mandibles rather short and broad, evenly narrowed to apex, with two teeth, lower tooth considerably shorter than upper one and slightly moved inside; clypeus transverse, 2,1 times wider than length, slightly convex at base with straight front and thickened and oblique lateral margins, practically not separated from face by impression; clypeal foveae sharp, deep, round; labrum roundly-triangular, narrower than front margin of clypeus; middle field of face only just elevated above lateral fields, equal by width to lateral fields in middle; antennal cavities not large, but deeply impressed, without lateral tubercles and with very small tubercle between antennal fossae, far not reach front ocellus level; front margins of antennal fossae sharply elevated above lateral fields of face; frons above antennal cavities slightly concave; ocelli of normal size, diameter of lateral ocellus only just lesser than distance from ocellus to eye; ocellar triangle expressed, distinctly elevated. Surface of head punctured by superficial punctures, upper part of face slightly transversely wrinkly-punctured, shining.

T h o r a x : Collar of pronotum short with rounded front margin, transverse furrow deep and broad; epomiae strong; pronotal ridge not thickened; pronotal base almost straight, lower corner of pronotum very acute. Mesonotum moderately convex, longer than width, laterally bordered by sharp impression; notauli impressed only at base; axillary tongue developed; surface of mesonotum with large punctures, shining, without microsculpture; prepectal carina sharp, high elevated; subalarum high, moderately thick, not sharpened; surface of speculum sculptured by large punctures as other part of mesopleurae, polished; mesopleural foveae small and deep, area of mesopleural fovea moderately narrowly impressed; lower part of mesopleurae not separated angularly; sternauli only just expressed at base; mesopleural suture straight, deeply impressed, interrupted by sharp ribs; upper part of mesopleurae under subalarum with big punctures, lower one with more dense punctuation to slightly longitudinally-wrinkled without microsculpture, shining; scutellum quite high elevated above postscutellum, convex, not carinated laterally, gradually slanted to postscutellum, horizontal part with sparse superficial punctures. Hind margin of metanotum with narrow triangular projections opposite lateral longitudinal carinae. Propodeum from lateral roundly convex (gradually curved backwards), its horizontal surface strongly convex, 1,2 times shorter than area posteromedia in middle; carinae of propodeum sharp with exception of slightly developed carina limiting area superomedia in front; costulae and coxal carinae absent; basal area long, without tubercle; area superomedia hexagonal, from middle narrowed and rounded in front, elongated, 1,4 times longer than width in middle; lateral longitudinal and pleural carinae parallel as in *Lymantrichneumon* HEINRICH and Protichneumonini; spiracles not great, but long, approximately 2,5 times longer than width; surface of propodeum except basal area and area superomedia punctured by large punctures to wrinkled, shining, without microsculpture.

L e g s : Slender and long; claws of all the tarsi smooth, thin, gradually curved.

W i n g s : Areolet pentagonal with broad base, practically symmetrical; stigma narrow, light; radial cell narrow and long; radius slightly curved; ramulus distinct; nervulus postfurcal; nervellus of hind wing strongly reclival. All veins of both of wings developed; membrane of wing hyaline. Front wing 1,8 times shorter than body length and almost equal by length to flagellum.

A b d o m e n : Of female amblypygous, from above narrow, parallel-sided on considerable extent, with distinct constrictions between 2-5 tergites; second tergite only just longer than width at apex. First tergite from lateral almost straight with gradual transform to postpetiolus; dorsal and dorsolateral carinae only just visible, only ventrolateral carina expressed; lateral surface of petiolus smoothed, shining with slight wrinkling; petiolus narrow, from above gradually but sharply transform to postpetiolus; middle field of postpetiolus not expressed; surface of postpetiolus with indistinct sparse punctures, smooth, shining. Gastrocoeli large, very deep, almost not oblique; thyridia sharp, equal to interval between them; lunulae slight but distinct; second tergite densely punctured by quite large punctures. Sternites 2-4 strongly unsclerotized with sharp longitudinal fold; hypopygium from below long triangular with sharp apex and membranous hind margin.

C o l o r a t i o n : Body black with red tergites 1-3 of abdomen; white or yellow: upper frontal (not vertical) spots, interrupted stripe on collar of pronotum, apical bands on tergites 4-7 of abdomen. Legs black, apices of front and middle femora, tibiae and tarsi red, hind tarsi darkened.

S i z e : Body length: 10,8; front wing: 6,0; flagellum: 7,0 mm.

Male

Flagellum ribbed from first segments, with white semiannulus and without tyloides. By coloration similar to female with additional white stripe on external orbits and fully white seventh tergite of abdomen; base of first tergite darkened. Hypopygium apically with triangularly extended central part and characteristic knoll-shaped swelling at apex. Oedeagus at apex with sharp hook.

3. *Hepiopelmus* WESMAEL

Hepiopelmus WESMAEL 1844 - Nouv. Mém. Acad. Sci., Bruxelles 18: 111.

Type species: (*Ichneumon leucostigmus* GRAVENHORST) = *melanogaster* GMELIN.

Hepiopelmus: HEINRICH 1974 - Ann. Zool. Wars. **31** 5: 410-412.

Hepiopelmus: RASNITSYN 1981 - Opr. Faun. SSSR **3** (3): 568, 618, 620.

Distribution: Palaearctic, Oriental Region (highland).

Introduction:

A considerable unsclerotization of front sternites, usually 2-4th, of abdomen is characteristic for the species of the genus. Mesonotum is densely punctured, dull, scutellum is high elevated above postscutellum. Propodeum is without apophyses and distinct teeth, area basalis, at least of European species is with tooth (denticle). Middle field of postpetiolus is not striated, smooth, impressed in middle, at place of impression with indistinct punctures to wrinkled in males. Distinctly impressed gastrocoeli with distinct short thyridia are characteristic to the genus. Hypopygium of males is without narrow long process.

Morphology:

Flagellum: Long, slender, strongly attenuated and pointed toward apex, behind middle not widened; in males ribbed ventrally with distinct tyloides.

Head: Head contour from front rather strongly uniformly narrowed downwards, vertex from lateral almost straightly sloping behind ocelli; temples from above strongly roundly to almost straightly narrowed behind eyes, long; mandibles normal, upper tooth longer than lower one; middle field of face slightly elevated and separated by slight impressions from clypeus and lateral fields.

Thorax: Mesonotum moderately convex, usually longer than width, notauli only just marked at base, surface of mesonotum punctured, dull in European species; sternauli in European species developed up to middle of mesopleurae; scutellum high elevated above postscutellum, laterally not carinated, with smooth dorsal surface, steeply sloped to postscutellum. Hind margin of metanotum with projections. Propodeum angle-shaped with complete set of carinae (sometimes lateral carinae of basal area not developed); horizontal part of propodeum shorter than area posteromedial in middle; basal area of palaearctic species with tubercle; area superomedial approximately square or narrowed backwards; areae dentiparae at apices without apophyses or teeth; spiracles long, slit-shaped.

Legs: Long and rather slender. Hind coxae of females without scopa.

Wings: Areolet pentagonal; nervulus interstitial or postfurcal; radius straight or slightly sinuous at apex.

Abdomen: From above oval, amblypygous. Postpetiolus as described in introduction, smooth, not striated. Gastrocoeli big, deep with distinct thyridia; surface of tergites 2-3 densely and delicately punctured to delicately wrinkly-punctured at middle part of

2nd tergite. Sternites 2-4 usually unsclerotized on the larger part; hypopygium ventrally with slightly elongated rounded apex. Hypopygium of males with extended apex.

C o l o r a t i o n : Apical light pattern of abdomen absent. European species from almost completely black (*H. melanogaster* GMELIN) to black with rich yellow spots (*H. variegatorius* PANZER).

S i z e : Palaearctic species 13-17 mm.

B i o l o g y a n d e c o l o g y :

H o s t s : For two species of genus from the literature the following data about hosts are known: *H. melanogaster* (GMEL.) – *Philudoria potatoria* L. (Lasiocampidae), *Simyra albovenosa* GOEZE (Noctuidae); *H. variegatorius* (PANZ.) – *Spilarctia lutea* HUFN. (Arctiidae) (RASNITSYN 1981).

S p e c i e s c o m p o s i t i o n a n d a b u n d a n c e : The genus is presented in region of researches by only one mass species – *H. melanogaster* (GMELIN). Abundance of this species in the nature (quantity of the collected individuals / quantity of revealed species of a genus) leads it to the 2nd place according to indicator of abundance among Amblytelina and on 10th place among genera of Ichneumoninae St. in the region (74 individuals / 1 species of genus). Ratio of females : males in the nature is 1:4.

B i o t o p i c a l d i s t r i b u t i o n : The genus is presented in the majority of the forest ecosystems and very rare in open ones (personal plots). 86 % from total number of collected specimens are focused on coniferous forests – pine forests (49 %) and spruce forests (37 %). In leaf wood and mixed forests they are being met individually, completely being absent in birch forests. In the greatest quantity it is presented in wood sorrel spruce forests (*Piceetum oxalidosum*) and polytric pine forests (*Pinetum pleuroziosum*).

S e a s o n a l a c t i v i t y a n d h i b e r n a t i o n : Activity of *H. melanogaster* females is observed from the middle of June to the middle of September with peak of activity in August. Dynamics of seasonal activity of males has similar character with peak in July-August. Activity of females in the early spring and in the late autumn, as in the species hibernating at a stage of imago is not registered. Despite of considerable abundance of a species in the nature, hibernating females of *Hepiopelmus* was not possible to find, even in characteristic for the species ecosystems. These facts indicate that species of the genus do not hibernate as adult.

***Hepiopelmus melanogaster* (GMELIN) (Plate 3)**

Ichneumon melanogaster GMELIN 1790 - Linné: Systema Naturae ..., Ed. 13 1 (5): 2678.

Hepiopelmus melanogaster: HEINRICH 1974 - Ann. Zool. Wars. 31: 412.

Hepiopelmus melanogaster: RASNITSYN 1981 - Opr. Faun. SSSR 3 (3): 620.

F e m a l e

F l a g e l l u m : Bristle-shaped, with 55 segments, strongly attenuated to apex, first segment comparatively short, 2,2-2,5 times longer than width at apex, with white annulus on segments 9-16(17), practically not widened and very slightly flattened ventrally beyond white annulus; segments elongated slightly, already segment 9 square from lateral. Flagellum equal by length to front wing and 1,4 times shorter than body length.

H e a d : Head contour from front moderately narrowed downwards, only just transverse, only 1,1 times wider than height; genae from front visible to lower forth of an eye,

genae length from front (malar space) 3,1 times shorter than height of eye (0,3); head contour from above transverse, 2,4 times wider than length in middle, but 1,7 times than along an external contour. Vertex from lateral linearly sloping from hind border of ocelli to occipital carina; temples long, approximately equal to longitudinal diameter of an eye at middle, parallel to hind margin of an eye, from above slightly roundly narrowed backwards behind eyes; occipital carina sharp all round, from above deeply and roundly impressed, but not reach level of eyes and hind ocelli; hypostomal carina not visible from lateral, occipital carina meeting with hypostomal carina before base of mandible; abscissula 2,5 times shorter than mandible base width, malar space equal by length to mandible base width; mandibles evenly narrowed from base to apex, with very long upper tooth and weak lower one, separated by narrow impression; clypeus slightly convex, 2,3 times wider than length, with straight front margin and rounded lateral corners, only just visible separated from face by very slight impression; clypeal foveae deep; labrum narrow roundly-triangular, only just protrude from under clypeus, with long pubescence along front margin; middle field of face distinctly elevated above lateral fields, in middle equal to lateral fields width; antennal cavities deeply impressed, merged, almost reach borders of eyes and far not reach front ocellus level, with polished surface, laterally above antennal fossae with tubercles and with smoothed interantennal tubercle; margins of antennal fossae high elevated above face surface; ocelli of normal size, strongly convex, diameter of lateral ocellus 1,2 times less than distance from ocellus to eye; ocellar triangle almost not expressed. Surface of clypeus with sparse smoothed punctures, middle field densely punctured by smoothed punctures, lateral fields with sparse smoothed punctures, frons above antennal cavities densely wrinkly-punctured, temples with only just visible punctures; surface of head without microsculpture, shining.

T h o r a x : Collar of pronotum from above rather short with rounded front margin; transverse furrow of pronotum shallow, narrow; pronotal ridge not swollen; epomia sharp; pronotal base gradually curved. Mesonotum moderately convex, only just (1,2 times) longer than width; notauli in a form of slight impressions at base; surface of mesonotum very densely punctured, matt (dull); axillary tongue only just marked, practically not developed; subalarum thin, sharpened; speculum shining with sparse punctures; mesopleural fovea sharply expressed, area of mesopleural fovea deeply impressed; mesopleural suture straight, deep, interrupted by sharp ribs; mesopleurae at bottom without sharp bend; sternauli in a form of indistinct impressions in front third; lower third of mesopleurae longitudinally-wrinkled, middle one wrinkly-punctured, upper – densely-punctured, area under subalarum wrinkled, surface of mesopleurae without microsculpture; scutellum triangle from lateral, high elevated, laterally not carinated. Hind margin of metanotum with broad triangular projections opposite of lateral longitudinal carinae. Length of horizontal part of propodeum 2 times less than length of area posteromedial in middle; all carinae of propodeum sharply expressed, with exception of lateral carinae of basal area; basal area short and deep with tooth; area superomedial quadrangular, approximately with equal breadth and length, narrowed backwards from costulae, costulae approximately at its middle; area dentipara at apices without tooth; spiracles long, slit-shaped, along external contour 3,4 times longer than width. Surface of propodeum, with exception of punctured first lateral field wrinkled, shining, without microsculpture, metapleurae smoothly wrinkly-punctured.

L e g s : Rather slender and long. Claws long, strongly and uniformly curved.

W i n g s : Areolet pentagonal, with broad base, asymmetrical, external vein of apex longer than internal one; stigma normal, dark; radial cell broad and long, radius slightly sinuous at apex; nervulus interstitial; ramulus not expressed; veins dark; membrane of wing hyaline. Front wing equal by length to flagellum and shorter than body length.

A b d o m e n : Amblypygous, from above broadly-oval, sometimes to drop-shaped, apical tergites not hidden; second tergite transverse, at apex 1,2 times wider than length; sheath of ovipositor only just visible protrude. First tergite from lateral with distinct bend between petiolus and postpetiolus; ventrolateral carina sharp all round, dorsolateral one developed up to middle of postpetiolus; from lateral petiolus sculptured by smoothed transversal ribs; from above petiolus uniformly broadened to triangle postpetiolus; distance between spiracles many more than distance from spiracles to hind margin of tergite; middle field of postpetiolus distinctly but slightly elevated (high elevated at level of spiracles) and not carinated, wider than lateral fields, with impression in middle, its surface smooth with sparse smoothed punctures. Gastrocoeli deep, short; thyridia sharp, short, 1,5 times narrower than interval between them, slightly oblique; lunulae distinct, not big; interspace and surface of second tergite medially almost up to apex very densely and finely wrinkly-punctured, apically and laterally densely and delicately punctured, without microsculpture; tergite 3 up to middle very finely wrinkly-punctured, other smooth; tergite 6 with slightly membranous apical margin. Hypopygium from below almost rectangular with slightly protrude apex, not compressed from sides; hypopygium and adjoining parts of apical tergites with long brownish pubescence; sternite 2 unsclerotized completely, 3-4th on the larger part.

C o l o r a t i o n : Body black with slight white (yellow) pattern: lateral margins of clypeus, facial orbits upwardly, frontal orbits, collar and hind corners of pronotum and scutellum completely, sometimes spots at corners of postpetiolus; legs with exception of brown tibiae and tarsi black; first segment of hind tarsi ventrally white, 2-3rd with white annulus.

S i z e : Body length: 15,1; front wing: 10,9; flagellum: 11,0 mm.

M a l e

Flagellum of male ribbed ventrally with narrow oval tyloides on segments 8-18 and white semiannulus. Hypopygium apically with triangularly extended central part. White coloration more expanded: face with exception of middle field, clypeus with exception of middle, spots on front and middle coxae, apices of front and middle femora and tibiae from front, spots at corners of postpetiolus.

4. *Achais* CAMERON

Achais CAMERON 1903 - Ann. & Mag. Nat. Hist. **12**: 266.

Type species: *Achais flavobalteatus* CAMERON.

Achais: HEINRICH 1965 - Entomol. Ts. Agr. **86**, 1-2: 111.

Achais: RASNITSYN 1981 - Opr. Faun. SSSR **3** (3): 568, 618.

D i s t r i b u t i o n : Palaearctic, Oriental Region (highland).

Introduction :

Genus is close to *Diphyus* KRIECHBAUMER (= *Pseudamblyteles* ASHMEAD). The slightly elevated and not striated middle field of postpetiolus, more long propodeum with approximately equal horizontal and slanted parts, absence of costulae and transformation of external carina of area dentipara to short tooth (denticle), without changing of direction (tooth is not bent upwards) are characteristic for species of the genus. Surface of head, thorax and base of abdomen are dull on the larger part. Hypopygium of male is oblong to apex, without narrow long process. Tibiae are with white rings.

Morphology :

Flagellum : Long, slender, strongly attenuated and pointed toward apex, behind middle not widened, with white annulus; in males ribbed ventrally behind middle with distinct narrow tyloides.

Head : Head contour from front uniformly narrowed downwards, vertex from lateral straightly sloping behind ocelli; temples from above strongly roundly narrowed behind eyes; mandibles normal, narrow, the most part parallel-sided, upper tooth longer than lower one; clypeus only just convex with straight front margin; middle field of face distinctly elevated and separated by slight impressions from clypeus and lateral fields. Most part of head surface dull.

Thorax : Mesonotum from moderately to strongly convex, only just longer than width, notauli impressed only at base, surface of mesonotum densely punctured, dull; sternauli of European species only just marked in a form of broad impressions; axillary tongue practically not expressed; scutellum high elevated above postscutellum and roundly fall backwards with slightly convex horizontal part, laterally not carinated, with smooth dorsal surface. Hind margin of metanotum with projections. Propodeum from lateral angle-shaped; horizontal part of propodeum approximately equal to length of area posteromedia in middle; basal area of palaearctic species short and deep and without tubercle; area superomedia usually wider than lateral fields, without costula, in females longer than width; external carina of area dentipara not changing direction transform to short tooth (denticle); spiracles long, slit-shaped.

Legs : Long and slender. Hind coxae of females without scopa.

Wings : Areolet pentagonal; nervulus postfurcal; radius slightly sinuous at apex.

Abdomen : From above longish-oval, of females amblypygous, seventh tergite far protrude from under sixth on its length. Middle field of postpetiolus delicately irregularly-wrinkled to smooth with sparse punctures, not striated. Gastrocoeli not big, not deep with distinct thyridia, narrower than interval; interval between thyridia delicately longitudinally striated; surface of anterior tergites coriaceous. Sternites 2-3 with longitudinal fold; hypopygium overlap slit of ovipositor, with blunted apex. Hypopygium of males elongated to apex at central part, but without long process.

Coloration : Body black with characteristic white pattern. European species with broad spots on frontal orbits, rings on tibiae and spots on apical tergites of abdomen. White pattern in males more rich, including apical bunds on anterior tergites of abdomen.

Size : Palaearctic species 11-17 mm.

Biology and ecology :

Hosts : The 5 species of Noctuidae (*Apamea crenata* HUFN., *Cerastis rubricosa* DEN.

et SCHIFF., *Diarsia brunnea* DEN. et SCHIFF., *Plusia festucae* L., *Polia nebulosa* HUFN.), 1 species of Saturniidae (*Saturnia pavonia* L.) from Western Palaearctic and 1 species of Lasiocampidae (*Dendrolimus spectabilis* BUTLER) from Japan are known from the literature, noted as the hosts of only one species – *Achaisius oratorius* (F.) (HERTING 1976; RASNITSYN 1981).

Species composition and abundance: The genus is presented in region of researches by only one species – *A. oratorius* – the most mass representative of subtribe. Abundance of this species in the nature along with little number of species of a genus, leads genus *Achaisius* to the first place according to indicator of abundance among Amblytelina and on 4th place among genera of Ichneumoninae St. in the region.

Biotopical distribution: The genus is presented in the majority of the open and forest ecosystems. 92 % from total number of collected specimens are focused on forest ecosystems and 8 % on open ones (meadows and personal plots). Among ecosystems *Achaisius* in the greatest quantity is presented in pine forests, polytric (Pinetum pleurozozum) and bog moss (P. sphagnosum) – 38 %, and among deciduous ones, in alder forests (Alnetum urticosum) – 34 %.

Seasonal activity and hibernation: Activity of *Achaisius*' females is observed from May till October with peak of activity in July. The period of activity of males is more compressed and observed from June till August with sharp peak in July. The course of seasonal activity indicates to presence of only one generation and is characteristic for the species which females hibernate on imaginal stage. References on hibernation of females *A. oratorius* (F.) are given by A. RASNITSYN (1964).

***Achaisius oratorius* (FABRICIUS) (Plate 4)**

Ichneumon oratorius FABRICIUS 1793 - Entomologiae systematicae 2: 793, ♂.

Amblyteles oratorius: WESMAEL 1844 - Nouv. Mém. Acad. Sci., Bruxelles 18: 116, ♀, ♂.

Achaisius oratorius oratorius: TOWNES et al. 1965 - Mem. Amer. Ent. Inst. 5: 502.

F e m a l e

Flagellum: Slender, bristle-shaped, with 42 segments, strongly attenuated to apex, first segment 3 times longer than width at apex, with white annulus on segments 6-12(13), practically not widened and very slightly flattened ventrally beyond white annulus; segments elongated slightly, already segment 9 square from lateral; segments before white annulus distinctly differentiated. Flagellum 1,2 times shorter than front wing and 1,5 times shorter than body length.

Head: Head contour from front uniformly narrowed downwards, only just transverse, only 1,1 times wider than height; genae from front visible only just above of eye's base, genae length from front (malar space) 3,9 times shorter than height of an eye (0,3); head contour from above transverse, 1,7 times wider than length along an external contour, sharply but roundly narrowed backwards behind eyes. Vertex from lateral linearly sloping from hind border of ocelli to occipital carina; temples in middle 1,2 times shorter than longitudinal diameter of an eye, broadened downward; occipital carina sharp all round, from above deeply and roundly impressed, but not reach level of eyes and hind ocelli; hypostomal carina not visible from lateral, occipital carina meeting with hypostomal one before base of mandible; abscissula 1,4 times shorter than mandible base width, malar space equal by length to mandible base width; mandibles narrow, narrowed

from base to apex, the most part parallel-sided, with very long upper tooth and short lower one, separated by narrow impression; clypeus only just convex on height of lateral fields, 2 times wider than length, with straight thinned front margin and distinct only just rounded lateral corners, only just visible separated from middle field of face by very slight impression; clypeal foveae sharp, deep; labrum narrow only just protrude from under clypeus, rounded, equal by breadth to front margin of clypeus; middle field of face distinctly elevated above lateral fields, in middle some narrower than lateral fields, separated from them by slight impressions; antennal cavities not big, deeply impressed, merged, almost reach borders of eyes and far not reach front ocellus level, with polished surface, laterally above antennal fossae with distinct tubercles and with smoothed interantennal tubercle; margins of antennal fossae slightly elevated above face surface; frons above antennal cavities impressed medially; ocelli of normal size, diameter of lateral ocellus approximately equal to distance from ocellus to eye; ocellar triangle slightly elevated. Surface of clypeus with sparse punctures, middle and lateral fields densely punctured by big punctures, frons above antennal cavities in middle densely sharply wrinkled, temples smoothly wrinkly-punctured; surface of clypeus and lateral fields underneath with slight shine, temples dull.

T h o r a x : Collar of pronotum from above rather short with straight front margin; transverse furrow of pronotum shallow, narrow; pronotal ridge not swollen, narrow; epomiaae sharp; pronotal base gradually curved; lateral surface of pronotum strongly wrinkled with very slight shine. Mesonotum rather strongly convex, only just (1,2 times) longer than width; notauli impressed only at base; surface of mesonotum very densely punctured, dull; axillary tongue not developed; subalarum thin, not sharpened; speculum dull with big punctures; area of mesopleural fovea deeply impressed; mesopleural suture straight, deep, interrupted by rather slight ribs; mesopleurae at bottom with rather distinct but smoothed bend; sternauli in a form of very indistinct broad impressions at base; lower third of mesopleurae sharply longitudinally wrinkly-punctured, middle one wrinkly-punctured, upper one punctured in front, area under subalarum wrinkled, surface of mesopleurae dull; scutellum high elevated above postscutellum and roundly fall backwards with slightly convex horizontal part, laterally not carinated. Hind margin of metanotum with narrow triangular projections opposite of lateral longitudinal carinae. Propodeum distinctly box-shaped with slightly elevated area superomedia, length of horizontal part of propodeum approximately equal to length of area posteromedia in middle; carinae of propodeum, with exception of costulae, sharply expressed; basal area short and deep without tubercle; area superomedia hexagonal, 1,2 times longer than width; areae dentiparae at apices with short, practically not bent upwards teeth (external carina of area dentipara forms short, not bent, denticle without changing direction); spiracles long, slit-shaped, along external contour 3 times longer than width. Surface of propodeum densely wrinkled, dull on the larger part, metapleurae wrinkly-punctured, entirely dull.

L e g s : Slender, long. Claws thin, at apical third sharply curved almost at right angle.

W i n g s : Areolet big, pentagonal, symmetrical; stigma narrow, light; radial cell narrow, long; radius slightly sinuous at apex; nervulus postfurcal; ramulus not expressed (only just marked); veins dark; membrane of wing hyaline. Front wing almost equal by length to flagellum and shorter than body length.

A b d o m e n : Amblypygous, from above longish-oval, apical tergites not hidden; tergite 7 far protrude from under 6th, approximately on its length; second tergite slightly

transverse, at apex 1,2 times wider than length; sheath of ovipositor not protrude from above. First tergite from lateral with distinct bend between petiolus and postpetiolus; dorsolateral carina only just marked, dorsal carina sharp, from lateral petiolus sculptured by sharp transversal ribs; from above petiolus sharply, but gradually broadened to triangle postpetiolus; distance between spiracles many more than distance from spiracles to hind margin of tergite; middle field of postpetiolus distinct, but very slightly elevated and not carinated, 3 times wider than lateral fields, its surface irregularly superficially sinuously wrinkled. Gastrocoeli not big and not deep; thyridia sharp, short, parallel to front margin of tergite, 2 times narrower than interval between them, interval equal by breadth to middle field of postpetiolus; lunulae distinct, not big; interspace between thyridia with slight striation, surface of second tergite medially almost up to hind third with indistinct superficial wrinkling, tergite 2 and 3 almost entirely, 4th on the larger part, coriaceous, other tergites smooth. Hypopygium long, overlap slit of ovipositor, with blunted apex; sternite 2 unsclerotized on the larger part, 3rd medially.

C o l o r a t i o n : Body black with brightly-white pattern: frontal orbits with broad spots up to hind border of ocelli, scutellum entirely, spot on middle field of postpetiolus, spots on 6-7th tergites of abdomen; tibiae of all legs with white rings. External orbits usually with reddish stripe.

S i z e : Body length: 13,5; front wing: 10,6; flagellum: 9,0 mm.

M a l e

Flagellum of male slightly ribbed ventrally with narrow tyloides on segments 8-14(15) and white semiannulus. Hypopygium of male apically extended to apex, but without long process. White coloration more expanded: face, clypeus, spots on frontal orbits and genae, collar of pronotum, hind corners of pronotum, subalarum, scutellum and postscutellum, spot on area superomedia (often), bands on apices of tergites 1-3, frequently apical stripes on tergites 4-7, tergites 6-7 with big spots, coxae and trochanters of front and middle legs entirely white, hind ones with white spot ventrally, front and middle legs white on the larger part, hind tibiae with white ring, tarsi with exception of metatarsus white.

5. *Achaisuoides* nov.gen.

Type species: *Achaisuoides epistomalis* nov.sp.

D i s t r i b u t i o n : Russia, Far East, Primorije.

I n t r o d u c t i o n :

The genus is characterized by sharply limited and elevated quadrangular middle field of face, sharply separated from distinctly convex clypeus and by hypertrophied triangular second segment of maxillary palps. Distinct in a front third of mesonotum notauli, propodeum with strongly developed wrinkling or cellular sculpture, slightly elevated area of area superomedia of horizontal part of propodeum, indistinct carinae and broad teeth-like formations at apices of areae dentiparae are characteristic to the genus. Abdomen is amblypygous, long and almost parallel-sided from above. Tergite seventh is far protrude from under sixth, almost to its length, like *Achais* CAMERON and in profile it is bent downwards, like *Limerodops* HEINRICH. Smooth middle field of postpetiolus, long, slightly impressed superficial gastrocoeli with sharply expressed and slightly oblique thyridia are characteristic to the genus.

M o r p h o l o g y :

F l a g e l l u m : Moderately thick, bristle-shaped with slightly elongated segments and white annulus; distinctly shorter than the front wing.

H e a d : Head contour from front roundly narrowed downwards; temples from above roundly narrowed behind eyes; second segment of maxillary palps hypertrophied, triangular; mandibles rather short, evenly narrowed from base to apex, with long upper tooth and short, flattened with rounded apex lower one; clypeus distinctly convex with straight front margin; the fields of face sharply differentiated, middle field quadrangular, sharply elevated and separated from lateral fields by impressions and from clypeus by sharp, narrow impression; tooth between antennal fossae strongly developed, wide, triangular. Surface of head with smoothed punctures, shining.

T h o r a x : Mesonotum moderately convex, only just longer than width, notauli distinct at front third, surface of mesonotum densely punctured, medially in front with microsculpture and shining laterally; mesopleurae with smoothed bend; sternauli absent; scutellum laterally not carinated, distinctly elevated above postscutellum. Hind margin of metanotum with projections. Propodeum distinctly separated on horizontal and vertical surface; horizontal part of propodeum almost two times shorter than area supermedia in middle; basal area short, convex; carinae with exception of costulae developed, but at horizontal part of propodeum indistinct, because of general cellular-wrinkled sculpture; area supermedia transverse, indistinctly hexagonal; propodeum at apices of areae dentiparae extended to broad teeth-like projections; spiracles big, wide, 2 times longer than width.

L e g s : Stout. Hind coxae of females without scopa.

W i n g s : Areolet big, pentagonal; nervulus postfurcal; radius curved at base.

A b d o m e n : From above long, almost parallel-sided, in females amblypygous, tergite seventh far protrude from under sixth almost on its length, in profile bent downwards; tergites 4-6 bent onto ventral surface (as in *Limerodops*). Middle field of postpetiolus elevated, convex, but not carinated, smooth with indistinct rugosity and sparse smoothed punctures. Gastrocoeli slightly impressed with wrinkled sculpture, long, with sharp thyridia, narrower than interval between them; interspace between thyridia irregularly wrinkled; surface of second tergite on the larger part distinctly punctured by small punctures. Sternites 2-3 with fold; hypopygium with rounded apex and with long uniform pubescence.

C o l o r a t i o n : Body black with characteristic white pattern: internal orbits, spots on vertex, pronotal ridge, spot on subalarum, scutellum entirely, spots in the corners of postpetiolus; tibiae of all the legs with white rings. By coloration it is resemble to *Achaisus* CAMERON, but without white pattern at apex of abdomen.

S i z e : Body length 16 mm.

***Achaisioides epistomalis* nov.sp. (Plate 5)**

H o l o t y p e . ♀, Russia, Primorskij kraj, Kajmanovka at Ussurijsk, 29.07.1992, leg. A. Tereshkin. The holotype is deposited in the collection of Zoological Institute of St. Petersburg.

Female

Flagellum : Moderately thick, bristle-shaped, with 36 segments, first segment 2 times longer than width at apex, with white annulus on segments 8-12(13), slightly widened and very slightly flattened ventrally behind white annulus; segments elongated slightly, already segment 12 square from lateral. Flagellum 1,5 times shorter than front wing and 2 times shorter than body length.

Head : Head contour from front roundly narrowed downwards, only just transverse, only 1,2 times wider than height; genae from front visible only just above of eye's base (0,2), genae length from front (malar space) 7 times shorter (0,1) than height of an eye; head contour from above transverse, 2,4 times wider than length in middle and 1,9 times along an external contour, slightly and roundly narrowed backwards (at hind fourth) behind eyes. Vertex from lateral roundly sloping from hind border of ocelli to occipital carina; temples in middle approximately equal to longitudinal diameter of an eye; occipital carina sharp all round, from above deeply and roundly impressed, but not reach level of eyes and hind ocelli; hypostomal carina not visible from lateral, occipital carina meeting with hypostomal one some before base of mandible; abscissula very short, 3 times shorter than mandible base width, malar space 2 times shorter than mandible base width; second segment of maxillary palps very strongly enlarged, triangular; mandibles normal, evenly narrowed from base to apex, rather short and wide, with long upper tooth and short with rounded apex and flattened lower one, separated by narrow impression; clypeus distinctly convex, 2,2 times wider than length, with straight almost not thinned front margin and distinct lateral corners, separated from middle field of face by sharp straight suture; clypeal foveae narrow, very deep; labrum distinctly protrude from under clypeus, rounded, equal by breadth to front margin of clypeus; middle field of face sharply elevated above clypeus and lateral fields, quadrangular, in middle 1,3 times wider than lateral fields, separated from them by sharp sutures and impressions; antennal cavities very strongly impressed and merged, not reach borders of eyes and far not reach front ocellus level with polished surface, laterally above antennal fossae without tubercles and with strong broad tubercle between antennal fossae; margins of antennal fossae high elevated above lateral fields of face; frons above antennal cavities under front ocellus strongly impressed; ocelli of normal size, diameter of lateral ocellus approximately equal to distance from ocellus to eye; ocellar triangle slightly elevated. Base of clypeus densely punctured by big punctures, lower half with sparse smoothed punctures, shining, without microsculpture; middle field of face densely punctured and with developed microsculpture, lateral fields with sparse punctures, shining, medially without microsculpture; frons above antennal cavities densely superficially punctured; temples punctured by small smoothed punctures.

Thorax : Collar of pronotum from above rather short, wrinkled, with straight front margin; transverse furrow of pronotum deep, narrow; pronotal ridge rather thickened, broad; epomiae slight; pronotal base gradually curved; lateral surface of pronotum at upper half punctured by smoothed punctures, at hind part with smoothed rugosity, shining. Mesonotum moderately convex, only just (1,2 times) longer than width; notauli distinct at front third; surface of mesonotum very densely punctured, particularly middle lobe in front; middle field in front with developed microsculpture, lateral ones shining medially; axillary tongue weak; subalarum thick; speculum shining, punctured; area of mesopleural fovea deeply and very broadly impressed; mesopleural suture straight, very deep, interrupted by smoothed ribs; mesopleurae at bottom with distinct but smoothed bend; sternauli practically absent; most part of mesopleurae densely punctured by smoothed

punctures, lower third smoothly wrinkly-punctured, surface of mesopleurae shining; scutellum distinctly elevated above postscutellum, laterally not carinated, its horizontal surface slightly convex with sparse smoothed punctures. Hind margin of metanotum with triangular projections opposite of lateral longitudinal carinae. Propodeum distinctly box-shaped with slightly elevated area superomedia, distinctly divided on horizontal and vertical parts, not shortened, but length of horizontal part of propodeum to hind border of area superomedia 1,8 times less than length of area posteromedia in middle; carinae of propodeum, with exception of costulae, expressed; carinae of horizontal part indistinct because of general cellular-wrinkled sculpture of propodeum, lateral carinae of area dentiparae sinuous, indistinct, costula visible only as a trace; basal area short, convex, wrinkled; area superomedia hexagonal, horseshoe, 2 times wider than length in middle; propodeum at apices of areae dentiparae extended to broad teeth-like projections; spiracles big, wide, along external contour 2 times longer than width. Surface of propodeum with exception of metapleurae, cellular-wrinkled, metapleurae smoothly wrinkly-punctured, shining. By morphology, propodeum some resemble to *Pyramidophorus flavoguttatus* TISCHBEIN (Platylabini).

Legs: Stout; femora, tibiae and tarsi thickened; hind coxae without scopa. Claws small, at apical third sharply curved almost at right angle.

Wings: Areolet big, pentagonal, practically symmetrical with wide base; stigma narrow, dark; radial cell narrow, long; radius curved at base; nervulus postfurcal; ramulus long; veins dark; membrane of wing slightly darkened, but hyaline. Front wing longer than flagellum and shorter than body length.

Abdomen: Amblypygous, from above long, almost parallel-sided; apical tergites not retracted, tergite 7 far protrude under 6, almost on its length, in profile bent downwards; second tergite elongated, width at apex 1,2 times less than length; sheath of ovipositor not protrude from above. First tergite from lateral with distinct gradual bend between petiolus and postpetiolus; dorsal carina practically not expressed, dorsolateral carina smoothed, ventrolateral carina distinct, from lateral petiolus sculptured by slight transversal ribs; from above petiolus gradually broadened to triangle postpetiolus; distance between spiracles many more than distance from spiracles to hind margin of tergite; middle field of postpetiolus distinctly elevated, convex, but not carinated, 3,5 times wider than lateral fields, its surface smooth with indistinct rugosity and sparse smoothed punctures. Gastrocoeli slightly impressed, long with irregularly wrinkled surface; thyridia sharply expressed, slightly oblique, laterally almost reach borders of tergite, 1,3 times narrower than interval between them; lunulae distinct, elongated, situated approximately at middle of tergite; interspace between thyridia irregularly-wrinkled same as a surface of gastrocoeli, surface of second tergite with exception of apico-lateral parts, densely punctured by small punctures, tergite 3 almost up to middle densely punctured by delicate superficial punctures, other tergites with only just visible delicate punctures, smooth, shining. Hypopygium with rounded apex and uniform long pubescence; sternite 2 and 3 with longitudinal fold.

Coloration: Body black with brightly-white pattern: facial and frontal orbits up to hind border of ocelli, spots on vertex, pronotal ridge, spot on subalarum, scutellum entirely, spots in the corners of postpetiolus; tibiae of all legs with white rings, segments of hind tarsi with white base.

Size: Body length: 16,0; front wing: 11,6; flagellum: 8,0 mm.

Male: Unknown.

6. *Bureschias* HEINRICH

Bureschias HEINRICH 1936 - Mitt. Königl. Naturwiss. Inst. Sofia 9: 82.

Type species: *Ichneumon subcylindricus* GRAVENHORST (= *Bureschias balcanicus* HEINRICH).

D i s t r i b u t i o n : Palaearctic.

I n t r o d u c t i o n :

For the representatives of genus a peculiar morphology of a head simultaneously with amblypygous abdomen of females are characteristic. Profile of head from side is angular. Surface of face and clypeus forms right angle with surface of frons. Long, broad clypeus is sharply impressed, so that middle and lateral fields of face are overhanging above it. From lateral, clypeus is practically parallel to longitudinal axis of a body. Middle field of face upwardly gradually transforms to strong, pointed interantennal tubercle (process). Habitually the genus is resemble to *Ichneumon* LINNAEUS and by some morphological peculiarities to *Chasmias* ASHMEAD. By morphology of abdomen and mandibles it is similar to *Spilichneumon* THOMSON, parasitizing on cryptophagous larvae of Noctuidae.

M o r p h o l o g y :

F l a g e l l u m : Bristle-shaped, short, stout with sharply differentiated segments, with or without white annulus. Flagellum of males with narrow tyloides.

H e a d : Head contour from front not narrowed downwards with very short genae; from side with right angle between facial and frontal surfaces; temples from above behind eyes swollen; mandibles broad, slightly swollen in middle with two equal tooth; clypeus flat, extremely sharply impressed relatively face; middle and lateral fields of face overhanging above clypeus; middle field of face dorsally transforms to massive pointed projection between antennal fossae.

T h o r a x : Mesonotum slightly convex (flattened), only just longer than width; notauli only just marked at base; axillary tongue slightly developed; subalarum narrow; mesopleurae at the bottom with gradual bend; sternauli distinct up to middle of mesopleurae; scutellum slightly elevated, practically flat, laterally not carinated. Hind margin of metanotum with projections. Propodeum from lateral angle-shaped; carinae except costulae and coxal carina distinct; area superomedia quadrangular, elongated; areae dentiparae at apex without teeth; spiracles long.

L e g s : Strong. Hind coxae of females without scopa.

W i n g s : Areolet big, pentagonal with wide base; membrane of wing hyaline.

A b d o m e n : Of females amblypygous, fusiform from above, with noticeable constriction between second and third tergites. Middle field of postpetiolus sharply longitudinally striated, slightly elevated. Gastrocoeli small, only just impressed, thyridia only just marked; anterior tergites densely punctured, second tergite medially longitudinally superficially wrinkly-punctured, third one punctured, apical tergites smooth. Hypopygium of females from the bottom not extended at apex, not completely overlap slit of ovipositor.

C o l o r a t i o n : Body black, abdomen red in middle. Scutellum and spots on apical tergites of abdomen white or yellow.

S i z e : Body length 9-14 mm.

***Bureschias subcylindricus* (GRAVENHORST) (Plate 6)**

Ichneumon subcylindricus GRAVENHORST 1829 - Ichneumonologia europaea 2: 321, ♀.

Bureschias balcanicus: HEINRICH 1936 - Mitt. Königl. Naturwiss. Inst. Sofia 9: 82-84.

Bureschias subcylindricus: RASNITSYN 1981 - Polsk. Pismo. Entomol 51 (1): 114, syn.

F e m a l e

F l a g e l l u m : Bristle-shaped with 36 segments, moderately stout, first segment short, only 1,5 times longer than width at apex from lateral, with white annulus on segments 9-12, only just visible widened and flattened ventrally; only segments 1-4 slightly elongated. Segments of flagellum up to white annulus sharply differentiated. Flagellum short, 1,6 times shorter than front wing and 2,3 times shorter than body length.

H e a d : Head contour from front almost not narrowed downwards, transverse, 1,4 times wider than length; genae and temples visible almost up to middle of eye, genae (malar space) very short, 7,8 times shorter than height of eye (0,1 of height of an eye); head contour from above rounded, slightly transverse, only 2,1 times wider than length in middle and 1,6 times along an external contour, roundly narrowed behind eyes. Vertex from lateral straightly sloping to occipital carina; temples long 1,5 times longer than longitudinal diameter of an eye at middle, parallel to hind margin of an eye, from above behind eyes swollen and roundly narrowed; occipital carina sharp all round, from above very slightly and roundly impressed, far not reach level of eyes and hind ocelli; hypostomal carina from lateral only just visible at very lower part, merged with occipital carina far from mandible base; abscissula very long, equal by length to mandible base width; malar space 1,2 times shorter than mandible base width; mandibles large, long, slightly swollen at middle, at apex with equal teeth; clypeus flat, extremely impressed relative to middle and lateral fields of face, from lateral practically parallel to longitudinal axis of a body, 2,5 times wider than length with thinned front margin and slight projection apically, in a shape of arch; clypeal foveae not expressed; labrum not protrude from under clypeus; middle and lateral fields overhang under clypeus; middle field strongly elevated and separated from lateral fields by deep and broad impressions, wider than lateral field in middle; antennal cavities deep, not reach borders of eyes and far not reach front ocellus level, without lateral tubercles and with strong and sharp tooth between antennal fossae; margins of antennal fossae slightly elevated above face surface; ocelli very small, diameter of lateral ocellus 2,5 times less than distance from ocellus to eye; ocellar triangle almost not expressed. Surface of a head wrinkled, without microsculpture, only middle field of face with big smoothed punctures.

T h o r a x : Collar of pronotum long with straight front margin (from above); transverse furrow of pronotum shallow, very narrow; upper margin of pronotum not swollen; epomia sharp, short; pronotal base gradually curved. Mesonotum only just convex (flattened), slightly (1,2 times) longer than width; notauli only as a very slight impressions at same base; surface of mesonotum densely punctured by big punctures, without microsculpture, shining; subalarum narrow; speculum densely wrinkly-punctured, only just slightly than other part of mesopleurae; mesopleural fovea sharp, deep, area around it narrowly and deeply impressed; mesopleural suture straight, interrupted by delicate ribs; mesopleurae at bottom without sharp bend; sternauli developed up to middle of mesopleurae; lower half of mesopleurae sharply longitudinally striated, shining, without microsculpture, upper one wrinkly-punctured; scutellum only just elevated above post-scutellum, almost flat, not carinated laterally. Hind margin of metanotum with broad triangular projections opposite lateral longitudinal carinae. Propodeum from lateral of

broken type, length of horizontal part 1,2 times longer than length of area posteromedia in middle; carinae of propodeum expressed with exception of costulae and coxal carina (indistinct); basal area rather deep, of moderate length; area superomedia rectangular, elongated, 1,3 times longer than width; areae dentiparae without teeth at apices; spiracles of propodeum long, slit-shaped, along external contour 3,8 times longer than width. Surface of propodeum, including metapleurae, wrinkled, shining, without microsculpture.

L e g s : Strong. Hind coxae without scopa. Claws long, uniformly slightly curved.

W i n g s : Areolet pentagonal, with broad base, slightly asymmetrical, external vein of apex shorter than internal one; stigma short, light, radius slightly sinuous, particularly at apex; nervulus interstitial; ramulus only just marked; all veins light; membrane of wing hyaline. Length of front wing 1,6 times longer than length of flagellum and 1,4 times shorter than body length.

A b d o m e n : Amblypygous, fusiform from above, apical tergites not retracted; second tergite transverse, at apex 1,3 times wider than length. First tergite from lateral with distinct bend between petiolus and postpetiolus; laterally sharply carinated with sharp transversal ribs between carinae; from above petiolus gradually broadened to triangle postpetiolus; distance between spiracles many more than distance from spiracles to hind margin of tergite; middle field of postpetiolus slightly elevated, sharply longitudinally striated, 1,7 times wider than lateral fields. Gastrocoeli small, only just impressed, short, oblique, 1,6 times narrower than interval between them; thyridia practically not developed; lunulae weak, situated approximately at middle of second tergite; surface of second tergite superficially wrinkly-punctured up to middle, shining. Hypopygium from below not pointed, not compressed from sides, not fully overlap slit of ovipositor; sternites 2-4 with longitudinal fold.

C o l o r a t i o n : Body black; scutellum yellow, tergites 1-2 of abdomen red; all trochanters and coxae black; tibiae and tarsi of all legs, front femora fully and middle at apex red.

S i z e : Body length: 13,8; front wing: 9,7; flagellum: 6,0 mm.

7. *Spilichneumon* THOMSON

Spilichneumon THOMSON 1894 - Opusc. Ent. fasc. **19**: 2087.

Type species: *Ichneumon occisor* FABRICIUS.

Spilichneumon: HEINRICH 1961 - Can. Ent., Suppl. **18**: 180-182.

Spilichneumon: HEINRICH 1965 - Entomol. Ts. Agr. **86**, 1-2: 91-92.

Spilichneumon: HEINRICH 1977 - Ichn. Florida and Neigb. States **9**: 109-110.

Spilichneumon: RASNITSYN 1981 - Opr. Faun. SSSR **3** (3): 568, 621-622.

D i s t r i b u t i o n : Holarctic, Oriental Region.

I n t r o d u c t i o n :

Genus *Spilichneumon* can be identified by combination of two decisive characters peculiar to the males: hypopygium tapering into a more or less prolonged and usually apically pointed median process and flagellum with very long row of elongate, bacilliform tyloides beginning from the 2nd, 3rd, or 4th segments.

Considerable sexual dimorphism is characteristic to the representatives of the genus. In this connection the diagnosis of genus is of compromise character. When intermediate forms are present, it becomes necessity to involve associated males or females in the analysis of generic belonging.

The presence of long process of hypopygium of males, make it possible to distinguish easily the representatives of genus from males of *Ichneumon* LINNAEUS and from another genera of Ichneumonina subtribe.

As by males and also by females, *Spilichneumon* is distinguished from *Diphyus* KRIECHBAUMER by more or less distinct thyridia. However, in species with slightly impressed gastrocoeli this character loses its significance, first of all in females.

For females of the genus, more flattened thorax, a tendency to elongation of abdomen, more stout flagellum, absence of a bunch of bristles at apex of hypopygium are characteristic. These characters make it possible to distinguish females of the genus from females of *Eutanyacra* CAMERON with more shortened propodeum, compressed from sides apex of abdomen and with a bunch of stiff bristles at apex of hypopygium and with more slender flagellum. In contrast to *Diphyus* KRIECHBAUMER females of the genus have more distinct thyridia, more strong mandibles, more strong legs and flagellum and more elongated propodeum.

Species of the genus with strong, swollen mandibles have characters similar to that of *Bureschias* HEINRICH. There are morphology of mandibles, angle-shaped profile of a head from side, impressed clypeus and other characters, connecting with parasitizing on cryptophagous larvae of Noctuidae.

Males are distinguished from males of *Eutanyacra* CAMERON by more longer (longer than width) area superomedia, from *Diphyus* KRIECHBAUMER by long median process of hypopygium along with usually distinct thyridia.

M o r p h o l o g y :

F l a g e l l u m : Of female always bristle-shaped, usually stout with shortened and sharply differentiated segments. Flagellum of males with closely merged segments (slightly differentiated) and long row of bacilliform tyloides from segment 2(3,4).

H e a d : More or less strengthened (stout); genae and temples behind eyes never strongly narrowed. Mandibles of females bidentate, from normal (*celenae* PERKINS) to strong, frequently swollen at central part with tendency to blunting and shortening of teeth; mandibles of males normal, narrowed to apex or on the larger part parallel-sided, upper tooth longer than lower one.

T h o r a x : Of females with tendency to flattening and elongation; axillary tongue weak, but expressed; scutellum flat, not carinated; scutellum of males more convex in profile. Hind margin of metanotum with projections. Horizontal part of propodeum usually longer or, at least, only just shorter than declivous one; area superomedia frequently considerably longer than width to square (*limnophilus* THOMSON), nothing considerably wider than length; hind parts of areae dentiparae roundly descending backwards, without apophyses and teeth at apices; spiracles long, slit-shaped.

L e g s : Usually stout. Hind coxae of females without scopa.

W i n g s : Areolet, pentagonal, usually with wide base, rarely (*limnophilus* THOMSON) with narrow one; nervulus usually postfurcal.

A b d o m e n : Amblypygous, from above longish-oval or even elongated. Middle field of postpetiolus longitudinally striated; middle field of females slightly marked, of males distinctly elevated. Gastrocoeli rather small and shallow, not transverse, sometimes rudimentary; thyridia distinct with exception of species with rudimentary gastrocoeli;

sculpture of second and third tergites considerably fine, apical tergites of typical species smooth and more or less glossy. Only sternites 2-3 of females and more often 2-4 of males with fold. Hypopygium of males tapering into median process, of females without bunch of long stiff bristles at middle of apical part, but sometimes with scattered bristles.

Coloration: Main color of females abdomen black with red. Apical tergites of abdomen black, usually with white pattern, or apical stripes as in *occisor* F. and *limnophilus* THOMSON, or apical white spots, as at *ammonius* GRAVENHORST and *celenae* PERKINS. Sexual dichroism strongly developed and analogous to that of the genus *Ichneumon* LINNAEUS. Abdomen of males frequently red with black, rarely yellow with black apex and yellow apical pattern (e.g. *occisor*).

Size: Palaearctic species 10-18 mm.

Biology and ecology:

Hosts: 9 species of Noctuidae are known as the hosts of 5 West Palaearctic species of a genus from the literature: *S. occisor* (F.) – *Cirrhia togata* ESP., *Gortyna flavago* DEN. et SCHIFF., *S. ammonius* (GRAV.) – *Gortyna flavago* DEN. et SCHIFF., *S. limnophilus* (THOMS.) – *Archanara alga* ESP., *Archanara sparganii* ESP., *Cirrhia togata* ESP., *Gortyna flavago* DEN. et SCHIFF., *Nonagria geminipuncta* Haworth, *N. typhae* THUNBERG, *S. johansonii* (HOLMGR.) – *Archanara sparganii* ESP., *Gortyna flavago* DEN. et SCHIFF., *Eurois occulta* L., *Nonagria cannae* OCHSENHEIMER, *N. typhae* THUNBERG, *S. celenae* PERK. – *Celaena haworthii* CURTIS (HERTING 1976; RASNITSYN 1981).

Species composition, abundance and biotopical distribution: Genus *Spilichneumon* is presented in region of researches by 5 species. Abundance of this genus in the nature (quantity of the collected individuals / quantity of revealed species of a genus) leads it to the 3rd place according to indicator of abundance among Amblytelina and on 20th place among genera of Ichneumoninae St. in the region (41,8 individuals / 1 species of genus). According to abundance in collections in decreasing order they are distributed as follows: *S. celenae* PERK. – 74,5 %, *S. ammonius* (GRAV.) – 10,1 %, *S. johansonii* (HOLMGR.) – 9,1 %, *S. limnophilus* (THOMS.) – 4,3 % and *S. occisor* (F.) – 1,9 %.

The overwhelming quantity of representatives of the genus (99,5 %) falls on the forest ecosystems, first of all pine forests. The greatest abundance of species of the genus is characteristic for raised bogs. It is caused by fact, that the most mass species of the genus in collectings, *S. celenae* PERK., also inhabits in the raised bogs, typical biotopes of its host *Celaena haworthii* CURTIS. (BOND & GITTINGS 2008). Moreover, the greatest quantity of collectings during all period of investigations also was conducted in these ecosystems. In other ecosystems, this species is marked by separate specimens, and only in the biogeocenoses adjoining to the raised bogs. Another numerous species in collections – *S. ammonius* (GRAV.) has been registered mainly on raised bogs too. Its abundance, however, was in nine times more low than abundance of *S. celenae*. Abundance of *S. johansonii* (HOLMGR.) in collections corresponds to abundance of *S. ammonius*, but it was met mainly in pine forests (Pinetum pleuroziosum). *S. limnophilus* (THOMS.) is registered in open ecosystems and on raised bogs (Pinetum sphagnosum). The most rare species in collections – *S. occisor* (F.) is registered by separate specimens in the wood sorrel spruce forests (Alnetum urticosum). Practically in all species in collections, females dominated. In the most mass species, collected by mainly standard

methods, the ratio of females : males was in *S. celenae* – 2,4:1, in *S. ammonius* – 6:1.

Seasonal activity and hibernation: Females of representatives of the genus hibernate as adult (HEINRICH 1961, RASNITSYN 1981). A. RASNITSYN (1964) adduces two species, hibernating on imaginal stage – *S. ammonius* (GRAV.) and *S. occisor* (F.). Despite on efforts during many years, we did not find females at the stage of hibernation. It is most possibly connected with low abundance of representatives of a genus. Collections of females of the genus in winter season on raised bogs, where they were most numerous were not carried out. By activity of two most mass species that collected with use of Malaise traps, it is possible to see that females appear already in May the first. The maximal activity of females *S. celena* is observed in July, and *S. ammonius* – in June. The maximal activity of males of these species is observed with a time delay of 1-2 months. Most probably, species of this genus are being developed in one generation.

***Spilichneumon occisor* (FABRICIUS) (Plate 7)**

Ichneumon occisor FABRICIUS 1793 - Entom. System. 2: 142, ♂.

Ichneumon occisorius: FABRICIUS 1804 - Syst. Piez. 61, ♂.

Amblyteles occisorius: WESMAEL 1844 - Tent.: 122, ♀ ♂.

Spilichneumon occisorius: THOMSON 1894 - Opusc. Ent. 19: 2089.

Spilichneumon occisor: RASNITSYN 1981 - Opr. Faun. SSSR 3(3): 622.

F e m a l e

Flagellum: Bristle-shaped with 35-37 segments, moderately stout, first segment short, with equal length and width at apex from lateral, with weak white semiannulus on segments 8-11(12), not widened and only just visible flattened ventrally; all segments not longer than width. Segments of flagellum sharply differentiated. Coloration of flagellum mainly reddish-brown. Flagellum short, 2,1 times shorter than front wing and 3,2 times shorter than body length.

Head: Head contour from front slightly and roundly narrowed downwards, only just transverse, 1,1 times wider than height; genae and temples visible almost up to middle of an eye, genae length (malar space) 5,5 times shorter than height of eye; head contour from above rounded, 1,8 times wider than length in middle and 1,7 times along an external contour, roundly narrowed behind eyes. Vertex from lateral straightly sloping from ocelli to occipital carina; temples long, 1,8 times longer than longitudinal diameter of an eye at middle, broadened downwards, from above behind eyes roundly narrowed; occipital carina sharp all round, from above broadly and roundly impressed, far not reach level of eyes and hind ocelli; hypostomal carina from lateral only just visible at very lower part, merged with occipital carina far from mandible base; abscissula long, 1,7 times shorter than mandible base width; genae above abscissula with impression; malar space 2 times shorter than mandible base width; mandibles strong, long and broad, narrowed in middle and broadened at the apical half (spatulate), at apex with flat broad teeth divided by rather narrow impression, lower tooth broader and longer than upper one; clypeus flat, slightly convex at base, sharply impressed relative to middle and lateral fields of face (similar to *Bureschias* HEINRICH), 2,4 times wider than length with thinned front margin and slightly projected medially; clypeal foveae distinct; labrum rounded, slightly protrude from under clypeus with very long pubescence along front margin; middle and lateral fields overhang under clypeus (like

Bureschias HEINRICH); middle field strongly elevated, convex and separated from lateral fields by deep and broad impressions, 1,8 times wider than lateral fields in middle; antennal cavities very deep, not reach borders of eyes and far not reach front ocellus level, without lateral tubercles and with very strong and sharp tooth compressed from sides between antennal fossae; margins of antennal fossae rather strongly elevated above face surface; frons below front ocellus broadly impressed; ocelli of normal size, diameter of lateral ocellus 1,5 times less than distance from ocellus to eye; ocellar triangle expressed. Face and clypeus with big smoothed punctures, frons medially roughly wrinkly-punctured, temples with big smoothed punctures; surface of face without microsculpture. Frons, clypeus and lateral fields of face with long reddish-brown pubescence.

T h o r a x : Collar of pronotum long with straight front margin (from above); transverse furrow of pronotum shallow, broad, not interrupted by keel; upper margin of pronotum not swollen, only slightly thickened above epomia; epomia sharp, high; pronotal base gradually curved. Mesonotum only just convex, 1,2 times longer than width; notauli only as a very slight impressions at the same base; surface of mesonotum finely punctured by smoothed punctures more densely at the base, without microsculpture, shining; axillary tongue only just expressed; prepectal carina in middle with a strong bend backwards so, that considerable part of epicnemiae visible from side; subalarum thick, not sharpened; speculum shining with sparse punctures; area of mesopleural fovea narrowly impressed; mesopleural suture straight, interrupted by weak smoothed ribs; mesopleurae at bottom without sharp bend; sternali broadly and slightly impressed up to middle of mesopleurae; lower half of mesopleurae sharply longitudinally striated by smoothed wrinkles, shining, without microsculpture, upper one wrinkly-punctured; scutellum not elevated, almost flat, not carinated laterally. Hind margin of metanotum with broad triangular projections opposite lateral longitudinal carinae. Propodeum from lateral elongated with convex horizontal part, length of horizontal part 1,3 times longer than length of area posteromedia in middle; carinae of propodeum expressed with exception of costulae and carina closed area superomedia from backwards; basal area rather short; area superomedia rectangular, elongated, 1,4 times longer than width; areae dentiparae with weak teeth or broadenings at apices; spiracles of propodeum long, slit-shaped, along external contour 3 times longer than width. Surface of propodeum, including metapleurae, wrinkled, shining, without microsculpture. Thorax with long reddish-brown pubescence.

L e g s : Strong. Tibiae of front and middle legs with strong spinules; first segment of hind tarsi (metatarsus) slightly flattened. Hind coxae without scopae. Claws long, slightly uniformly curved. Coxae of all legs with long reddish-brown pubescence.

W i n g s : Areolet pentagonal, symmetrical; stigma quite short, light; radius slightly sinuous, particularly at apex; nervulus very slightly postfurcal; ramulus expressed; all veins light; membrane of wing hyaline. Length of front wing 2,1 times longer than length of flagellum and 1,5 times shorter than body length.

A b d o m e n : Amblypygous, fusiform from above, apical tergites not retracted; second tergite only just transverse, at apex 1,1 times wider than length. First tergite from lateral with distinct gradual bend between petiolus and postpetiolus; laterally sharply carinated; dorsolateral carinae weak, between them and ventrolateral carinae with strong transversal ribs; from above petiolus gradually broadened to triangle postpetiolus; distance between spiracles many more than distance from spiracles to hind margin of tergite; middle field

of postpetiolus only just elevated, broad, delicately longitudinally striated, 3,9 times wider than lateral fields. Gastrocoeli small, slightly impressed and approached to the base of second tergite, 2-2,3 times narrower than interval between them; thyridiae expressed but weak, parallel to front margin of tergite; lunulae in a form of distinct impressions; surface of second tergite up to apex superficially longitudinally wrinkly-punctured, shining; tergite 3 superficially punctured by small punctures, apical tergites with indistinct punctures. Hypopygium from below pointed, not compressed from sides; only sternites 2-4 with longitudinal fold.

C o l o r a t i o n : Head black with reddish frontal orbits. Thorax black with white scutellum and subalarum. Tergites 2-3 red, 2nd with yellowish base, other tergites black; tergites 4-6 with white stripes at apex, 7th with white spot. All trochanters, coxae and femora on the larger part black; tibiae and tarsi of all legs red-yellow.

S i z e : Body length: 13,5; front wing: 9,0; flagellum: 4,2 mm.

M a l e

Flagellum of male moderately thick, bristle-shaped, gradually narrowed to apex with closely merged segments up to middle, segments 4-20 with long, narrow almost bacilli-form tyloides, black, often ferruginous ventrally, without white annulus; mandibles normal, with long upper tooth and short lower one, gradually narrowed to apex, the most part parallel-sided. Scutellum from side more high. Propodeum not elongated. with horizontal surface high elevated at area of area superomedia; area superomedia not elongated, square. Middle field of postpetiolus high elevated and sharply striated as well as lateral fields. Gastrocoeli small, triangle, thyridia not developed. Sternites 2-3 with longitudinal fold; hypopygium with long narrow process apically. Yellow coloration more expanded: scapus from front, face and clypeus completely, frontal orbits at lower part, collar, hind corners of pronotum, tegulae, subalarum, scutellum, postscutellum partially, second tergite predominantly and third tergite of abdomen entirely, narrow apical bands on tergites 4-6, tergite 7 broadly apically (with spot); most part of femora of front and middle legs, tibiae and tarsi of all the legs, with exception of darkened apices of hind tibiae, yellow.

8. *Limerodops* HEINRICH

Limerodops HEINRICH 1961 - Mitt. Münch. Ent. Ges. **35-39**: 44.

Type species: *Amblyteles subsericans* var. *elongatus* BRISCHKE.

Limerodops: HEINRICH 1961 - Can. Ent., Suppl. **23**: 380-381.

D i s t r i b u t i o n : Holarctic.

I n t r o d u c t i o n :

According to G. HEINRICH (1961) the representatives of genus are differed by strongly elongated and narrowed to apex abdomen of females and narrow, elongated but parallel-sided abdomen of males. Tergites 4-7 of abdomen of most species laterally are bending far onto the ventral side, thus transforming the apical part of abdomen into a pipe. Seventh tergite is very long, bending in profile downwards. Only sternites 2 and 3 (at males) are with fold, rarely (*L. unilineatus* GRAV.) sternite 4 is also unsclerotized. Abdomen of European species is strongly attenuated to the apex. Apical tergites are bent onto ventral surface from vastly at type species, to slightly bent, but also narrowed to the apex abdomen in *L. unilineatus* GRAV. And, at last, in females of East Palaearctic *Limerodops violentus* sp.n. apical tergites are bent slightly and abdomen is not evenly

narrowed to apex. Hypopygium of males is without long narrow process at apex, with extended central part.

M o r p h o l o g y :

F l a g e l l u m : Of females bristle-shaped, from very slender, not widened and flattened beyond middle in *L. unilineatus* GRAV., to slightly widened and flattened beyond middle, with or without white annulus. Flagellum of males not ribbed with elongated bacilliform tyloides from second to about twelfth segment.

H e a d : Genae from front and temples behind eyes from above strongly, almost straightly narrowed. Mandibles normal, narrowed to apex, with two sharp teeth.

T h o r a x : Mesonotum moderately or strongly convex; notauli only just marked at base or absent; axillary tongue practically not expressed; scutellum of females distinctly elevated above postscutellum, dorsally from almost flat (in *L. elongatus* BRISCHKE and *L. subsericans* GRAV.) to distinctly convex in *L. unilineatus* and *violentus*, in males more high elevated. Propodeum without of apophyses and teeth, but often with broadened apical carinae; costulae and coxal carina present or absent.

L e g s : Moderately stout to slender. Hind coxae of females without scopa.

W i n g s : Areolet big, pentagonal, slightly asymmetrical. Nervulus postfurcal, rarely (*L. unilineatus*) interstitial. Membrane of wing hyaline.

A b d o m e n : Elongated, narrow; in females of European species narrowing to apex, to parallel-sided (at East Palearctic *L. violentus* sp.n.), strongly amblypygous, in males parallel-sided; tergites 4-7 laterally bend far onto ventral side, often transforming an apical part of abdomen into a pipe (*L. elongatus*, *L. subsericans*), tergites 2 and 3 distinctly longer than width. Middle field of postpetiolus distinct, delicately longitudinally striated. Gastrocoeli of both of sexes longer than width, more over distinctly impressed with some longitudinal ribs; thyridia of females narrow and small, sometimes rudimentary in males; tergite 7 very long; sheath of ovipositor hidden or only just visible from lateral. Sternites of abdomen strongly sclerotized, usually only sternite 2 with fold, and in *L. unilineatus* sternites 2-4 with fold. Hypopygium of males with extended pointed, or more or less rounded apex at central part.

C o l o r a t i o n : Head and thorax with restricted white pattern; abdomen usually uniformly black or metallic-violet, rarely with white spots at corners of tergites 1-3; at one European species abdomen rusty-red in a considerable extent and apical tergites of females abdomen with white longitudinal anal spots; legs mainly red-brown, in East Palearctic *L. violentus* sp.n. tibiae with white rings.

S i z e : Body length 11-18 mm.

B i o l o g y a n d e c o l o g y :

H o s t s : For two species of a genus from literature the following data about hosts are known: ***L. subsericans* (GRAV.)** – *Gastropacha quercifolia* L., *Philudoria potatoria* L. (Lasiocampidae), *Dasychira fascelina* L. (Lymantriidae), *Apamea anceps* DEN. et SCHIFF., *A. unanims* HBN. (Noctuidae); ***L. elongatus* (BRISCHKE)** – *Hadena gemina* HBN. (Noctuidae); ***L. unilineatus* (GRAV.)** – *Nonagria dissoluta* TR., *N. sparganii* ESPER, *Archanara geminipuncta* HW. (Noctuidae) (HEINRICH 1961; HERTING 1976; RASNITSYN 1981). According to R. HINZ (HEINRICH 1961), the females of *elongatus* BRISCHKE attack the early larval stages of the host during the period in which the small caterpillars still

live hidden in their protective webs in the inflorescences of grasses. Samples of *L. unilineatus*, bred in Poland from pupae of *Archanara geminipuncta* HW. are at our disposal.

Species composition and abundance: The genus is presented in region of researches by two species – *L. subsericans* (GRAV.) and *L. elongatus* (BRISCHKE). By abundance in collections, genus occupies 7th place among Amblytelina and 35th place among genera of Ichneumoninae St. in the region (19 individuals / 1 species of genus).

Biotopical distribution: The genus is presented both in forest and open ecosystems. The overwhelming quantity of representatives of a genus is collected in forest ecosystems (71 %). From forest ecosystems both species of a genus prefer pine and spruce forests. *L. elongatus* (BRISCHKE) in a considerably quantity is registered in oak forests. In open ecosystems 29 % of this species are collected. *L. elongatus* (BRISCHKE) in the greatest quantity is registered on personal plots from all types of open and forest ecosystems, and *L. subsericans* (GRAV.) is registered by separate specimens in meadow communities, preferring forest ecosystems.

Seasonal activity and hibernation: The volume of the material collected by us does not allow to reason about number of generations of *Limerodops*. Under of G.HEINRIH's statement (1961) species of *Limerodops* have one generation during a season and females of a genus do not hibernate. At the same time, we had found one female *L. elongatus* (BRISCHKE), on hibernation under a bark.

***Limerodops elongatus* (BRISCHKE) (Plate 8)**

Amblyteles subsericans var. *elongatus* BRISCHKE 1878 - Schr. Naturf. Gesell. Danzig (n.f.) 4 (3): 47, ♀.

Limerodops elongatus: HEINRICH 1949 - Mitt. Münchner Ent. Gesell. 35-39: 44.

Limerodops elongata: TOWNES et al. 1965 - Mem. Amer. Ent. Inst. 5: 503.

Limerodops elongatus: RASNITSYN 1981 - Opr. Faun. SSSR 3 (3): 618.

F e m a l e

Fla g e l l u m : Bristle-shaped, with 42 segments, thin, first segment approximately 3 times longer than the width at apex, with white annulus on segments (8)9-13(14), only just visible flattened and not widened beyond middle; segments up to white annulus distinctly differentiated, square from lateral segments from white annulus. Flagellum almost 1,4 times shorter than the front wing and 2,2 times shorter than body length.

H e a d : Head contour from front rather strongly narrowed downwards, only just transverse, only 1,1 times wider than height; genae from front (malar space) 4 times shorter than height of an eye (0,3); head contour from above transverse, 2,3 times wider than length in middle and 1,8 times along an external contour, roundly narrowed backwards behind eyes. Vertex from lateral straightly sloping from hind borders of ocelli to occipital carina; temples long, in the middle 1,2 times longer than longitudinal diameter of an eye, parallel to hind margin of an eye, from above roundly narrowed behind eyes (not swollen); occipital carina sharp all round, from above strongly roundly impressed, but far not reach level of eyes and hind ocelli; hypostomal carina not visible from lateral, occipital carina meeting with hypostomal carina before base of mandible; abscissula 1,4 times shorter than mandible base width; malar space 1,4 times shorter than the mandible base width; mandibles normal, evenly narrowed from base to apex, upper tooth

considerably longer than lower one; clypeus only just convex, 2 times wider than length, with straight front margin and distinctly expressed lateral corners with row of punctures along front margin, separated from face by very slight impression; clypeal foveae big, deep; labrum protrude from under clypeus, rounded by front margin; middle field of face only just elevated, narrow, in middle 2 times narrower than lateral fields; antennal cavities very deeply impressed, reach borders of eyes and far not reach front ocellus level, laterally above antennal fossae with tubercles and with slight interantennal tubercle; margins of antennal fossae distinctly elevated above face surface; ocelli of normal size, distinctly convex, diameter of lateral ocellus 1,5 times less than distance from ocellus to eye; ocellar triangle almost not expressed. Surface of face and clypeus with big punctures, polished, upper part of face wrinkly-punctured between middle and lateral fields, face with weak microsculpture; frons roughly wrinkly-punctured, temples densely punctured by big smoothed punctures.

T h o r a x : Collar of pronotum from above rather long with straight front margin; transverse furrow of pronotum deep; pronotal ridge not swollen; epomiae sharp, high; pronotal base sharply and gradually curved; lateral surface of pronotum roughly wrinkly-punctured. Mesonotum rather strongly convex, 1,2 times longer than width; notauli only in a form of very slight impressions at base; lateral furrow of mesonotum behind tegulae deep and wide; surface of mesonotum densely punctured, median lobe to slightly wrinkled, without microsculpture; axillary tongue not developed; prepectal carina upwardly not reach front border of mesopleurae; subalarum high, thin, but not sharpened; speculum densely punctured; mesopleural fovea sharp, area around it narrowly and deeply impressed; mesopleural suture straight, deep, interrupted by sharp ribs; mesopleurae at bottom with distinct but gradual bend; sternauli in a form of very slight impressions up to middle of mesopleurae; most part of mesopleurae wrinkly-punctured; scutellum slightly convex at horizontal part, not carinated laterally, rather high elevated above postscutellum, gradually slanted backwards. Hind margin of metanotum with broad triangular projections opposite of lateral longitudinal carinae. Propodeum from lateral with angular break, roundly-convex, length of horizontal part 1,8 times shorter than length of area posteromedial in middle; carinae of propodeum, with exception of costulae, sharp (coxal carina slightly expressed); basal area short and deep; area superomedial quadrangular, some wider than length in middle; carinae of apical part of propodeum high; areae dentiparae at apices without teeth; spiracles long, slit-shaped, along external contour 3,2 times longer than width. Surface of propodeum, including metapleurae, roughly wrinkly-punctured shining.

L e g s : Slender. Claws slightly gradually curved.

W i n g s : Areolet pentagonal, with wide base, practically symmetrical; stigma normal, light; radial cell narrow, long; radius very slightly sinuous, almost straight; nervulus postfurcal; ramulus expressed, but weak; all veins moderately dark; membrane of wing hyaline. Front wing considerably longer than length of flagellum and shorter than body length.

A b d o m e n : Amblypygous, from above narrow, long, narrowed to apex, lateral margins of tergites 4-7 bent inside, tergite 7 from above protrude on length of scutellum; second tergite long, at apex 1,4 times narrower than length in middle; sheath of ovipositor not visible from above. First tergite from lateral with sharp bend between petiolus and postpetiolus, narrow at base, from lateral bordered by smoothed carinae and with smoothed, only just expressed transversal ribs between them; from above petiolus gradually

widened to broad postpetiolus; distance between spiracles 1,5 times more than distance from spiracles to hind margin of tergite; middle field of postpetiolus distinctly elevated, 2-2,5 times wider than lateral fields, its surface delicately longitudinally striated. Gastrocoeli narrow, many narrower than interval between them, with strong longitudinal ribs, rather deeply impressed; thyridiae only just marked or not expressed; lunulae distinct, high elevated; interval between gastrocoeli sharply striated, surface of second tergite up to apex densely delicately wrinkly-punctured; tergite 3 in middle very delicately longitudinally striated, shagreen laterally, other tergites shagreen, shining. Hypopygium very narrow, long, overlap ovipositor sheath; only sternite 2 slightly unsclerotized.

Coloration: Body entirely black with exception of white scutellum and sometimes narrow median stripe on tergite 7; legs, except coxae and trochanters red, hind tarsi darkened.

Size: Body length: 15,3; front wing: 10,0; flagellum: 7,0 mm.

Male

Flagellum of male not ribbed with long row of narrow tyloides on segments 2-17, without white annulus. Profile of genae from front slightly impressed. Mesopleurae in comparison with females with more delicate sculpture; scutellum more high elevated above postscutellum; costulae marked. Abdomen narrow, parallel-sided, apex slightly swollen because of increased genitalia; second and third sternites with fold. Hypopygium apically with triangularly extended and pointed central part, without long process. White coloration more expanded: face and clypeus entirely and frontal orbits, mandibles, hind corners of pronotum, subalarum and scutellum; front and middle coxae and trochanters with reach yellow pattern, femora and tarsi of all legs red, hind tarsi darkened at apices.

Limerodops violentus nov.sp. (Plate 9)

Holotype. ♀, Russia, Far East, Primorskij kraj, Kajmanovka at Ussurijsk, 43°38'N-132°14'E, 05.08.1992, leg. A. Tereshkin. The holotype is deposited in the collection of Zoological Institute of St. Petersburg.

Paratype: ♀, ♂ (destroyed in part), same place, 08.1983.

Besides of metallic-violet coloration and peculiar white pattern, abdomen of describing species in contrast to European species of the genus is not narrowed to apex. Abdomen from apex of second to almost last tergite is parallel-sided.

Female

Flagellum: Bristle-shaped, with 37 segments, moderately stout, first segment approximately 2,2 times longer than the width at apex, with white annulus on segments 8-11, slightly flattened and widened beyond white annulus; segments up to white annulus distinctly differentiated, square from lateral segments from white annulus. Flagellum almost 1,3 times shorter than the front wings and 1,9 times shorter than body length.

Head: Head contour from front rather strongly narrowed downwards, only just transverse, only 1,2 times wider than height; genae length (malar space) from front 5,2 times shorter than height of an eye (0,2), genae from front visible up to 0,1 height of an eye; head contour from above transverse, 2,2 times wider than length in middle and 1,8 times along an external contour, roundly narrowed backwards behind eyes. Vertex from lateral straightly sloping from ocelli to occipital carina; temples long, in the middle equal

to longitudinal diameter of an eye, parallel to hind margin of an eye, from above roundly narrowed behind eyes (not swollen); occipital carina sharp all round, from above strongly roundly impressed, but far not reach level of eyes and hind ocelli; hypostomal carina not visible from lateral, occipital carina meeting with hypostomal carina some before base of mandible; abscissula short, 2,8 times shorter than mandible base width; malar space 1,4 times shorter than the mandible base width; mandibles normal, almost parallel-sided in middle part, upper tooth considerably longer than lower one; clypeus only just convex, 2,5 times wider than length, with straight thinned front margin and rounded lateral corners, separated from face by very slight impression; clypeal foveae small, deep; labrum not protrude from under clypeus; middle field of face only just elevated, narrow, in middle 1,5 times narrower than lateral fields; antennal cavities very deeply impressed, reach borders of eyes and far not reach front ocellus level, laterally above antennal fossae with tubercles and with small but pointed interantennal tubercle; margins of antennal fossae distinctly elevated above face surface; ocelli of normal size, distinctly convex, diameter of lateral ocellus 1,3 times less than distance from ocellus to eye; ocellar triangle almost not expressed. Surface of face and clypeus densely punctured, polished between punctures, upper part of face slightly wrinkly-punctured between middle and lateral fields; frons slightly wrinkly-punctured; vertex between eye and ocellus with microsculpture, temples punctured by smoothed indistinct punctures, shining.

T h o r a x : Collar of pronotum from above rather long with straight front margin; transverse furrow of pronotum deep, narrow; pronotal ridge not swollen; epomiae sharp; pronotal base sharply sinuous; lateral surface of pronotum from below superficially-wrinkled, from above slightly punctured, shining. Mesonotum slightly convex, 1,2 times longer than width; notauli absent; lateral furrow of mesonotum deep, narrow; surface of mesonotum punctured by superficial punctures, shining; axillary tongue distinguishable but very slightly developed; prepectal carina upwardly not reach pronotum; subalarum high, thick, not sharpened; speculum slightly wrinkly-punctured; area of mesopleural fovea narrowly deeply impressed; mesopleural suture straight, deep, interrupted by sharp ribs; mesopleurae at bottom with distinct but gradual bend; sternauli not expressed; most part of mesopleurae punctured by big punctures, central part slightly wrinkled; scutellum from lateral gradually roundly slanting down to postscutellum (rather convex in profile), not carinated laterally. Hind margin of metanotum with broad triangular projections opposite of lateral longitudinal carinae. Propodeum from lateral with angular break, length of horizontal part 1,2 times shorter than length of area posteromedia in middle; carinae of propodeum, with exception of costulae and carina between area basalis and area superomedia distinct; basal area short and deep; area superomedia square, slightly narrowed in front; apices of areae dentiparae without teeth; external carina of area dentipara almost parallel to metapleural one; spiracles long, along external contour 2 times longer than width at middle. Surface of propodeum with exception of area superomedia wrinkly-punctured, shining; metapleurae punctured by big punctures.

L e g s : Slender. Hind coxae without scopa. Claws strongly curved almost at right angle.

W i n g s : Areolet pentagonal, with narrow base, slightly asymmetrical, external vein of base longer than internal one and of apex shorter; stigma normal, light; radial cell long; radius very slightly sinuous; nervulus postfurcal; ramulus only just expressed; veins dark; membrane of wing hyaline. Front wing considerably longer than length of flagellum and shorter than body length.

A b d o m e n : Amblypygous, from above narrow, long, up to tergite 7 practically parallel-sided, anterior tergites with strong constrictions, lateral margins of tergites 5-7 bent inside, tergite 7 from above very long, equal by length to tergite 6 and protrude on length of first segment of middle tarsi; second tergite long, at apex 1,4 times narrower than length in middle; sheath of ovipositor not visible from above. First tergite from lateral with sharp bend between petiolus and postpetiolus, narrow at base, from lateral not bordered by carinae, lateral surface entirely smooth, shining; from above petiolus gradually widened to broad postpetiolus; distance between spiracles 1,5 times more than distance from spiracles to hind margin of tergite; middle field of postpetiolus distinctly elevated, 1,4 times wider than lateral fields, its surface smoothly longitudinally striated. Gastrocoeli narrow, many narrower than an interval, long, with only just expressed or distinct longitudinal ribs, oblique and deeply impressed; thyridia small, but expressed; lunulae distinct, of moderate size, impressed; interval between gastrocoeli and middle part of second tergite up to apex longitudinally-wrinkled (striated), other part of second tergite punctured by superficial punctures, more small and superficial to apex; tergite 3 in middle in a front third densely punctured by small superficial punctures, other tergites smooth, shining. Hypopygium broad, with rounded apex, not compressed from sides; apices of ovipositor sheath only just visible from side; sternites strongly sclerotized, only sternite 2 with more slight sclerotization but without fold.

C o l o r a t i o n : Body black with metallic-violet or bluish tint, scutellum sometimes with light spot, frontal orbits narrowly white, first tergite of abdomen with white spots at hind corners; legs black, front femora with white spot at apices, front tibiae from front, middle and hind tibiae with white ring at base, first tarsus of hind tarsi almost to apex white.

S i z e : Body length: 13,5; front wing: 9,0; flagellum: 7,2 mm.

M a l e

Sculpture of abdomen is more rough, all tergites sculptured. Hypopygium of male apically with triangularly extended central part, rounded at apex. White coloration more expanded: spots on hind corners of pronotum, on subalarum, on scutellum, postpetiolus along hind border and spots on hind corners of tergites 2-3 of abdomen; tibiae and tarsi predominantly white.

9. *Diphyus* KRIECHBAUMER

Diphyus KRIECHBAUMER 1890 - Entomol. Nachr. **16** (12): 184.

Type species: *Diphyes* (!) *tricolor* KRIECHBAUMER.

Pseudamblyteles: HEINRICH 1961 - Can. Ent., Suppl. **23**: 307-401.

Pseudamblyteles: HEINRICH 1965 - Entomol. Ts. Agr. **86**, 1-2: 92-94.

Diphyus: HEINRICH 1968 - Ichn. Stenop. of Africa **3**: 648-651.

Diphyus: HEINRICH 1977 - Ichn. Florida and Neighb. States **9**: 13-114.

Diphyus: RASNITSYN 1981 - Opr. Faun. SSSR **3** (3): 572, 612-618.

D i s t r i b u t i o n : Holarctic, Oriental and Ethiopian Regions.

I n t r o d u c t i o n :

Distinctive characters of *Diphyus* genus from relative genera *Eutanyacra* CAMERON, *Spilichneumon* THOMSON and *Ctenichneumon* THOMSON are based on characters of males predominately. From first two genera males are differed by absence of narrow

process at apex of hypopygium, and from latter one, by not ribbed practically from base as at *Ctenichneumon* flagellum. Females of genus are differed by rudimentary or almost rudimentary thyridia from *Ctenichneumon* (thyridia are absent) and *Spilichneumon* (thyridia are usually distinct). From many species of *Spilichneumon*, females are differed by normal, not broadened mandibles and by normal, not elongated propodeum. From *Eutanyacra* they are differed first of all, by absence of fascicle of long coarse bristles at apex of hypopygium.

M o r p h o l o g y :

F l a g e l l u m : Of females bristle-shaped, usually slender, behind middle only just widened and flattened in different degree. Flagellum of males not ribbed or only slightly ribbed, usually with closely merged segments and with moderate number of narrow bacilliform tyloides.

H e a d : Temples never strongly broadened and from above never considerably convex behind eyes; temples from above usually more or less, often rather strongly, narrowed behind eyes and from side often to base of mandible, or parallel to hind margin of an eye; mandibles usually rather narrow, upper tooth usually sharp, rarely blunted, lower tooth developed, sometimes rather small, as exception (some American species) reduced; clypeus only just convex.

T h o r a x : Mesonotum distinctly convex, usually densely punctured, rarely entirely dull (type species), usually more or less shining; axillary tongue expressed, but slightly; scutellum from slightly to moderately convex, from lateral moderately elevated above postscutellum, laterally not carinated. Hind margin of metanotum with projections. Area supermedia of quadrangular type, usually almost square or rectangular, sometimes elongated and not limited from behind, in males usually transverse; areae dentiparae at apex always without apophyses, but sometimes with sharp apices (denticles).

L e g s : From slender to moderately stout. Hind coxae of females always without scopae.

W i n g s : Areolet always pentagonal, sometimes with narrow base; radius almost straight; nervulus usually distinctly postfurcal.

A b d o m e n : Of females amblypygous, elongate-oval in type species, usually shortly-oval, rarely narrow, elongated (*raptorius* L.). Middle field of postpetiolus distinctly expressed and usually regularly longitudinally striated, rarely indistinctly or irregularly-wrinkled (*latebricola* WESM.). Gastrocoeli of both sexes small and only slightly impressed with rudimentary or almost rudimentary thyridia, rarely thyridia distinct (*latebricola* WESM.). Usually tergites 2-3, sometimes only 2nd tergite of females with fold. Hypopygium of females with uniform pubescence, without of fascicle of coarse bristles at apex; hypopygium of males, as the general rule, short and blunted with tendency to extension at central part, to rather long prominence (e.g. *ochromelas* GMEL.), but without median process.

C o l o r a t i o n : Very diversified. Main color of females abdomen black or rusty-red; in numerous of species abdomen with yellow bands or rusty-red with black bands; last tergites often with apical white or yellow spots.

S i z e : Palaearctic species 9-18 mm.

B i o l o g y a n d e c o l o g y :

H o s t s : For 14 species of a genus from the literature the following data about hosts

are known: ***D. amatorius* (MÜLL.)** – *Semiothisa liturata* CL. (Geometridae), *Actinotia polydon* CL., *Epilecta linogrisea* DEN.ET SCHIFF., *Phlogophora meticolosa* L., *Polyphaenis sericata* Esp., *Triphaena pronuba* L. (Noctuidae); ***D. castanopyga* (STEPH.)** – *Trachea atriplicis* L. (Noctuidae); ***D. fossorius* (L.)** – *Graphiphora augur* F. (Noctuidae), *Vanessa io* L. (Nymphalidae); *D. gradatorius* (THUNB.) – *Eurois occulta* L. (Noctuidae); ***D. luctatorius* (L.)** – *Agrotis clavis* HUFN. (Noctuidae); ***D. mercatorius* (F.)** – *Mamestra brassicae* L., *M. pisi* L. (Noctuidae); ***D. monitorius* (PANZ.)** – *Smerinthus populi* L. (Sphingidae), *Perigrapha cincta* F. (Noctuidae); ***D. ochromelas* (GMEL.)** – *Agrotis segetum* DEN.ET SCHIFF., *Diarsia brunnea* DEN. et SCHIFF., *Mamestra brassicae* L., *M. persicariae* L. (Noctuidae); ***D. palliatorius* (GRAV.)** – *Smerinthus populi* L. (Sphingidae), *Cirrhia lutea* STROM, *Perigrapha l-cinctum* DEN.ET SCHIFF., *Plusia gamma* L. (Noctuidae); ***D. quadripunctorius* (MÜLL.)** – *Graphiphora augur* F., *Mamestra brassicae* L., *Noctua comes* HBN., *N. interjecta* HBN., *N. orbona* HUFN., *Polymixis polymita* L., *Triphaena pronuba* L. (Noctuidae); ***D. raptorius* (L.)** – *Cirrhia togata* ESP., *Mythimna vitellina* HBN. (Noctuidae); ***D. trifasciatus* (GRAV.)** – *Eurois occulta* L. (Noctuidae); ***D. fossorius* (L.)** – *Apamea anceps* DEN.ET SCHIFF., *A. crenata* HUFN., *A. obscura* HW., *A. unanims* HBN., *Mormo maura* L. (Noctuidae) (HERTING 1976; RASNITSYN 1981). G. HEINRICH (1977) gives authentic data about of breeding by ROLF HINZ species of *latebricola*, *trifasciatus*, *palliatorius*, *gradatorius*, and (?)*longigena* from species of *Agrotis* (Noctuidae).

Species composition and abundance: Genus *Diphyus* is presented in the region of researches by ten rare or not numerous species. Abundance of this genus in the nature (quantity of the collected individuals / quantity of revealed species of a genus) leads it to the 10th place according to indicator of abundance among Amblytelina and only on 60th place among genera of Ichneumoninae St. in the region. (4,2 individuals / 1 species of genus). According to abundance in collections in decreasing order they are distributed as follows: *D. raptorius* (L.) – 24 %, *D. amatorius* (MÜLL.) – 20 %, *D. indocilis* (WESM.) – 17 %, *D. ochromelas* (GMEL.) (9 %), *D. palliatorius* (GRAV.) – 7 %, *D. latebricola* (WESM.) – 7 %, *D. restitutor* (WESM.) – 6 %, *D. septemguttatus* (GRAV.) – 6 %, *D. luctatorius* (L.).

Biotopical distribution: The genus is presented in the majority of the open and forest ecosystems. 83 % from total number of collected specimens are focused on forest (10 species) and 17 % on open ecosystems (meadows and personal plots) (3 species). Most mass species, *D. raptorius* is presented in the greatest quantity in the forest ecosystems. The species, registered in open ecosystems – *D. armatorius*, *D. ochromelas*, *D. septemguttatus* – met also in forest ecosystems. From them only the first species prefers open ecosystems (personal plots). Among forest ecosystems, species of the genus are presented in the greatest quantity in pine forests (33 % and 8 species). The most ordinary species, *D. raptorius*, prefers polytric pine forests (Pinetum pleurozosum) and wood sorrel spruce forests (Piceetum oxalidosum).

Seasonal activity and hibernation: Representatives of the genus are being met in the nature from the end of April till November. Low abundance of representatives of the genus does not allow with sufficient confidence to estimate number of generations of separate species. At the same time, regular, during many years collectings, allow to draw some conclusions on a basis of aggregate data. In females two periods of activity, in the spring from the end of April to the beginning of June and from

July till November are observed. Males are active since June to the beginning of October. From the species, revealed in the region, females *D. raptorius* and *D. indocilis* begin activity the first in the early spring, and they also finish activity of these species in the late autumn. Based on the data about the periods of activity of the species collected by us, with the high degree of confidence it is possible to say that the majority of them has two generations and females hibernate as adult.

Only three species of hibernating females are found by us – *D. raptorius*, *D. indocilis* and *D. restitutor*. Hibernating females were found under a bark and mostly in a wet dust of a rotten wood of laying trunks. G. HEINRICH found females of *D. restitutor* in the early spring and assumed their hibernating on imaginal stages (HEINRICH 1977). The females are found by us on hibernation under a bark of the fallen spruce in the wood sorrel spruce forests (*Piceetum oxalidosum*).

From the literature the hibernation of following species of the genus is known: *amatorius* (MÜLL.), *fossorius* (L.), *salicatorius* (GRAV.) (= *indocilis* WESM.), *raptorius* (L.), *latebricola* (WESM.), *ochromelas* (GMEL.), *septemguttatus* (GRAV.), *catagraphus* (KOK.) [*palliatorius* (GRAV.)? (*quinquecinctus* (KRIECHB.))] (RASNITSYN 1964).

***Diphyus amatorius* (MÜLLER) (Plate 10)**

Ichneumon amatorius MÜLLER 1776 - Zool. Dan. prodr.: 151.

Amblyteles amatorius: WESMAEL 1844 - Nouv. Mém. Acad. Sc. Brux. **18**: 123.

Amblyteles amatorius: PERKINS 1959 - Roy. Ent. Soc. London 7,2 (aii): 193, 198.

Diphyus amatorius: RASNITSYN 1981 - Opr. Faun. SSSR **3** (3): 613, 616.

F e m a l e

F l a g e l l u m : Bristle-shaped, with 41-42 segments, moderately thick, first segment short, only 1,3 times longer than width at apex, with white annulus on segments (6)7-12, beyond white annulus only just flattened ventrally; already segment 3 square from lateral, other segments transverse. Flagellum almost 2 times shorter than the front wing and 3 times shorter than body length.

H e a d : Head contour from front quite slightly narrowed downwards, only just transverse, only 1,3 times wider than height; genae from front (malar space) 3,8 times shorter than height of an eye (0,3); head contour from above transverse, 2,2 times wider than length in middle and 1,6 times along an external contour, almost linearly narrowed backwards behind eyes. Vertex from lateral straightly sloping from hind borders of ocelli to occipital carina; temples long, in the middle 1,4 times longer than longitudinal diameter of an eye, parallel to hind margin of an eye, behind eyes from above rather slightly almost straightly narrowed behind eyes; occipital carina sharp all round, from above rather strongly roundly impressed, far not reach level of eyes and hind ocelli; hypostomal carina almost not visible from lateral, occipital carina meeting with hypostomal carina before base of mandible; abscissula 2 times shorter than mandible base width; malar space 1,2 times shorter than the mandible base width; mandibles normal, evenly narrowed from base to apex, upper tooth considerably longer than lower one; clypeus only just convex, 1,8 times wider than length, with straight front margin and distinctly expressed lateral corners, separated from face, by impression; clypeal foveae big, deep; labrum usually distinctly protrude from under clypeus, equal by breadth to front margin, roundly-triangular; middle field of face slightly elevated, narrow, in middle 2 times narrower than lateral fields; antennal cavities very deeply impressed, not reach borders of eyes and far

not reach front ocellus level, laterally above antennal fossae without tubercles and with distinct interantennal tubercle; margins of antennal fossae rather slightly elevated above face surface; ocelli of normal size, slightly convex, diameter of lateral ocellus 1,3 times less than distance from ocellus to eye; ocellar triangle practically not expressed. Surface of clypeus with big punctures, without microsculpture; upper part of face wrinkly-punctured, lateral fields with big punctures; frons roughly wrinkly-punctured; temples densely punctured, without microsculpture.

T h o r a x : Collar of pronotum from above long with straight front margin; transverse furrow of pronotum deep, narrow; pronotal ridge not swollen; epomia sharp; pronotal base gradually curved; lateral surface of pronotum roughly-wrinkled in middle. Mesonotum only just convex, practically with equal length and width; notauli only in a form of very slight impressions at base; surface of mesonotum densely punctured, median lobe to slightly wrinkled, without microsculpture; axillary tongue developed, but weak; subalarum high, thick, not sharpened; speculum densely punctured; mesopleural fovea sharp, area around it narrow, deep; mesopleural suture straight, deep, interrupted by sharp ribs; mesopleurae at bottom with distinct but gradual bend; sternauli absent; lower part of mesopleurae at back part roughly wrinkly-punctured; scutellum from lateral moderately elevated above postscutellum, from above flat, laterally not carinated. Hind margin of metanotum with triangular projections opposite of lateral longitudinal carinae. Propodeum from lateral with angular break, length of horizontal part 1,7 times shorter than length of area posteromedia in middle; carinae of propodeum, with exception of costulae, sharp; basal area short and deep; area superomedia square; carinae of apical part of propodeum high; areae dentiparae at apices without teeth, but with strong lamelliform broadenings on their place; spiracles long, slit-shaped, along external contour 4 times longer than width. Surface of propodeum, including metapleurae, roughly wrinkly-punctured shining.

L e g s : Long, stumpy. Hind coxae without scopa. Tibiae and tarsi of all legs with strong sparse spinules. Claws normal, sharply curved in middle.

W i n g s : Areolet pentagonal, almost symmetrical, external vein of apex longer than internal one; stigma normal, short, light; radial cell narrow, long, radius very slightly sinuous, almost straight; nervulus slightly postfurcal; ramulus expressed; all veins light, reddish-brown; membrane of wing yellowish. Front wing considerably longer than length of flagellum and shorter than body length.

A b d o m e n : Amblypygous, from above broadly-oval, tergite 7 from above only just visible; second tergite transverse, at apex 1,3 times wider than length; sheath of ovipositor not protrude. First tergite from lateral with gradual bend between petiolus and postpetiolus, from lateral sharply bordered by carinae and with strong transversal ribs between them; from above petiolus gradually but sharply broadened to postpetiolus; distance between spiracles many more than distance from spiracles to hind margin of tergite; middle field of postpetiolus distinctly elevated, 1,7 times wider than lateral fields, its surface longitudinally striated. Gastrocoeli small, square, only just impressed, short; thyridia small, distinct; lunulae small, but distinct; surface of second tergite up to apex very densely punctured by small superficial punctures, without microsculpture; tergites 3-4 densely superficially punctured by very small punctures, apical tergites shagreen. Hypopygium not compressed from sides; only sternites 2-3 with fold.

C o l o r a t i o n : Body black with reach yellow-white pattern: internal orbits broadly,

collar and hind corners of pronotum, tegulae, subalarum and scutellum completely, apical bands on tergites 2-6th and spot on 7th; tergite 2 of abdomen yellow-red; tibiae and tarsi of all the legs and apices of front and middle femora yellow-red.

S i z e : Body length: 16,5 (13-17); front wing: 10,7; flagellum: 5,5 mm.

M a l e

Flagellum of male thin, bristle-shaped with only just visible tyloides (almost not expressed), black, often rust-colored ventrally, without white annulus; labrum rounded, far protrude from under clypeus; hypopygium apically with triangularly extended and pointed central part. Yellow coloration more expanded: face, as a rule, completely, frontal orbits, collar and hind corners of pronotum, tegulae, subalarum, scutellum, second and third tergites of abdomen entirely, narrow apical bands on forth and fifth, rarely on seventh; most part of femora of front and middle legs, tibiae and tarsi of all the legs with exception of darkened apices of hind tibiae yellow.

10. *Ctenichneumon* THOMSON

Ctenichneumon THOMSON 1894 - Opusc. Entom. **19**: 2082.

Type species: *Ichneumon funereus* Geoffroy.

Ctenichneumon: HEINRICH 1961 - Can. Ent., Suppl. **23**: 450-451.

Ctenichneumon: HEINRICH 1965 - Entomol. Ts. Agr. **86**: 1-2: 98.

Ctenichneumon: HEINRICH 1977 - Ichn. Florida and Neighb. States **9**: 107-108.

Ctenichneumon: RASNITSYN 1981 - Opr. Faun. SSSR **3** (3): 567, 620.

D i s t r i b u t i o n : Holarctic, Oriental (highlands) and Neotropical Regions.

I n t r o d u c t i o n :

Genus is close to *Diphyus* KRIECHBAUMER (= *Pseudamblyteles* ASHMEAD), differing from it by practically full absence of thyridia, by sculpture and morphology of anterior tergites of abdomen and by particularities of coloration too. Strongly impressed gastrocoeli with convex, arcuate interval between them and practically fully absent thyridia are characteristic for the genus. Sculpture of second tergite is more coarse than in *Diphyus*, and anterior tergites are divided by deep in different degree constrictions. In addition, for species of the genus uniform red or black or theirs combination coloration is characteristic. An important distinctive character of the genus is morphology of males' flagellum. In contrast to other genera of Ichneumonini, flagellum of males is ribbed ventrally practically from base. This character is determinative under determination of ambiguous generic belonging of species. Hypopygium of males is extended in different degree to rounded or rarely cut (e.g. *edictorius* L.) apex, without long process.

The species of genus remind somewhat Protichneumonini (*Coelichneumon*). There are uniformly convex profile of propodeum with external carina of area dentipara practically parallel to metapleural carina, strongly impressed gastrocoeli of both of sexes.

M o r p h o l o g y :

F l a g e l l u m : Bristle-shaped, slender, strongly attenuated and pointed toward apex, behind middle only just widened and of females only just visible flattened. Flagellum of males ribbed ventrally practically from base (with transversal ribs or elevations in middle, or closer to apex of segments) with short bristles on top and with distinct narrow tyloides.

H e a d : Head contour from front uniformly but not sharply narrowed downwards;

temples from above rather strongly roundly narrowed behind eyes; mandibles narrow, upper tooth sharp, longer than lower one.

Thorax : Mesonotum from slightly to strongly convex, only just longer than width; axillary tongue expressed; scutellum high elevated above postscutellum and roundly fall backwards, laterally not carinated, in males more high elevated. Hind margin of metanotum with projections. Propodeum from lateral angle-shaped; with high elevated horizontal part which approximately equal by length to length of area posteromedia in middle, convex in profile; area superomedia rectangular, square, or slightly transverse, without costula; coxal carina developed; area dentipara at apex without tooth, with external carina almost parallel to carina metapleuralis, or even almost approaching with it to apex (*C. nitens* CHRIST).

Legs : Slender to moderately stout. Hind coxae of females without scopula.

Wings : Areolet big, pentagonal with wide base; membrane of wing hyaline.

Abdomen : Of females amblypygous. Middle field of postpetiolus longitudinally striated, distinctly elevated and carinated. Gastrocoeli distinctly and deeply impressed, thyridia absent or only just marked; anterior tergites distinctly punctured, second tergite medially longitudinally striated; 2-4th tergites sharply divided by constrictions. Sternites strongly sclerotized in comparison with other genera, or without fold (type species), or with fold on 2-3rd sternites. Hypopygium of males extended to rounded or rarely cut apex, without long process.

Coloration : Body of European species black, red or both color in combination. White spots on abdomen are registered in some oriental species.

Size : Palaearctic species 10-18 mm.

Biology and ecology:

Hosts : From the literature, for eight species of a genus the following data about hosts are known: *C. castigator* (F.) – *Biston betularia* L. (Geometridae), *Apamea anceps* DEN. ET SCHIFF., *Archanara sparganii* ESP., *Cirrhia togata* Esp., *Cucullia absinthii* L., *Gortyna flavago* DEN. ET SCHIFF., *Hadena perplexa* DEN. ET SCHIFF., *Mamestra oleracea* L., *Orthosia stabilis* DEN. ET SCHIFF. (Noctuidae); *C. divisorius* (GRAV.) – *Mamestra serena* SCHIFF., *Polia tinctoria* BRAHM, *Pyrrhia umbra* HUFN. (Noctuidae); *C. funereus* (GEOFFROY) – *Smerinthus ocellatus* L. (Sphingidae); *C. divisorius* (GRAV.) – *Apamea anceps* DEN. ET SCHIFF. (Noctuidae); *C. melanocastanus* (GRAV.) – *Panolis flammea* DEN. ET SCHIFF. (Noctuidae), *Vanessa antiopa* L. (Nymphalidae); *C. nitens* (CHRIST) – *Trichiura crataegi* L. (Lasiocampidae), *Caradrina clavipalpis* SCOP., *Mamestra serena* SCHIFF. (Noctuidae); *C. panzeri* (WESM.) – *Agrotis exclamationis* L., *A. segetum* DEN. ET SCHIFF., *A. ypsilon* ROTT., *Helicoverpa armigera* HBN., *Spodoptera exigua* HBN. (Noctuidae); *C. repentinus* (GRAV.) – *Zerinthia polyxena* DEN. ET SCHIFF. (Papilionidae), *Cucullia chamomillae* DEN. ET SCHIFF., *Hadena rivularis* F., *Orthosia munda* SCHIFF. (Noctuidae) (HERTING 1976; RASNITSYN 1981).

Species composition and abundance : The genus is presented in region of researches by seven not numerous species. Abundance of this genus in the nature (quantity of the collected individuals / quantity of revealed species of a genus) leads it to the 7th place according to indicator of abundance among Amblytelina and on only 44th place among genera of Ichneumoninae St. in the region (12 individuals / 1 species of genus). According to abundance in collections in decreasing order they are

distributed as follows: *C. repentinus* (GRAV.) – 36 %, *C. funereus* (GEOFFROY) – 23 %, *C. castigator* (F.) – 18 %, *C. divisorius* (GRAV.) – 11 %, *C. inspector* (WESM.) – 7 %, *C. edictorius* (L.), *C. nitens* (CHRIST).

B i o t o p i c a l d i s t r i b u t i o n : The genus is presented in the majority of the open and forest ecosystems. 61,5 % from total number of collected specimens are focused on open ecosystems (meadows and personal plots) (4 species) and 38,5 % on forest ones. Most mass species, *C. repentinus* is presented in the greatest quantity in the open ecosystems. Meadows communities and personal plots are being preferred also by *C. castigator* and *C. funereus*. Among forest ecosystems, species of the genus are presented in the greatest quantity in the pine forests (23 % and 6 species), first of all *C. divisorius* – in polytrich pine forests (Pinetum pleurozozum).

S e a s o n a l a c t i v i t y a n d h i b e r n a t i o n : Representatives of the genus are being met in the nature from the end of April till October. Low abundance of representatives of a genus does not allow with sufficient confidence to estimate number of generations of separate species. The most mass species *C. repentinus* has the short period of activity from June till August, and, males appear in the nature first. *C. funereus* and *C. inspector* have two short periods of activity with interval of one month. G. HEINRICH (1961) indicates about of presence of two generations during a season in *C. edictorius* (L.). In our collectings this species was being met sporadically in July-August.

G. HEINRICH (1961) indicates that females of the genus do not hibernate. We also did not find hibernating females of representatives of the genus, despite of many years of efforts. In indirect acknowledgement of such process of development of species of the genus is also the fact of presence in our disposal the male of *C. castigator* (F.) which obviously has received as a result of breeding, with a label "Minsk, Pukhovichi, 01.04.1930, N. Dobrotvorsky" as well as the last date of a finding of females *Ctenichneumon* in the nature is being 1st decade of September.

At the same time, in the literature there are the data generalized by A. RASNITSYN (1964), about a finding of hibernating females of *C. funereus* (GEOFF.), *C. inspector* (WESM.), *C. melanocastaneus* (GRAV.), *C. repentinus* (GRAV.) and *C. nitens* (CHRIST.). Under our data, the females of two species *C. funereus* and *C. divisorius* begin activity in the nature by the first, and males appear only in second half of summer.

***Ctenichneumon funereus* (GEOFFROY) (Plate 11)**

Ichneumon funereus FOURCROY 1785 - Entomologia parisiensis: 406, ♀.

Amblyteles funereus: WESMAEL 1844 - Nouv. Mém. Acad. Sci., Bruxelles **18**: 136, ♀, ♂.

Ctenichneumon funereus: TOWNES et al. 1965 - Mem. Amer. Ent. Inst. **5**: 507.

Ctenichneumon funereus: RASNITSYN 1981 - Opr. Faun. SSSR **3** (3): 620.

F e m a l e

F l a g e l l u m : Slender, bristle-shaped, with 43 segments, strongly attenuated to apex, first segment 2,8-3 times longer than the width at apex, with white semiannulus on segments (6)7-11(12), slightly widened and very slightly flattened ventrally beyond white annulus; segments elongated slightly, already segment 6 square from lateral. Flagellum approximately equal by length to front wing and 1,7 times shorter than body length.

H e a d : Head contour from front uniformly narrowed downwards, only just transverse, only 1,2 times wider than height; genae from front visible only just above of eye's base,

genae length from front (malar space) 3,4 times shorter than height of an eye (0,3); head contour from above transverse, 2,1 times wider than length in middle and 1,8 times along an external contour, sharply roundly, almost straightly narrowed backwards behind eyes. Vertex from lateral linearly abrupt from hind border of ocelli to occipital carina; temples in middle 1,2 times longer than longitudinal diameter of an eye, parallel to hind margin of an eye; occipital carina sharp all round, from above deeply and roundly impressed, but not reach level of eyes and hind ocelli; hypostomal carina not visible from lateral, occipital carina meeting with hypostomal one before base of mandible; abscissula 1,1 times shorter than mandible base width; malar space equal by length to mandible base width; mandibles rather broad, parallel-sided in middle part, with long upper tooth and short lower one, separated by narrow impression; clypeus only just convex, 2,2 times wider than length, with straight (slightly concave) thinned front margin and distinct only just rounded lateral corners, distinctly separated from middle and lateral fields of face by suture; clypeal foveae sharp, deep; labrum protrude from under clypeus, rounded, some narrower than front margin of clypeus; middle field of face distinctly but slightly elevated above lateral fields, in middle equal by breadth to lateral fields, distinctly separated from them by slight impressions; antennal cavities not big, sharply and very deeply impressed, merged on the larger part, reach borders of eyes and far not reach front ocellus level, with polished surface, laterally above antennal fossae with tubercles and with sharp interantennal tubercle; margins of antennal fossae distinctly but slightly elevated above face surface; ocelli of normal size, diameter of lateral ocellus 1,3 times less than distance from ocellus to eye; ocellar triangle slightly but distinctly elevated. Surface of clypeus densely punctured at base and laterally and shining apically; middle and most part of lateral fields densely punctured by almost merging punctures, lower part of lateral fields shining; frons above antennal cavities sharply irregularly-wrinkled; vertex and temples on top slightly wrinkled, most part of temples densely punctured by smoothed punctures, shining.

T h o r a x : Collar of pronotum from above rather short with straight front margin; transverse furrow of pronotum narrow, deep; pronotal ridge not swollen, narrow, pronotum impressed to border with mesonotum; epomia sharp, short; pronotal base gradually curved; lateral surface of pronotum at lower part strongly longitudinally-wrinkled and at upper one densely punctured by small punctures. Mesonotum strongly convex, 1,2 times longer than width; notauli sharply impressed in front third; surface of mesonotum very densely punctured, by small punctures, shining medially; axillary tongue developed; considerable part of prepectus visible from lateral, prepectal carina almost reach pronotum; subalarum narrow, high, almost sharpened; speculum smooth, shining; mesopleural fovea sharp, deep, area of mesopleural fovea narrowly deeply impressed; mesopleural suture straight, deep, interrupted by rather slight ribs; mesopleurae at bottom with rather distinct but smoothed bend; sternauli in a form of very indistinct broad impressions at base; surface of mesopleurae densely punctured by small punctures to wrinkly-punctured in hind lower third, shining, upper third punctured in front, area under subalarum wrinkled; scutellum high elevated above postscutellum, gradually sloped backwards with slightly convex horizontal part, laterally not carinated. Hind margin of metanotum with triangular projections opposite of lateral longitudinal carinae. Propodeum from lateral gradually convex, but distinctly box-shaped with strongly elevated area superomedia; length of horizontal part of propodeum 1,7 times shorter than length of area posteromedia in middle; carinae of propodeum, with exception of costulae, sharply expressed, high at the apex of horizontal part; basal area short and deep without tubercle; area superomedia big

quadrangular, only just transverse, 1,3 times wider than length; areae dentiparae at apices without teeth, external carina of area dentipara almost parallel to carina metapleurialis (remind *Protichneumonini*); spiracles big, long, along external contour 2,4 times longer than width. Surface of propodeum from punctured in front part of lateral fields to densely wrinkled on the larger part; metapleurae wrinkly-punctured; surface shining, without microsculpture.

Legs : Slender, long. Claws thin, sharply curved almost at right angle. Hind coxae without scopa.

Wings : Areolet big, pentagonal, slightly asymmetrical (external vein of apex shorter than internal one); stigma normal, dark; radial cell narrow, long; radius slightly sinuous; nervulus postfurcal; ramulus not expressed (only just marked); veins dark; membrane of wing hyaline. Front wing almost equal by length to flagellum and 1,5 times shorter than body length.

Abdomen : Amblypygous, from above longish-oval, apical tergites not hidden, tergite 7 far protrude from under 6; second tergite slightly elongated, width at apex 1,1 times less than length in middle; tergites 2-4 separated by sharp constrictions, strongly convex medially; sheath of ovipositor not protrude from above. First tergite from lateral with distinct bend between petiolus and postpetiolus; dorsolateral carina only just marked, dorsal and ventro-lateral carinae sharp, from lateral petiolus sculptured by sharp transversal ribs; from above petiolus sharply broadened to postpetiolus; distance between spiracles many more than distance from spiracles to hind margin of tergite; middle field of postpetiolus distinctly elevated and carinated; dorsal carinae at level of spiracles high elevated; middle field some wider than lateral fields, its surface regularly longitudinally striated. Gastrocoeli deep, 2 times narrower than interval between them, interval equal by breadth to middle field of postpetiolus, thyridia practically not developed; lunulae distinct, not big; interspace between thyridia with sharp longitudinal striation, surface of second tergite medially almost up to hind third longitudinally wrinkly-punctured, other part of tergite 2 and tergite 3 entirely densely punctured by small punctures, shining, other tergites smooth. Hypopygium long, with slightly blunted apex; all sternites strongly sclerotized without longitudinal fold, only sternite 2 slightly unsclerotized in front.

Coloration : Body, with exception of white scutellum, black.

Size : Body length: 16,0; front wing: 10,5; flagellum: 9,5 mm.

Male

Flagellum ribbed ventrally from third segment, with narrow tyloides on segments 5-16(17), without white annulus. Scutellum more high elevated than in females, area superomedia more than 1,5 times wider than length, propodeum shorter. Hypopygium elongated and broadly rounded from base. White coloration more expanded: lateral fields of face almost entirely, spot on scape, margins of labrum, spots in hind corners of pronotum, spots on tegulae and at base of front wings and scutellum; front and middle tibiae and segments of tarsi with white spots dorsally, hind tibiae with white annulus.

11. *Eutanyacra* CAMERON

Eutanyacra CAMERON 1903 - Trans. Ent. Soc. London: 227.

Type species: *Eutanyacra pallidicoxis* CAMERON.

Eutanyacra: HEINRICH 1961 - Syn. Nearct. Ichn. Stenop. **23**: 422-423.

Eutanyacra: HEINRICH 1977 - Ichn. Florida and Neigh. States **9**: 103-104.

Eutanyacra: RASNITSYN 1981 - Opr. Faun. SSSR **3** (3): 568, 622.

Distribution: Holarctic and Oriental Regions, Australia (1 species). Most species in Nearctic.

Introduction:

Bristle-shaped, strongly attenuated to apex flagellum, in males with long tyloides from the first segments, mandibles with two teeth with often truncated upper tooth in females and more or less sharpened in males, more or less shortened propodeum with almost square or transverse area superomedia are characteristic to representatives of *Eutanyacra*. Apex of females abdomen is as a rule, slightly compressed from sides. Hypopygium of females is with bunch or fringe of long, stiff bristles on the middle of the apical part, and in males with long and sharpened median process.

The analogous bunch of bristles is characteristic also to females of *Triptognathus* BERTHOUMIEU, males of which also with long sharpened median process of hypopygium. Presence of bunch of stiff bristles on apex of hypopygium and more often truncated upper tooth of females' mandibles and presence of long median process of males hypopygium make it possible to distinguish the representatives of *Eutanyacra* from *Diphyus* KRIECHBAUMER. From relative genus *Spilichneumon* THOMSON females of *Eutanyacra* are differed beside bunch of bristles on hypopygium by always bristle-shaped, long and strongly attenuated to apex flagellum, by shortened propodeum, and males also by more short (transverse) area superomedia.

Morphology:

Flagellum: Of female always bristle-shaped, stout up to middle and strongly attenuated and sharpened to apex, with usually shortened to moderately elongated and sharply differentiated basal segments. Flagellum of males with closely merged segments and long row of long tyloides from segment 1, 2 or 3.

Head: Temples behind eyes from moderately roundly narrowed to moderately swollen. Mandibles normal, uniformly narrowed to the apex with two teeth, with upper tooth longer than lower one, in females usually with blunted and flattened upper tooth; clypeus broad, flat or slightly convex, with straight front margin.

Thorax: Mesonotum slightly longer than breadth at middle, from almost flat to slightly convex, with weak notauli at base or without them, its surface punctured, shining between punctures (extremely densely punctured, dull in *Eutanyacra rasnysini* HEINRICH); axillary tongue expressed, but weak; scutellum moderately elevated above postscutellum (more appreciably in males) with flat or slightly convex horizontal surface, not carinated. Hind margin of metanotum with projections. Horizontal part of propodeum shorter than declivous one (propodeum shortened); area superomedia usually wider than length, sometimes square; costulae usually absent; coxal carina usually only just marked or indistinct; areae dentiparae at apices with slight denticles or without them; spiracles large, long.

Legs: Moderately slender to stout. Hind coxae of females without scopa.

Wings: Areolet, pentagonal, big; radius almost straight, slightly curved only at apex; nervulus postfurcal or interstitial (*E. glaucatoria* F.).

Abdomen: Of females amblypygous, rather stout, slightly compressed from sides at apex, with often retracted tergite 6; sheath of ovipositor not protrude from above; second tergite usually transverse. Middle field of postpetiolus distinctly expressed and in females longitudinally striated, in males more often irregularly-wrinkled. Gastrocoeli compa-

ratively small, narrower than interval between them, more often deep with almost rudimentary or indistinct thyridia; lunulae distinct, of moderate size; tergite 2 usually densely punctured. Sternites 2-3 of females and 2-4 of males with fold; hypopygium of females with bunch of long stiff bristles at apical part, in males with long, sharpened, often broad and compressed from sides median process.

C o l o r a t i o n : Different combinations of red, yellow and black coloration. Females often with wide light bands at apices of front tergites or with apical stripes at apices of apical tergites of abdomen, sometimes interrupted at the middle (*E. glaucatoria* F.).

S i z e : Palaearctic species 11-15 mm.

B i o l o g y a n d e c o l o g y :

H o s t s : For 3 species of a genus from the literature the following data about hosts are known: *E. crispatoria* (L.) – *Semiothisa liturata* CL. (Geometridae); *E. glaucatoria* (F.) – *Catocala nupta* L., *Mamestra glauca* HBN. (Noctuidae); *E. picta* (SCHRANK) – *Agrotis exclamationis* L., *A. segetum* DEN. et SCHIFF., *A. ypsilon* ROTT. (Noctuidae) (HERTING 1976; RASNITSYN 1981).

S p e c i e s c o m p o s i t i o n a n d a b u n d a n c e : Genus *Eutanyacra* is presented in region of researches by two species – *E. crispatoria* (L.) and *E. glaucatoria* (F.). Abundance of this genus in the nature (quantity of the collected individuals / quantity of revealed species of a genus) leads it to the 5th place according to indicator of abundance among Amblytelina and on 28th place among genera of Ichneumoninae St. in the region (27 individuals / 1 species of genus). According to abundance in collections both species are presented approximately in equal quantity.

B i o t o p i c a l d i s t r i b u t i o n : Both species are met in region only in pine forests and in a greatest quantity they are presented in the bog moss pine forests (Pinetum shagnosum). It is necessary to note that in a forest-steppe region of Western Siberia *E. crispatoria* is presented in mass in birch forests-aspen forests (shelter belts).

S e a s o n a l a c t i v i t y a n d h i b e r n a t i o n : Females of *E. crispatoria* are active from June till September without distinctly expressed peak. Males are being met from June till October and have distinct peak of activity in August (75 %). Females of *E. glaucatoria* are active since June till September, also without distinct peak, males are with shorter period of activity from June till August with distinct peak in June (78 %).

Data from the literature about of finding of hibernating females of *E. crispatoria* (L.), *E. glaucatoria* (F.) and *E. picta* (SCHRANK) are adduced in article of A. RASNITSYN (1964).

***Eutanyacra crispatoria* (LINNAEUS) (Plate 12)**

Ichneumon crispatorius LINNAEUS 1758 - Systema Naturae ..., edition 10 1: 561, ♀.

Amblyteles crispatorius: WESMAEL 1854 - Bull. Acad. Sci., Belgique 21: 91, ♀.

Eutanyacra crispatoria: RASNITSYN 1981 - Opr. Faun. SSSR 3 (3): 622.

F e m a l e

F l a g e l l u m : Bristle-shaped, with 42 segments, moderately thick, with white annulus on segments 6-12, strongly thickened and flattened ventrally behind middle and attenuated to apex; segments before white annulus strongly differentiated, first segment short, 1,4 times longer than the width at apex, already segment 4 square from lateral;

flagellum up to white annulus reddish-brown, beyond it brownish-black. Flagellum 1,4 times shorter than the front wing and 1,75 times shorter than body length.

H e a d : Head contour from front quite slightly narrowed downwards, only just transverse, only 1,1 times wider than height; genae long, from front (malar space) 3,3 times shorter than height of an eye (0,3); head contour from above transverse, 2,2 times wider than length in middle and 1,8 times along an external contour, slightly roundly narrowed backwards behind eyes. Vertex from lateral linearly sloping from ocelli to occipital carina; temples long, in middle 1,3 times longer than longitudinal diameter of an eye, parallel to hind margin of an eye, behind eyes from above slightly roundly narrowed; occipital carina sharp all round, from above strongly roundly impressed, far not reach level of eyes and hind ocelli; hypostomal carina not visible from lateral, occipital carina meeting with hypostomal carina some before base of mandible; abscissula equal 0,3 of mandible base width; malar space 1,3 times shorter than the mandible base width; mandibles narrow, evenly narrowed from base to apex, the most part parallel-sided, upper tooth considerably longer than lower one, broad, flattened, not sharpened; clypeus broad, flat, 2,6 times wider than length, with straight thinned front margin and rounded lateral corners, separated from face, by slight impression; clypeal foveae small, deep; labrum almost equal by breadth to front margin of clypeus, roundly-triangular, short, with long pubescence along front margin; middle field of face distinctly elevated, in middle narrower than the lateral fields; antennal cavities strongly impressed, reach borders of eyes and almost reach front ocellus level, laterally above antennal fossae with tubercles and with tubercle between antennal fossae; margins of antennal fossae thick, high elevated above face surface; ocelli of normal size, diameter of lateral ocellus 1,5 times less than distance from ocellus to eye; ocellar triangle slightly, but distinctly elevated. Surface of clypeus and lateral fields with distinct smoothed punctures, polished, middle field with more sharp punctures to slightly wrinkled, frons above antennal cavities roughly-punctured, temples superficially punctured.

T h o r a x : Collar of pronotum from above long, with straight front margin; transverse furrow of pronotum deep, narrow, sharp; pronotal ridge not swollen, narrow; epomia sharp; pronotal base gradually curved. Mesonotum slightly convex, only just (1,1 times) longer than width; notauli in a form of very slight impressions at base; surface of mesonotum with sparse punctures, polished; axillary tongue developed, but weak; subalarum high, moderately thick, not sharpened; speculum with sparse punctures, polished; mesopleural fovea sharply expressed, deep, area of mesopleural fovea narrowly impressed; mesopleural suture straight, deep, interrupted by sharp ribs; mesopleurae at bottom without sharp bend; sternaui in a form of indistinct impressions up to middle of ventral surface; lower part of mesopleurae wrinkly-punctured, shining, upper one densely punctured, without microsculpture; scutellum from lateral moderately elevated above postscutellum, from above almost flat, laterally not carinated. Hind margin of metanotum with triangular projections opposite of lateral longitudinal carinae. Propodeum from lateral with angular break, length of convex horizontal part 1,7 times shorter than length of area posteromedia in middle; carinae of propodeum expressed, with exception of costulae; basal area short and deep; area superomedia transverse (slightly hexagonal), 1,5 times wider than length, high elevated; areae dentiparae at apices with slight denticles; spiracles long, slit-shaped, along external contour 3,5 times longer than width. Surface of propodeum, including metapleurae, roughly-wrinkled, with exception of roughly punctured areae superoexternae, shining, without microsculpture.

L e g s : Slender, long. Hind coxae without scopae. All tibiae with sparse spinules. Claws long, uniformly curved.

W i n g s : Areolet pentagonal, slightly asymmetrical, external vein of apex shorter than internal one; stigma rather broad, light; radial cell long, broad; radius almost straight, curved only at apex; nervulus postfurcal; ramulus long; all veins light, reddish-brown; membrane of wing yellowish. Front wing longer than length of flagellum and shorter than body length.

A b d o m e n : Amblypygous, from above broadly-oval, apex of abdomen compressed from sides, sixth tergite retracted; second tergite transverse, at apex 1,5 times wider than length; sheath of ovipositor hidden. First tergite from lateral with distinct bend between petiolus and postpetiolus, sharply developed only ventrolateral carina, from lateral with strong transversal ribs; from above petiolus sharply broadened to quadrangular behind spiracles postpetiolus; distance between spiracles many more than distance from spiracles to hind margin of tergite; middle field of postpetiolus sharply expressed and high elevated, 1,8 times wider than lateral fields, its surface longitudinally-wrinkled (striated). Gastrocoeli short, deeply impressed, slightly obliques, narrower than interval; thyridiae not developed (only just marked); lunulae distinct, of moderate size; surface of second tergite up to apex very densely punctured to slightly wrinkled; third tergite densely superficially punctured by very small punctures, tergites 4-5 coriaceous, 6-7th smooth. Hypopygium triangular from lateral, not compressed from sides and with fascicle of long stiff bristles at apex; sternites 2-4 unsclerotized on the larger part, 5th with membranous apical margin.

C o l o r a t i o n : Body black with reach yellow and reddish-brown pattern; reddish-brown: internal and external (partially) orbits, hind corners of pronotum, most part of abdominal tergites; yellow: internal orbits in part, spot on subalarum, scutellum, apical bands on postpetiolus and second tergite, membranous part of abdominal sternites. Femora of all legs black on the larger part, tibiae and tarsi reddish-brown.

S i z e : Body length: 14,5; front wing: 11,0; flagellum: 8,0 mm.

M a l e

Flagellum of male with yellow bacilliform tyloides on segments 3-24, black, without white annulus; area superomedia more transverse with rudiment of costulae; hypopygium with long broad process apically; body with rich yellow pattern on head and thorax (propodeum yellow apically), abdomen except darkened apex yellow; middle and hind coxae with yellow dorsal spots, femora, tibiae and tarsi with exception of hind femora predominantly yellow.

12. *Amblyteles* WESMAEL

Amblyteles WESMAEL 1844 - Nouveaux Mém. Acad. Roy. Sci. Let. Beaux-Arts Belgique **18**: 113.
Type species: (*Amblyteles fasciatus* WESMAEL) = *armatorius* FÖRSTER.

D i s t r i b u t i o n : Palearctic (1 species).

I n t r o d u c t i o n :

Genus is characterized by strongly developed apophyses of propodeum along with normal, rather narrow bidentate mandibles, along with striated middle field of postpetiolus and peculiar coloration of abdomen with yellow base of front tergites and yellow or

with yellow apices of apical tergites. It is differed from genera with strongly developed teeth of propodeum by bidentate mandibles and distinctive coloration. Hypopygium of males is without of elongated process.

M o r p h o l o g y :

F l a g e l l u m : Bristle-shaped, with slightly elongated segments, strongly attenuated to apex. Flagellum of males not ribbed with light bacilliform tyloides.

H e a d : Head contour from above almost linearly narrowed backwards; mandibles narrow, with two teeth, upper tooth considerably longer than lower one; clypeus of females moderately convex, of males flat.

T h o r a x : Mesonotum moderately convex, only just longer than width; axillary tongue practically not expressed; scutellum high elevated above postscutellum, roundly fall backwards, not carinated laterally, in males more convex and more elevated. Hind margin of metanotum with projections. Propodeum from lateral angle-shaped; with considerably elevated area superomedia; area superomedia rectangular, slightly transverse, without costula or with slightly marked costula in males; coxal carina absent; areae dentiparae at apex with strong, pointed apophyses directed upwards.

L e g s : Slender, long. Hind coxae of females without scopa.

W i n g s : Areolet pentagonal with narrow base; membrane of wing hyaline.

A b d o m e n : Of females amblypygous, broadly-oval from above. Middle field of females' postpetiolus more often sharply longitudinally striated, distinctly elevated and carinated, in males from sharply longitudinally-wrinkled to densely wrinkly-punctured. Gastrocoeli shallow, of females short, of males more narrow and long, thyridia absent or only just marked. Sternites strongly unsclerotized, sternites 2-4 with fold. Hypopygium of males with slightly elongated central part and rounded apex.

C o l o r a t i o n : Abdomen black, second and third tergites with yellow band at base, other ones to completely yellow; yellow coloration of males more extensive.

S i z e : Body length 12-16 mm.

B i o l o g y a n d e c o l o g y :

H o s t s : For a single species of a genus from the literature there are data on its breeding in West Palaearctic from 4 species of Noctuidae – *Cucullia absinthii* L., *Mamestra brassicae* L., *M. persicariae* L., *Triphaena pronuba* L., 2 species of Nymphalidae – *Limenitis populi* L., *Polygonia c-album* L. and one species of Geometridae – *Gonodontis bidentata* CL.. In East Palaearctic it is bred from *Gonodontis bidentata* CL. (Lasiocampidae) (HERTING 1976).

S e a s o n a l a c t i v i t y a n d h i b e r n a t i o n : All females and males, available in our disposal are collected in the end of June. References to hibernation of females are adduced in A. RASNITSYN's article (1964).

***Amblyteles armatorius* (FÖRSTER) (Plate 13)**

Ichneumon armatorius FÖRSTER 1771 - Novae species insectorum, Centula 1: 82, ♂.

Amblyteles armatorius: HOLMGREN 1856 - Svenska Vetensk. Akad. Handl. 75: 39, ♀, ♂.

F e m a l e

F l a g e l l u m : Bristle-shaped, with 50 segments, moderately thick, first segment rather short, only three times longer than the width at apex, without white annulus, only

just widened, very slightly flattened ventrally beyond middle, strongly attenuated to apex; segments slightly elongated, already segment 14 square from lateral. Flagellum 1,3 times shorter than the front wing and 1,4-1,5 times shorter than body length.

H e a d : Head contour from front quite strongly narrowed downwards, only just transverse, only 1,2 times wider than height; genae from front (malar space) 3,2 times shorter than height of an eye (0,3); head contour from above strongly transverse, 2,3 times wider than length in middle and 1,8 times along an external contour, strongly, almost linearly narrowed backwards behind eyes. Vertex from lateral sloping nearly linearly from hind border of ocelli to occipital carina; temples long, in middle 1,2 times longer than longitudinal diameter of an eye, parallel to hind margin of an eye; occipital carina sharp all round, from above slightly roundly impressed, far not reach level of eyes and hind ocelli; hypostomal carina not visible from lateral, occipital carina meeting with hypostomal carina far before base of mandible; malar space 1,3 times longer than the mandible base width; mandibles narrow, evenly narrowed from base to apex, upper tooth considerably longer than lower one, lower tooth weak; clypeus moderately convex, two times wider than length, with straight front margin and distinctly expressed lateral corners, separated from face, by slight impression; clypeal foveae small, deep; labrum equal by breadth to front margin of clypeus, rounded, moderately long; middle field of face slightly expressed, in middle narrower than the lateral fields; antennal cavities quite deeply impressed, reach borders of eyes and far not reach front ocellus level, laterally above antennal fossae without tubercles and with slight but distinct interantennal tubercle; margins of antennal fossae slightly elevated above face surface; ocelli of normal size, diameter of lateral ocellus 1,7 times less than distance from ocellus to eye; ocellar triangle practically not elevated. Surface of clypeus with big punctures; lateral fields wrinkly-punctured; frons roughly wrinkly-punctured; temples densely punctured; surface of head without microsculpture.

T h o r a x : Collar of pronotum long, from above with straight front margin; transverse furrow of pronotum deep, narrow; pronotal ridge not swollen; epomia sharp; pronotal base gradually curved. Mesonotum moderately convex, only just (1,1 times) longer than width; notauli in a form of very slight impressions of some different sculpture; surface of mesonotum densely wrinkly-punctured, without microsculpture; axillary tongue not developed; subalarum high, thick; speculum densely wrinkly-punctured, same as other part of upper third of mesopleurae; mesopleural fovea sharply expressed, deep; mesopleural suture straight, deep, interrupted by sharp ribs; mesopleurae at bottom without sharp bend; sternauli in a form of indistinct impressions in front third; lower part of mesopleurae wrinkly-punctured, shining, without microsculpture; scutellum with slightly convex horizontal surface, high elevated above postscutellum, laterally not carinated. Hind margin of metanotum with triangular projections opposite of lateral longitudinal carinae. Length of horizontal part of propodeum 2 times less than length of area posteromedia in middle; carinae of propodeum expressed, with exception of costulae and coxal carina (indistinct), but indistinct because of general roughly-wrinkled sculpture of surface of propodeum; basal area short and deep; area superomedia rectangular, transverse, two times wider than length; areae dentiparae at apices with strong apophyses; spiracles long, slit-shaped, along external contour 4 times longer than width. Surface of propodeum, including metapleurae, roughly-wrinkled to cellular, shining, without microsculpture.

L e g s : Slender. Hind tibiae with sparse spinules. Claws long, uniformly curved.

W i n g s : Areolet pentagonal, practically symmetrical; stigma broad, light; radial cell broad, radius very slightly sinuous, almost straight; nervulus sharply postfurcal; ramulus long; all veins light; membrane of wing slightly yellowish. Front wing longer than length of flagellum and shorter than body length.

A b d o m e n : Amblypygous, from above broadly-oval, apical tergites not hidden; second tergite transverse, at apex 1,4 times wider than length; sheath of ovipositor not protrude. First tergite from lateral with sharp bend between petiolus and postpetiolus, from lateral sharply bordered by carinae and with strong transversal ribs between them; from above petiolus sharply broadened to triangle postpetiolus; distance between spiracles many more than distance from spiracles to hind margin of tergite; middle field of postpetiolus sharply expressed and high elevated, 1,5 times wider than lateral fields, its surface roughly longitudinally striated. Gastrocoeli small, only just impressed, short, oblique; thyridia not developed; lunulae very distinct, elongated; surface of second tergite up to apex very densely punctured to slightly wrinkled, shining; tergites 3-4 densely superficially punctured by very small punctures, apical tergites shagreen. Hypopygium triangular from lateral, not compressed from sides; sternites 2-3 completely unsclerotized medially, sternite 4 with fold.

C o l o r a t i o n : Body black with reach yellow pattern: internal orbits, collar and hind corners of pronotum, subalarum and scutellum completely, bands along front margin of tergites 2-3 and apically of other tergites, all trochanters and femora partially and tibiae of all the legs; tarsi reddish-brown.

S i z e : Body length: 14,0; front wing: 11,2; flagellum: 8,0 mm.

M a l e

Flagellum of male with yellow bacilliform tyloides on segments 4-19; clypeus flat; interspace between dorsal and ventro-lateral carinae of petiolus punctured, without transversal ribs. Middle field of postpetiolus from sharply striated to densely longitudinally wrinkly-punctured. Hypopygium slightly elongated at central part, with rounded apex. Yellow coloration more expanded: face completely, front half of second and third tergite completely and so on.

13. *Obtusodonta* HEINRICH

Obtusodonta HEINRICH 1962 - Can. Ent., Suppl. **29**: 872-877.

Type species: *Spilichneumon obscuricolor* HEINRICH.

D i s t r i b u t i o n : Holarctic.

I n t r o d u c t i o n :

Genus is relative to genus *Spilichneumon* THOMSON. Broadened mandibles of females in the genus *Obtusodonta* takes on shovel-shaped form and lower tooth is reduced, taking on a shape of a slight notch. In contrast to *Spilichneumon*, abdomen of females is semiamblypygous and hypopygium is not fully overlap a slit of ovipositor. Area supero-media is more often almost not elongated, to square. Males of *Obtusodonta* is differed from *Spilichneumon* by absence of distinctly expressed median process of the hypopygium.

M o r p h o l o g y :

Flagellum : Of female bristle-shaped, rather stout with slightly elongated and

distinctly differentiated basal segments, attenuated to apex and behind middle only just flattened ventrally; flagellum short, distinctly shorter than front wing. Flagellum of males with row of bacilliform tyloides.

Head : Head contour from front only just transverse to square, slightly roundly narrowed downwards; contour of temples slightly roundly narrowed backwards. Hypostomal carina of palaearctic species visible from side and merged with occipital carina on a distance from mandible base; mandibles very wide, apically broadly rounded, shovel-shaped, with obsolete, subapical tooth, its place scarcely indicated by a little notch; mandibles of males slightly more robust than on the average in *Ichneumon*, the upper tooth somewhat prolonged and with blunted apex, the lower tooth reduced and situated far back from apex of upper one; clypeus with straight, slightly impressed front margin; median field of face short, convex; antennal cavities deep.

Thorax : Mesonotum slightly convex, almost flat in females and convex in males, almost equal of width and length in middle, shining, punctured by smoothed punctures; notauli rudimentary or fully absent; mesopleurae sharply convex at upper front third; sternauli absent or in a form of slight flattening; scutellum from slightly convex to fully flat; area superomedia approximately square or only just longer than width, quadrangular, costulae rudimentary; carina closing area superomedia from back and lateral carinae of area posteromedia indistinct or rudimentary.

Legs : Rather stout. Hind coxae of females without scopae.

Wings : Areolet, big, pentagonal, membrane of wing hyaline, sometimes slightly darkened.

Abdomen : Of females longish-oval semiamblypygous, ovipositor not protrude or only just visible from above. Middle field of postpetiolus distinct, slightly but distinctly elevated, longitudinally striated. Gastrocoeli not big, slightly but distinctly impressed, triangle or square with distinct thyridia, considerably narrower than interval between them. Hypopygium of males without distinctly expressed process apically.

Coloration : Head and thorax almost entirely black; abdomen red or black. In females of West Palaearctic *Obtusodonta equitatoria* (PANZER) thorax is black, with the exception of yellow scutellum, red upper corners of pronotum and tegulae. In females of East Palaearctic *O. ferruginea* (TELENGA), possessing in our disposal (Altai mountains, Kosh-Aach), red coloration is dominate: head almost entirely with exception of antennal cavities, front and upper margins of pronotum, mesonotum entirely, postscutellum and propodeum dorsally (except mesopleurae and third lateral field).

Size : Palaearctic species 11-17 mm.

Biology and ecology :

Hosts : For one palaearctic species of genus – *Obtusodonta equitatoria* (PANZ.) – the following data about hosts are known: *Bupalus piniarius* L. (Geometridae), *Agrotis segetum* DEN. et SCHIFF., *Apamea monoglypha* HUFN., *Panolis flammea* DEN. et SCHIFF. (Noctuidae) (HERTING 1976; RASNITSYN 1981).

Hibernation : References to hibernating of females are adduced in A. RASNITSYN's article (1964).

***Obtusodonta equitatoria* (PANZER) (Plate 14)**

Ichneumon equitatorius PANZER 1786 - In KOB: Die wahre Ursache der Baumtrockniss der Nadelwälder...: 56, ♂.

Amblyteles equitatorius: HEINRICH 1929 - Deutsch. Ent. Zeitschr.: 319.

Amblyteles equitatorius: SCHMIEDEKNECHT 1930 - Opusc. Ichneum., Suppl. 1 8: 83-84.

Obtusodonta equitatoria: RASNITSYN 1981 - Opr. Faun. SSSR 3 (3): 621.

F e m a l e

F l a g e l l u m : Rather slender, bristle-shaped, with 42 segments, not broadened and only just flattened behind middle, red-brown up to middle, without white annulus; segments distinctly differentiated, first segment short, 1,4 times longer than the width at apex, already segment 3 square from lateral, last but one square; flagellum from middle to apex, or its apical third black. Flagellum 1,3 times shorter than the front wing and 1,9 times shorter than body length.

H e a d : Head contour from front almost roundly narrowed downwards, only just transverse, only 1,1 times wider than height; genae (malar space) rather short, from front 5 times shorter of height of an eye (0,2), genae visible on third of eye height; head contour from above transverse, 2 times wider than length in middle and 1,8 times along an external contour, roundly narrowed backwards behind eyes. Vertex from lateral linearly sloping from ocelli to occipital carina; temples long, in middle 1,4 times longer than longitudinal diameter of an eye, at low half parallel to hind margin of an eye; occipital carina sharp all round, from above deeply roundly impressed, but far not reach level of eyes and hind ocelli, at the bottom merged with hypostomal carina far from mandible base; abscissula high, sharp, 1,5 times shorter than mandible base width, genae above abscissula slightly impressed; hypostomal carina high and sharp, visible from lateral to level of low border of an eye; malar space 1,5 times shorter than the mandible base width; mandibles rather broad, gradually curved from base to apex, parallel-sided on the larger part, with blunted rounded apex, without lower tooth or with only just visible its rudiment; clypeus slightly convex, 2,4 times wider than length, with straight impressed and thinned front margin and distinct lateral corners, separated from middle field of face by slight broad impression; clypeal foveae elongated, deep; labrum some narrower than front margin of clypeus, short, rounded, with long pubescence along front margin; middle field of face only just elevated, in middle equal to breadth of convex lateral fields; antennal cavities extremely strongly impressed, reach borders of eyes and far not reach front ocellus level, with indistinct lateral tubercles and broad tooth between antennal fossae; front margins of antennal fossae moderately elevated above face surface; ocelli rather large, diameter of lateral ocellus 1,6 times less than distance from ocellus to eye; ocellar triangle slightly, but distinctly elevated. Surface of face and clypeus with big, smoothed punctures; middle field only with separate superficial punctures; clypeus along front margin with row of punctures; face and clypeus shining, without microsculpture; frons above antennal cavities punctured by big smoothed punctures with slight microsculpture; temples shining with smoothed big punctures; face with long, sparse pubescence.

T h o r a x : Collar of pronotum from above long with straight front margin; transverse furrow of pronotum shallow, rather narrow; pronotal ridge not swollen, narrow; epomia sharp, high; pronotal base smoothly curved; upper half of pronotum with sparse superficial punctures. Mesonotum only just convex (flattened), 1,1 times longer than width; notauli

not developed, only in a form of very slight impressions at base; surface of mesonotum punctured by smoothed, sparse punctures, shining; axillary tongue only just marked; prepectal carina sharp, upwardly not reach front margin of mesonotum; subalarum moderately thick, high, not sharpened; mesopleurae at upper half in front strongly swollen; speculum slightly superficially punctured; mesopleural fovea distinctly expressed, area of mesopleural fovea sharply impressed; mesopleural suture straight, deep, interrupted by slight ribs; mesopleurae at bottom without distinct bend (break); sternauli or only just marked in a form of a some flattened surface, or absent; surface of mesopleurae shining, lower half longitudinally wrinkled, upper one with superficial sculpture; scutellum slightly (only just) elevated above postscutellum, from above flat, laterally not carinated. Hind margin of metanotum with broad triangular projections opposite of lateral longitudinal carinae. Propodeum from lateral with angular break, length of horizontal part 1,7 timer shorter than the length of area posteromedia in middle; carinae of propodeum with exception of costulae and lateral carinae of area posteromedia distinct, costulae slightly marked; basal area short and deep; area superomedia slightly elongated from rectangular to slightly hexagonal (slightly narrowed in front and backwards from rudimentary costulae); areae dentiparae at apices without teeth; spiracles big, along external contour 3 times longer than width. Horizontal surface of propodeum slightly wrinkled; metapleurae longitudinally wrinkled; surface of propodeum shining, without microsculpture.

L e g s : Moderately stout. Claws slightly uniformly curved.

W i n g s : Areolet big, pentagonal, almost symmetrical, sometimes external vein of apex shorter than internal one; stigma sort and broad, dark; radial cell long, radius curved at apex; nervulus slightly postfurcal; ramulus only just marked, or not expressed; all veins dark; membrane of wing slightly infuscated. Front wing distinctly longer than length of flagellum and shorter than body length.

A b d o m e n : Semiamblypygous, from above oval, narrowed to apex, sometimes with slightly compressed from sides apex, sixth and seventh tergites visible from above on considerable length; second tergite transverse, at apex 1,5 times wider than length; sheath of ovipositor not visible from above or only just protrude. First tergite from lateral with distinct bend between petiolus and postpetiolus, narrow at base; lateral carinae of first tergite smoothed but distinct, petiolus from lateral with smoothed transversal ribs; from above petiolus sharply broadened to almost rectangular behind spiracles postpetiolus; distance between spiracles 1,4 times more than distance from spiracles to hind margin of tergite; middle field of postpetiolus distinct, but slightly elevated and not carinated, 2,3 times wider than lateral fields, its surface delicately longitudinally striated. Gastrocoeli short, slightly impressed, square, 2,3 times narrower than interval between them, with distinct thyridia; lunulae only just marked, small; surface of second tergite up to apex very densely superficially punctured to slightly wrinkled medially; third tergite superficially punctured by small punctures, other tergites smooth. Hypopygium triangular from lateral, often compressed from sides, uniformly covered by long bristles; sternites sclerotized slightly, sternites 2-4 with longitudinal fold.

C o l o r a t i o n : Body black with reach, variable red pattern; red: scapus and flagellum to apical third; head with exception of black lateral fields of face, antennal cavities and vertex, collar of pronotum, tegulae, sometimes spots on mesonotum; abdomen red with darkened base of tergites 3-4, sometimes tergite 2. Scutellum yellow. Legs, with exception of coxae, red.

S i z e : Body length: 13,2 (12-14); front wing: 9,5; flagellum: 7,1 mm.

14. *Fileanta* CAMERON

Fileanta CAMERON 1901 - Ann. & Mag. Nat. Hist. 7 (7): 525.

Type species (*Fileanta balteata* CAMERON) = *radoszkowskii radoszkowskii* BERTHOUMIEU.

Distribution: South of Palaearctic and mountains of Oriental region.

Introduction:

Strongly, almost straightly narrowed downwards and backwards profile of a head, occipital carina, abrupt far before hypostomal carina with impression between occipital carina and high abscissula and narrow, sharpened to apex unidentate mandibles are characteristic to the genus. Propodeum is without apophyses and teeth but with strongly broadened carina, closing area dentipara from backwards at their place, with strongly developed, almost cellular sculpture. Legs are slender with very long and narrow hind femora. Middle field of postpetiolus is longitudinally striated. 2nd and 3rd tergites of abdomen are densely punctured by small punctures, dull, sternites 2-5 with longitudinal fold. Flagellum of male is with narrow tyloides. Hypopygium of male is slightly extended, without long process.

Morphology:

Flagellum: Long, slender, strongly attenuated and pointed toward apex, behind middle not widened; in males with very slightly differentiated segments and with narrow tyloides.

Head: Head contour from front almost straightly narrowed downwards and from above backwards, vertex from lateral almost straightly oblique behind ocelli; occipital carina, abrupt far before hypostomal carina with impression between occipital carina and sharp high elevated abscissula; mandibles narrow with sharpened apex, without lower tooth. Middle field of face and frons with rough sculpture, surface of a head shining with long sparse pubescence.

Thorax: Mesonotum slightly convex, only just longer than width, laterally behind middle carinated by high carina, notauli not developed; surface of mesonotum densely and roughly punctured, with slight sine; axillary tongue only just marked; mesopleurae at bottom with distinct bend (break); sternauli distinct to behind middle of mesopleurae; scutellum of females from lateral moderately elevated above postscutellum, from above slightly convex, laterally not carinated, of males rounded in profile. Hind margin of metanotum with projections. Propodeum in profile, with angle-shaped break, with complete set of sinuate carinae with exception of indistinct costulae of females and indistinct coxal carina; area superomedia elongated, often narrowed backwards; carinae closing areae dentiparae from behind broadened, particularly at place of apophyses; spiracles long and narrow. Surface of propodeum with rough sculpture, to cellular, shining.

Legs: Long and slender; hind femora narrow, long. Hind coxae of females without scopula. Claws long and thin.

Wings: Areolet pentagonal, symmetrical with narrow base; nervulus slightly postfurcal; stigma narrow.

Abdomen: Of females amblypygous, apex compressed from sides, apical tergites not retracted. Middle field of postpetiolus distinctly elevated, its surface from longitudinally wrinkly-punctured to sharply longitudinally striated. Gastrocoeli slightly impressed and short, narrower than interval between them with weak but distinct thyridia; surface

of 2nd and 3rd tergites very densely punctured by small punctures, dull, apical part of third and other tergites shining. Sternites 2-5 with longitudinal fold; hypopygium of females rather compressed and triangle from sides with pubescence but without fascicle of hairs at apex, in males distinctly extended and rounded at central part with slightly cut apex.

C o l o r a t i o n : Abdomen of females red on the larger part, second tergite with broad black band at apex. Body of males with rich yellow (not red) pattern, abdomen with black apical bands on tergites 2-3.

S i z e : Body length 13-13,5 mm.

***Fileanta radoszkowskii* (BERTHOUMIEU) (Plate 15)**

Amblyteles radoszkowskii BERTHOUMIEU 1892 - Revue d'Entom **11**: 43, ♀.

Fileanta balteata: CAMERON 1901 - Ann. & Mag. Nat. Hist. **7** (7): 526, ♂.

Amblyteles radoszkowskii: HEINRICH 1931 - Mitt. Deutsch. Ent. Ges. **2**: 31-32, ♀, ♂.

Fileanta radoszkowskii radoszkowskii: TOWNES H.& M., GUPTA 1961 - Mem. Amer. Ent. Inst. **1**: 387.

Fileanta radoszkowskii: HEINRICH 1978 - East. Pal. Ich.: 65-66.

F e m a l e

F l a g e l l u m : Thin, bristle-shaped, with 50 segments, with white annulus on segments (9)10-14(15), not thickened and only just visible flattened behind middle; segments before white annulus strongly differentiated, first segment 2,8 times longer than the width at apex, segment 10 and last but one segment square from lateral; flagellum up to white annulus black, beyond it brownish. Flagellum 1,2 times shorter than the front wing and 1,3 times shorter than body length.

H e a d : Head contour from front almost linearly narrowed downwards, only just transverse, only 1,1 times wider than height; genae long, genae length (malar space) from front 2,7 times shorter of height of an eye (0,4); head contour from above transverse, 2 times wider than length in middle and 1,8 times along an external contour, almost linearly narrowed backwards behind eyes. Vertex from lateral linearly sloping from ocelli to occipital carina; temples long, in middle 1,3 times longer than longitudinal diameter of an eye, broadened downwards; occipital carina high, sharp all round, from above slightly roundly impressed, very far not reach level of eyes and hind ocelli, at the bottom abrupt far from hypostomal carina, between it and hypostomal carina broad impression is formed; hypostomal carina visible from lateral on considerable distance; abscissula high, sharp, 1,4 times longer than the mandible base width; malar space 1,3 times shorter than the mandible base width; mandibles narrow, evenly narrowed from base to sharp apex, without lower tooth; clypeus slightly convex, 2,1 times wider than length, with straight thinned front margin, distinct lateral corners, oblique lateral margins and with impression along front margin, separated from face, by slight broad impression; clypeal foveae normal, deep; labrum narrower than front margin of clypeus, rounded, short, with short pubescence along front margin; middle field of face only just elevated, in middle narrower than breadth of lateral fields; antennal cavities strongly impressed, reach borders of eyes and far not reach front ocellus level, with lateral tubercles and only just marked tubercle between antennal fossae; front margins of antennal fossae moderately elevated above face surface; ocelli of normal size, diameter of lateral ocellus equal to distance from ocellus to eye; ocellar triangle slightly, but distinctly elevated. Surface of

clypeus with big punctures, with wrinkling along front margin; middle and lateral fields partially smoothly wrinkly-punctured; face and clypeus shining, without microsculpture; frons above antennal cavities roughly wrinkly-punctured to slightly cellular medially; temples smoothly wrinkly-punctured. Face and temples with long sparse pubescence.

T h o r a x : Collar of pronotum from above long with straight front margin; transverse furrow of pronotum shallow, broad; pronotal ridge not swollen, narrow; epomia sharp, high; pronotal base gradual, sharply curved at the bottom; upper half of pronotum roughly punctured by big punctures. Mesonotum slightly convex, 1,1 times longer than width; notauli in a form of very slight impressions at base; lateral furrow of mesonotum sharp and deep; surface of mesonotum densely punctured by irregular punctures, punctures on middle lobe merged, laterally mesonotum to wrinkly-punctured, surface shining; prepectal carina upwardly not reach pronotum; subalarum thin, high, but not sharpened; speculum roughly wrinkly-punctured as other part of mesopleurae; mesopleural fovea distinctly expressed, area of mesopleural fovea sharply impressed; mesopleural suture straight, very deep, interrupted by very sharp ribs; sternaui sharp and deep up to behind middle of mesopleurae; surface of mesopleurae roughly sculptured, shining; scutellum from lateral moderately elevated above postscutellum, from above slightly convex, laterally not carinated. Hind margin of metanotum with triangular projections opposite of lateral longitudinal carinae. Propodeum from lateral with angular break, length of slightly convex horizontal part equal to length of area posteromedia in middle; carinae of propodeum with exception of costulae sharp, sinuous; costulae slightly marked, coxal carina indistinct, carina closing area dentipara from behind very high; basal area short and deep; area superomedia elongated from rectangular to slightly hexagonal (narrowed backwards), 1,3 times longer than width; areae dentiparae at apices with tooth-like broadenings; spiracles long, slit-shaped, along external contour 3,3 times longer than width. Surface of propodeum, including metapleurae, roughly-wrinkled to cellular, shining, without microsculpture.

L e g s : Slender, long, hind femora narrow, more than 6 times longer than width. Claws very long, slightly uniformly curved.

W i n g s : Areolet big, pentagonal, with narrow base, slightly asymmetrical, external vein of apex shorter than internal one; stigma narrow, dark; radial cell long, radius almost straight; nervulus slightly postfurcal; ramulus long; all veins dark; membrane of wing hyaline. Front wing slightly longer than length of flagellum and shorter than body length.

A b d o m e n : Amblypygous, from above oval, appreciably narrowed backwards from apex of tergite 2, apex of abdomen compressed from sides in different degree, sixth and seventh tergites visible from above on considerable length; second tergite transverse, at apex 1,2 times wider than length; sheath of ovipositor not visible from above. First tergite from lateral with gradual bend between petiolus and postpetiolus, lateral carinae of first tergite smoothed but distinct, from lateral petiolus with transversal ribs especially sharp at upper half; from above petiolus gradually broadened to triangle postpetiolus (at some specimens rather sharply); distance between spiracles some more than distance from spiracles to hind margin of tergite; middle field of postpetiolus distinct, to sharply and high elevated, 1,5 times wider than lateral fields, its surface from longitudinally wrinkly-punctured to sharply striated. Gastrocoeli rather short, superficial, square, 2,3 times narrower than interval with distinct but weak thyridia; lunulae distinct, of moderate

size; surface of second tergite up to apex very densely punctured to slightly wrinkled, dull; third tergite densely superficially punctured by very small punctures, other tergites smooth. Hypopygium triangular from lateral, frequently compressed from sides, covered by coarse bristles, but without fascicle of long coarse bristles at apex as at *Eutanyacra*; sternites sclerotized slightly, sternites 2-5 with longitudinal fold.

C o l o r a t i o n : Body black with yellow and red pattern; yellow: fronto-vertical orbits, collar of pronotum and scutellum; abdomen predominantly red with black first tergite and apical bands on second and third tergites. Legs, with exception coxae and trochanters I, red.

S i z e : Body length: 11,5; front wing: 10,0; flagellum: 8,7mm.

M a l e

Flagellum of male with 47 segments, with narrow (almost bacilliform) tyloides on segments 9-22, reddish-brown, without white annulus, segments not ribbed, slightly differentiated; clypeus only just visible separated from face; scutellum more convex, rounded from lateral; propodeum with more rough sculpture; costulae distinct. Hypopygium elongated at central part with cut apex; sternites 5 and 6 without longitudinal fold. Body with rich yellow pattern: face and clypeus entirely, fronto-vertical orbits, scapus and pedicellus entirely, collar of pronotum, hind corners of pronotum, spots on tegulae, subalarum, scutellum, most part of second and third tergites; second and third tergites with black bands at apex, apical tergites of abdomen rust-colored. Front and middle legs including coxae and front trochanters, base of tibiae and tarsi of hind legs yellow.

15. *Triptognathus* BERTHOUMIEU

Triptognathus BERTHOUMIEU 1904 - Genera Insectorum **18**: 49.

Type species: *Ichneumon uniguttatus* GRAVENHORST.

Triptognathus: HEINRICH 1978 - East. Pal. Ichn.: 59.

Triptognathus: RASNITSYN 1981 - Opr. Faun. SSSR **3** (3): 568, 623.

D i s t r i b u t i o n : Palaearctic.

I n t r o d u c t i o n :

The genus is characterized by combination of unidentate mandibles with absence of distinct teeth on propodeum, weak gastrocoeli and undeveloped thyridia, amblypygous abdomen of females with more over flattened hypopygium with long bristles at apex and hypopygium of males with long process. From relative genus *Triptognathops* HEINRICH it is distinguished by not elevated and bent upwards from above occipital carina, sharp tooth between antennal fossae, by presence of coxal carina, by absence of distinct tooth on propodeum, more stumpy legs, by fascicle of more long bristles at apex of females hypopygium (like of *Eutanyacra* CAMERON) and by hypopygium of males with long process at apex.

M o r p h o l o g y :

F l a g e l l u m : Bristle-shaped, from moderately stout to stout with slightly elongated basal segments, with or without white annulus, from slightly (*T. uniguttatus* GRAV.) to distinctly flattened behind middle (*T. baicalicus* KOK.); in males with narrow tyloides or without them.

H e a d : Head contour from front narrowed downwards; vertex from lateral straightly

sloping behind ocelli to sharp occipital carina; temples from above strongly narrowed behind eyes from almost strightly (*T. uniguttatus* GRAV.) to roundly narrowed (*T. baicalicus* KOK.). Occipital carina merged with hypostomal one not reaching mandible base; mandibles gradually narrowed from base to apex, with more or less pointed or blunted apex, without lower tooth; clypeus from rather convex at base and distinctly separated from middle field of face, to flat, slightly separated from face (at males of *T. baicalicus* KOK.), middle field of face from rather sharply elevated to slightly expressed (at females of *T. baicalicus* KOK.); tooth between antennal fossae strong; ocellar triangle slightly elevated or not expressed, ocelli of normal size, diameter of lateral ocellus always less than distance from ocellus to eye.

Thorax: Mesonotum from slightly convex to almost entirely flat (*T. baicalicus* KOK.), only just longer than width; notauli absent; surface of mesonotum densely punctured, shining; subalarum narrow, not sharpened; mesopleurae at bottom with distinct bend; sternauli from distinct to only just marked; scutellum from lateral moderately elevated above postscutellum, from above slightly convex, almost flat, laterally not carinated, in males more convex and higher elevated above postscutellum. Hind margin of metanotum with projections. Length of horizontal part of propodeum always less than length of area posteromedia in middle; basal area short and deep; all carinae of propodeum, except costulae, developed (sometimes costula slightly expressed in males), area superomedia rectangular, often slightly widened in middle; areae dentiparae at apex without teeth, only with broadenings of carinae at theirs place (in contrast to *Triptognathops* HEINRICH); spiracles long, slit-shaped.

Legs: From quite slender to moderately stout. Hind coxae of females without scopa. Claws rather thin and slightly curved.

Wings: Areolet pentagonal with wide base; nervulus postfurcal or interstitial; radius slightly sinuous at apex, almost straight. Membrane of wings sometimes darkened in different degree.

Abdomen: Of females amblypygous, from above broadly-oval, sheath of ovipositor not visible from above; abdomen of males narrow from above. Middle field of postpetiolus of females sharply longitudinally striated to longitudinally wrinkly-punctured in males (*T. baicalicus* KOK.). Gastrocoeli not big, not deep, without thyridia, many narrower than interval; surface of second tergite of females densely indistinctly punctured, of males with more rough sculpture, dull. Sternites 2-3 of females and 2-4 of males with fold; hypopygium of females from below flat or almost flat with fascicle of more long bristles at apex (like *Eutanyacra* CAMERON). Hypopygium of males at apex with long narrow process.

Coloration: Body black, tergites 2-3 on the larger part red. In females of *T. baicalicus* (KOK.) tergites 6-7 with white spots. Scutellum of males white, of females white or black. Legs black or with red pattern, sometimes with present of white. Vertex of females sometimes with reddish spots.

Size: Body length 13-18 mm.

Biology and ecology:

Hosts: According to catalog of B. HERTING (1976) *T. atripes* (GRAV.) is reared in Hungary from *Spilosoma menthastri* ESPER, *S. lubricipeda* L., *Phragmatobia fuliginosa* L. (Arctiidae) and in Germany from *Agrotis ypsilon* ROTT., *Nonagria dissoluta* TR., *N. typhae* THUNB. (Noctuidae).

Hibernation: Data from literature about hibernation of females *T. uniguttatus* (GRAV.) [*?uniguttatorius*] are adduced by A. RASNITSYN (1964).

***Triptognathus uniguttatus* (GRAVENHORST) (Plate 16)**

Ichneumon uniguttatus GRAVENHORST 1829 - Ichneumonologia europaea 1: 310, ♀, ♂.

Triptognathus uniguttatus: HEINRICH 1978 - East. Pal. Ichn.: 60-61.

Material examined: ♀: Kokchetav, Akmol. obl., Karavaev, 01.08.1908. ♂: okr. Antonovki, Pishpekskogo u. [Kirgizija], P. Arkhangel'skij, 19.05.1922. ♂: Turcja, Ispir, 2500 m, 15.07.1974, leg. T. Huflejt, "*Triptognathus atripes* Grav. (?)", det. A. Rasnitsyn.

F e m a l e

Flagellum: Bristle-shaped, with 54 segments, moderately thick, without white annulus, only just widened and very slightly flattened ventrally beyond middle; segments slightly elongated, first segment short, only 1,7 times longer than the width at apex, already segment 4 square from lateral; segments of base sharply separated (differentiated), other segments more or less merged. Flagellum 1,3 times shorter than the front wing and 1,5 times shorter than body length.

Head: Head contour from front quite slightly narrowed downwards, only just transverse, only 1,1 times wider than height; genae from front (malar space) 4,3 times shorter than height of eye (0,2), genae visible from front on 0,3 from base of an eye; head contour from above transverse, 2,2 times wider than length in middle and 1,8 times along an external contour, almost linearly narrowed backwards behind eyes. Vertex from lateral linearly sloping from hind border of ocelli to occipital carina; temples long, in middle 1,5 times longer than longitudinal diameter of an eye, below middle parallel to hind margin of an eye; occipital carina sharp all round, from above sharp and high elevated (but not so much as in *Triptognathops* HEINRICH), uniformly roundly impressed, far not reach level of eyes and hind ocelli; hypostomal carina visible from lateral to 0,2-0,3 height of an eye, merged with occipital carina before base of mandible; abscissula rather high, equal 0,7 of mandible base width; malar space equal to mandible base width; mandibles rather narrow, evenly narrowed from base to apex, with more or less sharpened apex, without lower tooth; clypeus convex at base, 2,2 times wider than length, with straight thinned front margin and rounded lateral corners, separated from face by deep, broad impression; clypeal foveae small, deep; labrum equal by breadth to front margin of clypeus, rounded, rather long; middle field of face slightly separated, short, rather sharply elevated, in middle approximately equal by breadth to lateral fields; antennal cavities short, rather deeply impressed, reach borders of eyes and far not reach front ocellus level, without lateral tubercles and with strong tooth between antennal fossae; margins of antennal fossae slightly elevated above face surface; ocelli of normal size, diameter of lateral ocellus 1,4 times less than distance from ocellus to eye; ocellar triangle slightly elevated. Surface of clypeus with big deep punctures; middle and lateral fields densely punctured to wrinkly-punctured on their borders; frons roughly wrinkly-punctured to sharply-wrinkled at area of front ocellus; temples smoothly wrinkly-punctured; surface of head without microsculpture.

Thorax: Collar of pronotum from above long with rounded front margin; transverse furrow of pronotum deep, narrow; pronotal ridge not swollen; epomiae sharp, high; pronotal base gradually curved, slightly sinuous. Mesonotum moderately convex, only just (1,1 times) longer than width; notauli absent; surface of mesonotum densely punctured,

without microsculpture; axillary tongue weak but distinct; subalarum high, moderately thick, not sharpened; speculum densely wrinkly-punctured, same as other part of upper third of mesopleurae; mesopleural fovea sharply expressed, deep; mesopleural suture straight, deep, interrupted by sharp ribs; mesopleurae at bottom with bend from lower third; sternauli sharp, triangular, up to hind third of mesopleurae; surface of mesopleurae on the larger part roughly wrinkly-punctured, without microsculpture; scutellum from lateral moderately elevated above postscutellum, from above almost flat, laterally not carinated, its surface densely punctured by large oblong punctures. Hind margin of metanotum with broad triangular projections opposite of lateral longitudinal carinae. Length of horizontal part of propodeum 1,5 times less than length of area posteromedia in middle; carinae of propodeum with exception of costulae expressed; basal area short and deep; area superomedia rectangular, from square to slightly transverse, 1,2 times wider than length; carinae, enclosing areae dentiparae and areae spiraculifera high and thus form at apices of areae dentiparae lamellar broadening like tooth (but not a tooth); spiracles long, slit-shaped, along external contour 4 times longer than width. Surface of propodeum, including metapleurae, roughly-wrinkled, without microsculpture.

L e g s : Rather slender, hind tarsi long and slender. Middle tibiae with more strong spinules comparatively tibiae 1 and 3. Claws rather long, uniformly curved.

W i n g s : Areolet pentagonal, practically symmetrical with broad base, external vein of apex shorter than internal one; stigma short, broad, more or less light; radial cell broad; radius almost straight; nervulus interstitial; ramulus long; all veins dark; membrane of wing slightly darkened. Front wing longer than length of flagellum and shorter than body length.

A b d o m e n : Amblypygous, from above broadly-oval, apical tergites not hidden, sheath of ovipositor from above not protrude; second tergite transverse, at apex 1,5 times wider than length. First tergite from lateral with rather sharp bend between petiolus and postpetiolus, from lateral sharply bordered by carinae and with strong transversal ribs between them; from above petiolus sharply broadened to rectangular behind spiracles postpetiolus; distance between spiracles 1,5 times more than distance from spiracles to hind margin of tergite; middle field of postpetiolus sharply expressed and high elevated, 1,5 times wider than lateral fields, its surface roughly longitudinally striated, lateral fields also with longitudinal wrinkles. Gastrocoeli small, only just impressed, short; thyridia weak, short, many times narrower than interval between them (only just marked); lunulae only just expressed, small; interval between gastrocoeli with very slight longitudinal striation, surface of second and third tergites very densely and indistinctly punctured, with slight shine. Hypopygium more or less flattened, with membranous hind margin and with fascicle of long stiff bristles at apex (as in *Eutanyacra* CAMERON); sternites 4-7 with short delicate pubescence; only sternites 2-3 with longitudinal fold.

C o l o r a t i o n : Body black, small spots on vertex and tergites 2-3 of abdomen red.

S i z e : Body length: 12,3; front wing: 10,5; flagellum: 8,0 mm.

M a l e

Flagellum of male with 43 segments, with dark bacilliform tyloides on segments 6-17, segments of flagellum not ribbed, densely merged. Mandibles narrow, without lower tooth. Hind margin of collar of pronotum high, sharp, transverse furrow deep. Sculpture of mesopleurae less rough than of females; horizontal surface of scutellum convex.

Transverse carinae at apices of areae dentiparae remind a tooth in a greater extent than in females. Hypopygium at apex with long narrow process. Collar of pronotum, spots in corners of pronotum, subalarum, tegulae, spots at base of front wings and scutellum white; coloration of abdomen is the same as of females; tibiae and tarsi of front and middle legs, femora of front completely, of middle one on the larger part reddish-black with yellow.

Notes: The male available in our disposal, determined by A. RASNYTSIN as *Triptognathus atripes* (GRAV.) (RASNITSYN 1981) has occipital carina considerably elevated at horizontal part as in *Triptognathops* HEINRICH, practically not expressed tyloides and considerably more rough sculpture of a body. It appreciably differs from the described above and identified by G. HEINRICH (see HEINRICH 1978) as *uniguttatus* male. H. TOWNES (1965) has synonymized *Triptognathus atripes* and *T. uniguttatus*, considering of white scutellum, white spot on subalarum and a median apical white mark on tergites 6 and 7 presence in *T. atripes* female as insignificant differences. The said calls into question the synonymization of *Triptognathus atripes* and *T. uniguttatus*.

For this reason, we leave for *Triptognathus uniguttatus* (GRAV.) the former name under what it has been identified by G. HEINRICH.

16. *Triptognathops* HEINRICH

Triptognathops HEINRICH 1978 - East. Pal. Ichn.: 63.

Type species: *Amblyteles bicolor* KRIECHBAUMER.

Triptognathops: RASNITSYN 1981 - Opr. Faun. SSSR 3 (3): 567-568, 623.

Distribution: Palaearctic.

Introduction:

The genus is characterized by combination of following characters: always slender flagellum, unidentate mandibles, sharp and high elevated and bent dorsally occipital carina, propodeum with strong teeth, long slender legs, weak gastrocoeli and undeveloped thyridia, amblypygous abdomen of females with more or less flattened hypopygium and trapeziform hypopygium of males with cut apex. From relative genus *Triptognathus* BERTHOUMIEU, it is distinguished by elevated and bent upwards dorsally occipital carina, by absence of sharp tooth between antennal fossae, by presence of weak but distinct impressions at place of base of notauli, by absence of coxal carina, by presence of strong flat teeth on propodeum, by long slender legs, tibiae and tarsi of which covered by long spinules, by absence of longitudinal fold on 3rd and sometimes on 2nd sternites of abdomen, by hypopygium of females without of more long bristles at apex and by hypopygium of males without of long process at apex. Females of the genus in comparison with *Triptognathus* BERTHOUMIEU have more long and appreciable pubescence. Tyloides on the males flagellum, in case of their presence are not narrow, but elongated-oval.

Morphology:

Flagellum: Bristle-shaped, always slender, with elongated basal segments, with white annulus or without it, practically not flattened behind middle; in males with elongated-oval tyloides or without them.

Head: Head contour from front quite strongly narrowed downwards; vertex from

lateral straightly sloping behind ocelli to sharp occipital carina; temples from above strongly almost straightly narrowed behind eyes. Occipital carina from above sharp, high elevated and bent, merged with hypostomal one not reaching mandible base; mandibles rather narrow with one tooth, gradually narrowed from base to pointed apex, from base to middle strongly bordered from below; clypeus slightly convex with strongly impressed, thinned front margin; tubercle between antennal fossae very weak; ocellar triangle from slightly to sharply elevated and spreading on vertex almost to occipital carina; ocelli from normal to very big when diameter of lateral ocellus almost two times more than distance from ocellus to eye.

T h o r a x : Mesonotum slightly convex, only just longer than width, notauli slightly marked at base in a form of impressions more developed in males; surface of mesonotum densely punctured, shining; subalarum narrow, not sharpened; mesopleurae at the bottom with distinct bend; sternaui from distinct to only just marked in a form of triangular impression; scutellum from lateral moderately elevated above postscutellum, from above slightly convex, almost flat, laterally not carinated, in males more convex and higher elevated above postscutellum. Hind margin of metanotum with projections. Length of horizontal part of propodeum always less than length of area posteromedia in middle; basal area short and deep; costulae and coxal carinae absent; area superomedia rectangular, sometimes narrowed backwards; areae dentiparae at apex with strong flat teeth (in contrast to *Triptognathus* KRIECHBAUMER); spiracles long, slit-shaped.

L e g s : Long and slender, first segment of hind tarsus compressed from sides, all tibiae and tarsi with long thin spinules. Hind coxae of females elongated, without scopa. Claws long thin, slightly curved.

W i n g s : Areolet pentagonal with narrow base; nervulus slightly postfurcal; radius slightly sinuous; ramulus rather long. Membrane of wing darkened.

A b d o m e n : Of females amblypygous, from above broadly-oval, rather strongly narrowed to apex, apical tergites not hidden, sheath of ovipositor not visible from above. Middle and lateral fields of postpetiolus sharply longitudinally striated. Gastrocoeli small, not deep, in females without thyridia, in males with more or less distinct thyridia, many narrower than interval between them; surface of second tergite of females densely indistinctly punctured, in males sculpture of tergites 2-3 rough, dull. Hypopygium of females more or less uniformly covered by long dark bristles; only sternite 2 with fold. Hypopygium of males at apex without long process, with cut apex, but with tendency to narrowing, trapeziform.

C o l o r a t i o n : Body black, tergites 2-3 red, to fully black. Males with white pattern: margins of face and clypeus, scutellum. Legs of females black, of males with red pattern.

S i z e : Body length 14-20 mm.

There are two species in the genus. Differences between them are presented in table 4:

Table 4: The comparative characteristics of females of the species of *Triptognathops*

<i>Triptognathops bicolor</i> (KRIECHB.)	<i>Triptognathops gobiensis</i> nov.sp.
F l a g e l l u m	
Without white annulus.	With white annulus.
H e a d	
Temples in middle 1,2 times longer than longitudinal diameter of an eye.	Temples in middle 1,2 times shorter than longitudinal diameter of an eye.
Malar space equal by length to mandible base width.	Malar space 1,4 times shorter than mandible base width.
Clypeus with distinct medio-apical impression.	Clypeus without medio-apical impression.
Ocelli of normal size, diameter of lateral ocellus 1,2 times less than distance from ocellus to eye; ocellar triangle slightly expressed, not spread on vertex up to occipital carina.	Ocelli strongly convex and large, diameter of lateral ocellus 2 times more than distance from ocellus to eye; ocellar triangle strongly elevated and bordered laterally by impression, on vertex expressed up to occipital carina.
T h o r a x	
Mesopleural fovea without narrow sharp longitudinal impression around.	Mesopleural fovea with narrow sharp impression around.
Sternauli in a shape of broad triangle impression.	Sternauli sharp in a shape of narrow cellular furrow up to hind third of mesopleurae, situated on broad triangle impression.
Mesosternal suture deep, not strongly broadened backwards, without distinct triangle impression before middle coxae.	Mesosternal suture evenly broadened backwards, forming triangle impression before middle coxae.
Length of horizontal part of propodeum 1,9 times less than length of area posteromedia in middle.	Length of horizontal part of propodeum 1,5 times less than length of area posteromedia in middle.
A b d o m e n	
2 nd tergite medially more roughly sculptured.	2 nd tergite medially more smoothly sculptured.
All sternites without distinct fold, only sternite 2 only just visible less sclerotized than subsequent ones.	Sternite 2 with distinct longitudinal fold.

***Triptognathops bicolor* KRIECHBAUMER**

Amblyteles bicolor KRIECHBAUMER 1882 - Ent. Nahr.: 240, ♀.

Triptognathops bicolor: HEINRICH 1978. - East. Pal. Ichn.: 63-64.

M a t e r i a l e x a m i n e d : ♀: Vladim. Gub., leg. Kokuev. ♀: Turkmenia, 15 km to west of Firusa, Dushak, 18.05.1988, leg. A. Barkalov. ♂: Lagodekhi, Gruzija, 15-23. 07. 1893 (Vinogradov-Nikitin).

F e m a l e

F l a g e l l u m : Bristle-shaped, slender, with 54-55 segments, first segment long, 3,5 times longer than the width at apex, without white annulus, not widened and very slightly flattened ventrally beyond middle; only segments of the middle of flagellum square; segments of the base sharply separated from each other (differentiated), other more or less merged. Flagellum 1,4 times shorter than front wing and 1,4 times shorter than body length.

H e a d : Head contour from front strongly narrowed downwards, only just transverse, only 1,3 times wider than height; genae from front (malar space) 5,3 times shorter than height of an eye (0,2), genae not swollen, visible from front up to 0,2 from base of an eye, linearly narrowed; head contour from above transverse, 1,9 times wider than length in middle and 1,7 times along an external contour, sharply and linearly narrowed backwards behind eyes. Vertex from lateral linearly sloping from hind border of ocelli to occipital carina; temples long, in the middle 1,2 times longer than longitudinal diameter of an eye, below middle parallel to hind margin of an eye; occipital carina sharp all round, from above sharp, high elevated and bent, uniformly roundly impressed, far not reach level of eyes and hind ocelli, from lateral bent up to level of eye's middle; hypostomal carina not visible from lateral, merged with occipital carina far before base of mandible; abscissula high, equal by length to mandible base width; malar space equal by length to mandible base width; mandibles rather narrow, evenly narrowed from base to apex, with sharpened apex, without lower tooth or even slight notch on its place, from base to middle strongly bordered from below; clypeus slightly convex, 2,1 times wider than length, with strongly impressed thinned front margin, distinct medioapical impression and rounded lateral corners, separated from middle field of face by impression; clypeal foveae small, deep; labrum rather long, rounded, almost equal by width to front margin of clypeus; middle field of face distinctly elevated, in middle only just wider than lateral fields; antennal cavities short, rather deeply impressed, reach borders of eyes and far not reach front ocellus level, with distinct lateral tubercles and with very slight tubercle between antennal fossae; margins of antennal fossae high elevated above face surface; ocelli of normal size, diameter of lateral ocellus 1,2 times less than distance from ocellus to eye; ocellar triangle slightly expressed, not spread on vertex up to occipital carina. Surface of clypeus densely punctured by smoothed punctures of moderate size, middle field with more deep rough and big punctures, lateral fields wrinkly-punctured; frons above antennal cavities roughly transversely wrinkled; vertex and temples longitudinally wrinkly-punctured, striation of vertex sharp; surface of head without microsculpture. Frons, face and temples in lower half with long darkened pubescence (more short than in *T. gobiensis* nov.sp.).

T h o r a x : Collar of pronotum from above short, with more or less straight front margin; transverse furrow of pronotum very deep; pronotal ridge not swollen; epomiaae sharp, high; lateral surface of pronotum with rough sculpture and slight shine; pronotal base gradually curved, slightly sinuous. Mesonotum moderately convex, some (1,2 times) longer than width; notauli only just marked at base, practically absent; lateral furrow of mesonotum deep; surface of mesonotum densely punctured with more big smoothed punctures on middle lobe, without microsculpture, shining; axillary tongue distinct; prepectal carina at upper part not reach pronotum; subalarum high, not sharpened; speculum strongly convex with big punctures; mesopleural fovea sharply expressed, deep, without

longitudinal impression around; mesopleural suture straight, deep, interrupted by sharp ribs; mesopleurae at bottom with bend from lower third before sternauli; sternauli in a shape of broad triangular impression up to hind third of mesopleurae; mesosternal suture deep, not strongly broadened backwards; surface of mesopleurae on the larger part roughly-wrinkled to cellular at lower third, dull or with slight shine; scutellum from lateral moderately elevated above postscutellum, from above almost flat, laterally not carinated, its surface punctured by smoothed punctures. Hind margin of metanotum with strong triangular projections opposite of lateral longitudinal carinae. Length of horizontal part of propodeum 1,9 times less than length of area posteromedia in middle; carinae of propodeum with exception of costulae and coxal carinae sharp; basal area short and deep; area superomedia rectangular, slightly transverse; all carinae of horizontal part high and sinuous; areae dentiparae at apex with strong teeth (more narrow than in *Triptognathops gobiensis* nov.sp.); spiracles long, slit-shaped, along external contour 4 times longer than width at middle. Surface of propodeum, including metapleurae, roughly-wrinkled, without microsculpture; vertical parts of propodeum with dark, rather sparse pubescence.

L e g s : Slender and long, hind tarsi long and slender. All tibiae with long thin spinules, all tarsi with dense spinules ventrally; first segment of hind tarsi compressed from sides. Hind coxae elongated. Claws very narrow and long, slightly uniformly curved.

W i n g s : Areolet pentagonal, big with narrow base, practically symmetrical, external vein of apex shorter than internal one; stigma rather broad, long, dark; radial cell long; radius slightly curved; nervulus slightly postfurcal; ramulus rather long; all veins dark; membrane of wing darkened. Front wing 1,1 times longer than length of flagellum and 1,3 times shorter than body length.

A b d o m e n : Amblypygous, from above broad rather strongly narrowed to apex, apical tergites not hidden, sheath of ovipositor from above not protrude; second tergite transverse, at apex 1,4 times wider than length in middle. First tergite from lateral with distinct smoothed bend between petiolus and postpetiolus, from lateral sharply bordered by carinae and with strong transversal ribs between them; from above petiolus sharply broadened to postpetiolus, rectangular behind spiracles; distance between spiracles 1,8 times more than distance from spiracles to hind margin of tergite; middle field of postpetiolus sharply expressed and high elevated, more than 2 times wider than lateral fields, its surface roughly longitudinally striated, lateral fields of postpetiolus also with longitudinal wrinkles. Gastrocoeli small, only just impressed and approached to base of second tergite, many times narrower than interval between them; thyridia absent; lunulae weak, of moderate size; interval between gastrocoeli and surface of second tergite very densely and indistinctly superficially punctured, more densely in middle, with slight shine; tergite 3 shagreen. Only sternite 2 only just visible less sclerotized than subsequent ones; only sternites with sparse short pubescence.

C o l o r a t i o n : Body black, tergites 2-3 of abdomen red to fully black (Turkmenia).

S i z e : Body length: 15,0; front wing: 12,0; flagellum: 10,8 mm.

M a l e

Flagellum with closely merged segments on the larger part, with big elongate-oval dark tyloides on (8)9-22(23) segments. Notauli at base of mesonotum more strongly impressed; scutellum more high elevated. Tergites 2-3 very densely and roughly punctured, dull. Pubescence of a body considerably more weak than in females. Paramerae broad

with blunt rounded apex; hypopygium without elongate process, with cut apex, trapeziform.

Body black, only tergites 2-3 of abdomen brownish-black. Margins of face broadly white, clypeus with white lateral spots, some segments of maxillary palps marked with white, scutellum white. Legs, with exception of black coxae and trochanters, red; hind tarsi darkened.

Body length: 16,0 mm.

***Triptognathops gobiensis* nov.sp. (Plate 17)**

H o l o t y p e . ♀, Kholt, sev. Gobi, Mongolija, 10.06.1926, Kozlov. The holotype is deposited in the collection of Zoological Institute of St. Petersburg.

Female of describing species is differed from the type species of the genus by unusually large ocelli and white annulus on flagellum.

F e m a l e

F l a g e l l u m : Bristle-shaped, slender, with 5(?8) segments, first segment long, 3 times longer than the width at apex, with white annulus on 10-14 segments, not widened and very slightly flattened ventrally beyond middle; all segments elongated; segment 1-4 of base sharply separated from each other (differentiated), other segments more or less merged. Flagellum almost equal by length to front wing and shorter than body length.

H e a d : Head contour from front quite strongly narrowed downwards, only just transverse, only 1,1 times wider than height; genae from front (malar space) 6,4 times shorter than height of an eye (0,2), genae not swollen, visible from front on distance of 0,1 from base of an eye, linearly narrowed; head contour from above transverse, 2 times wider than length in middle and 1,9 times along an external contour, almost linearly narrowed backwards behind eyes. Vertex from lateral sloping linearly from hind border of ocelli to occipital carina; temples long, at middle 1,2 times longer than longitudinal diameter of an eye, below middle parallel to hind margin of an eye; occipital carina sharp all round, from above sharp, high elevated and bent, uniformly roundly impressed, far not reach level of eyes and hind ocelli; hypostomal carina not visible from lateral, merged with occipital carina far before base of mandible; abscissula high, equal by length to mandible base width; malar space 1,4 times shorter than mandible base width; mandibles rather narrow, evenly narrowed from base to apex, with sharpened apex, without lower tooth or even slight notch on its place, mandible from base to middle strongly bordered from below; clypeus convex at base, 2,3 times wider than length, with slightly concaved and thinned front margin and rounded lateral corners, separated from face by suture and impression; clypeal foveae small, deep; labrum short, narrow and rounded; middle field of face distinctly elevated, in middle 1,4 times more by width than lateral fields; antennal cavities short, rather deeply impressed, reach borders of eyes and far not reach front ocellus level, with big slight lateral tubercles and with very slight tubercle between antennal fossae; margins of antennal fossae high elevated above face surface; frons under front ocellus with longitudinal impression; ocelli strongly convex and large, diameter of lateral ocellus 2 times more than distance from ocellus to eye; ocellar triangle strongly elevated and bordered laterally by impression, on vertex expressed up to occipital carina. Surface of clypeus densely punctured by big smoothed punctures, middle field of face in upper part to wrinkly-punctured, lateral fields with big smoothed punctures; frons above

antennal cavities roughly-wrinkled; temples smoothly wrinkly-punctured. Frons, face and temples in lower part with long darkened pubescence.

T h o r a x : Collar of pronotum from above short, with rounded front margin; hind margin above furrow sharp, transverse furrow of pronotum very deep and wide; pronotal ridge not swollen; epomia sharp, high; lateral surface of pronotum with very rough sculpture and slight shine; pronotal base gradually curved, slightly sinuous. Mesonotum slightly convex, only just (1,1 times) longer than width; notauli marked at base; lateral furrow of mesonotum deep; surface of mesonotum densely punctured with more big punctures on middle lobe, without microsculpture, shining; axillary tongue distinct; prepectal carina at upper part not reach pronotum; subalarum high, not sharpened; speculum strongly convex with big punctures; mesopleural fovea sharply expressed, deep with narrow sharp impression around; mesopleural suture straight, deep, interrupted by sharp ribs; mesopleurae at bottom with bend from lower third before sternauli; sternauli sharp, in a form of narrow cellular furrow up to hind third of mesopleurae, situated on broad triangle impression up to hind third of mesopleurae; mesosternal suture (in contrast to *T. bicolor* KRIECHBAUMER) evenly broadened backwards, forming triangle impression before middle coxae; surface of mesopleurae on the larger part roughly-wrinkled, without microsculpture, with slight shine; scutellum from lateral moderately elevated above postscutellum, from above slightly convex, laterally not carinated, its surface punctured by smoothed punctures. Hind margin of metanotum with strong triangular projections opposite of lateral longitudinal carinae. Length of horizontal part of propodeum 1,5 times less than length of area posteromedia in middle; carinae of propodeum with exception of costulae and coxal carinae expressed; basal area short and deep; area superomedia rectangular, slightly narrowed backwards with equal length and width; carinae, enclosing areae dentiparae high and sinuous, areae dentiparae at apex with strong flat teeth; spiracles long, slit-shaped, along external contour 3,8 times longer than width in middle. Surface of propodeum, including metapleurae, roughly-wrinkled, without microsculpture; propodeum with rather long and sparse dark hairs.

L e g s : Slender and long, hind tarsi long and slender. All tibiae with long thin spinules, all tarsi with dense spinules ventrally; first segment of hind tarsi compressed from sides. Hind coxae elongated, without scopa. Claws very narrow, long, uniformly curved.

W i n g s : Areolet pentagonal, big with narrow base, practically symmetrical, external vein of apex shorter than internal one; stigma more or less broad, long, dark; radial cell long; radius slightly sinuous; nervulus slightly postfurcal; ramulus rather long; all veins dark; membrane of wing darkened. Front wing longer than length of flagellum and 1,3 times shorter than body length.

A b d o m e n : Amblypygous, from above broadly-oval, rather strongly narrowed to apex, apical tergites not hidden, sheath of ovipositor from above not protrude; second tergite transverse, at apex 1,6 times wider than length in middle. First tergite from lateral with distinct smoothed bend between petiolus and postpetiolus, from lateral sharply bordered by carinae and with strong transversal ribs between them; from above petiolus sharply broadened to rectangular behind spiracles postpetiolus; distance between spiracles 1,5 times more than distance from spiracles to hind margin of tergite; middle field of postpetiolus sharply expressed and high elevated, (1,7)-2 times wider than lateral fields, its surface roughly longitudinally striated, lateral fields of postpetiolus also with longitudinal wrinkles. Gastrocoeli small, only just impressed and approached to base of second tergite, many times narrower than interval between them; thyridia practically

absent or only just marked; lunulae slight, of moderate size; interval between gastrocoeli with very slight longitudinal striation at base of tergite, surface of second tergite very densely and indistinctly punctured, with slight shine, tergite 3 shagreen between sparse superficial punctures. Hypopygium more or less uniformly covered by long dark bristles; only sternite 2 with longitudinal fold; only sternites with sparse pubescence.

C o l o r a t i o n : Body black, tergites 2-3 of abdomen red, legs black.

S i z e : Body length: 15,5; front wing: 12,0; flagellum: 1[1],0 mm.

M a l e

Unknown.

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Zusammenfassung

Genaue Beschreibungen der 18 paläarktischen Arten sowie 16 Gattungen der Subtribus Amblytelina (Hymenoptera, Ichneumonidae, Ichneumoninae, Ichneumonini) werden dargestellt. Die neuen Taxa *Limerodops violentus* nov.sp., *Triptognathops gobiensis* nov.sp. und *Achaiusoides epistomalis* nov.gen. et nov.sp. werden vorgestellt. 179 Abbildungen, darunter 102 in Farbe dokumentieren die charakteristischen Merkmale, einschließlich den Habitus der besprochenen Arten. Textliche Informationen zur Verbreitung, Biologie, Wirtsspezifität und Überwinterung aus der Literatur und eigenen Beobachtungen vervollständigen die Arbeit.

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Author's address: Alexander M. TERESHKIN
Mendeleeva 5-14
220037 Minsk
Byelorussia
E-mail: a-m-tereshkin@mail.ru

Legends to color plates

(1) imago; (2) head from above; (3) head from front; (4) propodeum; (5) segments 1-2 of abdomen; (6) mandible; (7) apex of males' abdomen from lateral (*Tricholabus*).



Plate 1: *Limerodes arctiventris* (BOIE), female.



Plate 2: *Tricholabus strigatorius* (GRAVENHORST), female, male.



Plate 3: *Hepiopelmus melanogaster* (GMELIN), female.



Plate 4: *Achaia oratorius* (FABRICIUS), female.



Plate 5: *Achaiusoides epistomalis* nov.sp., female.



Plate 6: *Bureschias subcylindricus* (GRAVENHORST), female.



Plate 7: *Spilichneumon occisor* (FABRICIUS), female.

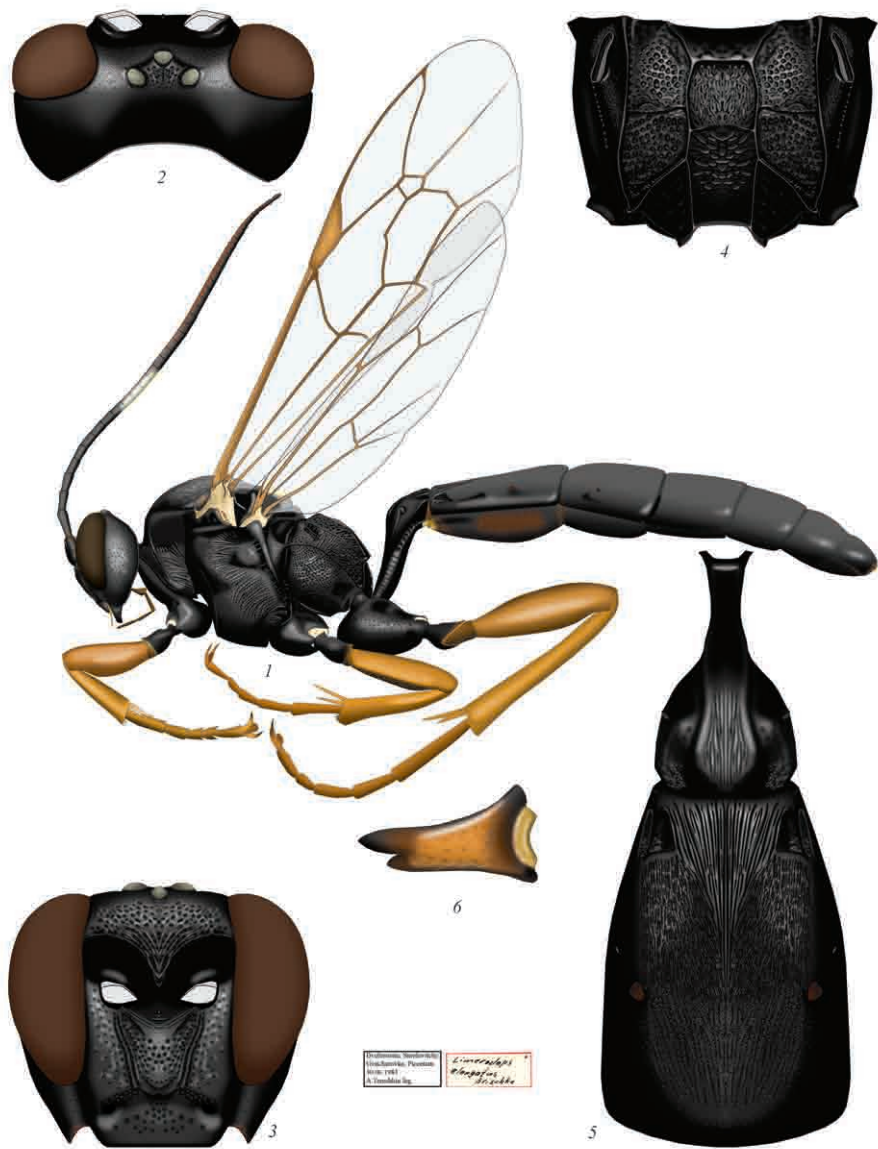


Plate 8: *Limerodops elongatus* (BRISCHKE), female.



Plate 9: *Limerodops violentus* nov.sp., female.

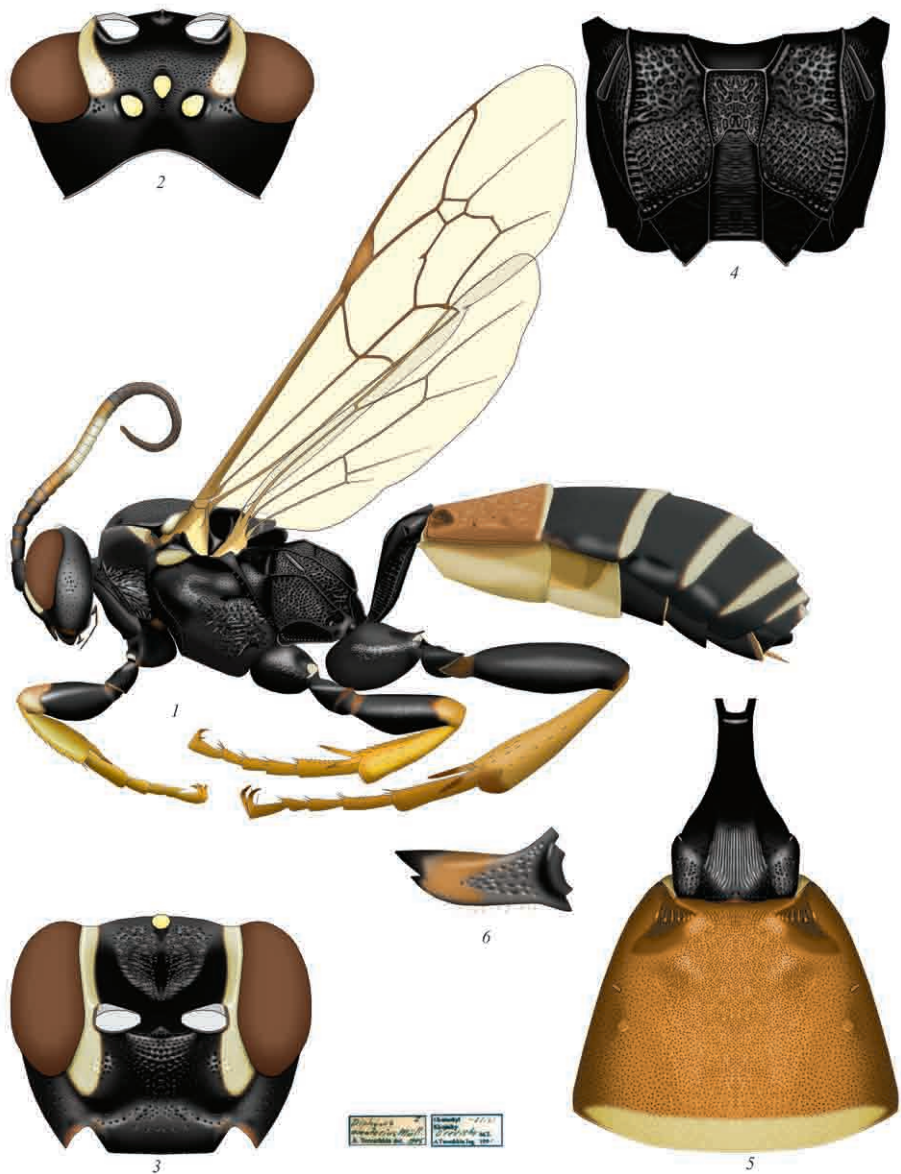


Plate 10: *Diphyus amatorius* (MÜLLER), female.



Plate 11: *Ctenichneumon funereus* (GEOFFROY), female.

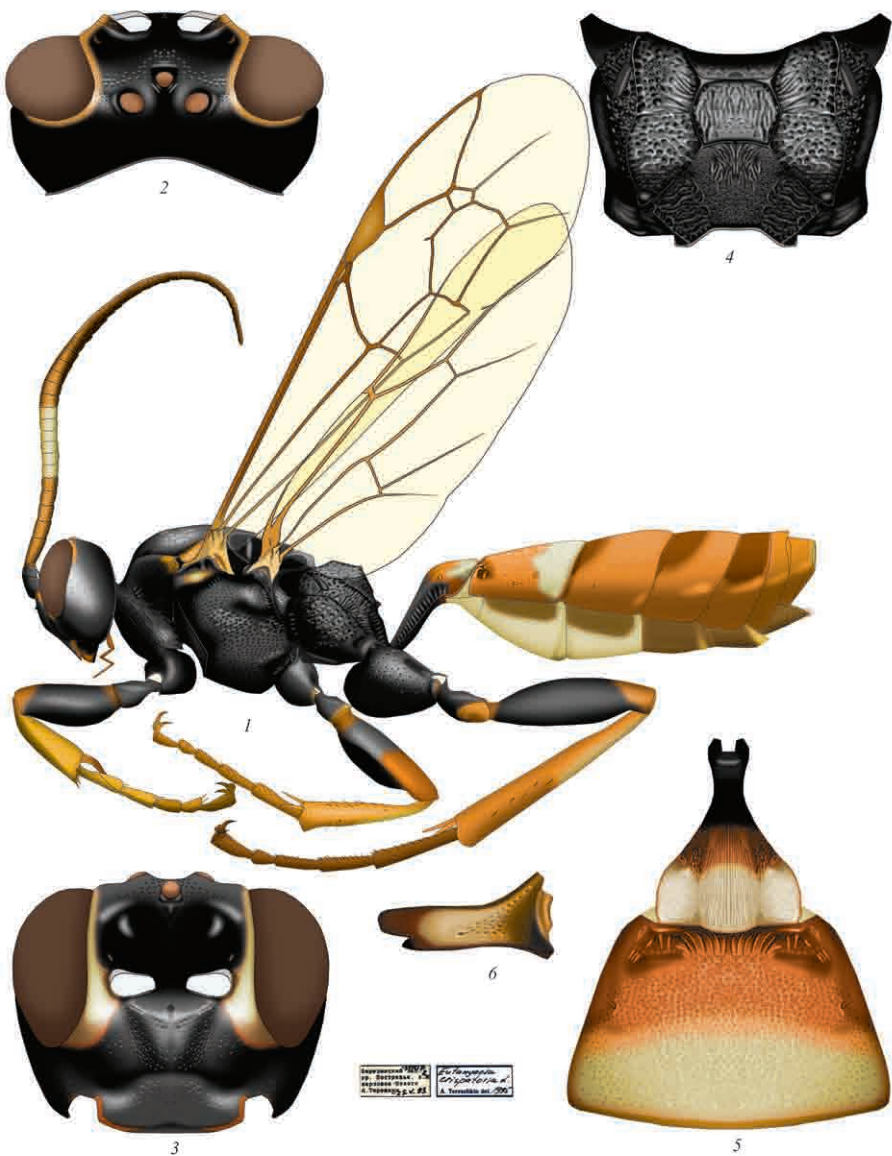


Plate 12: *Eutanyacra crispatoria* (LINNAEUS), female.



Plate 13: *Amblyteles armatorius* (FÖRSTER), female.

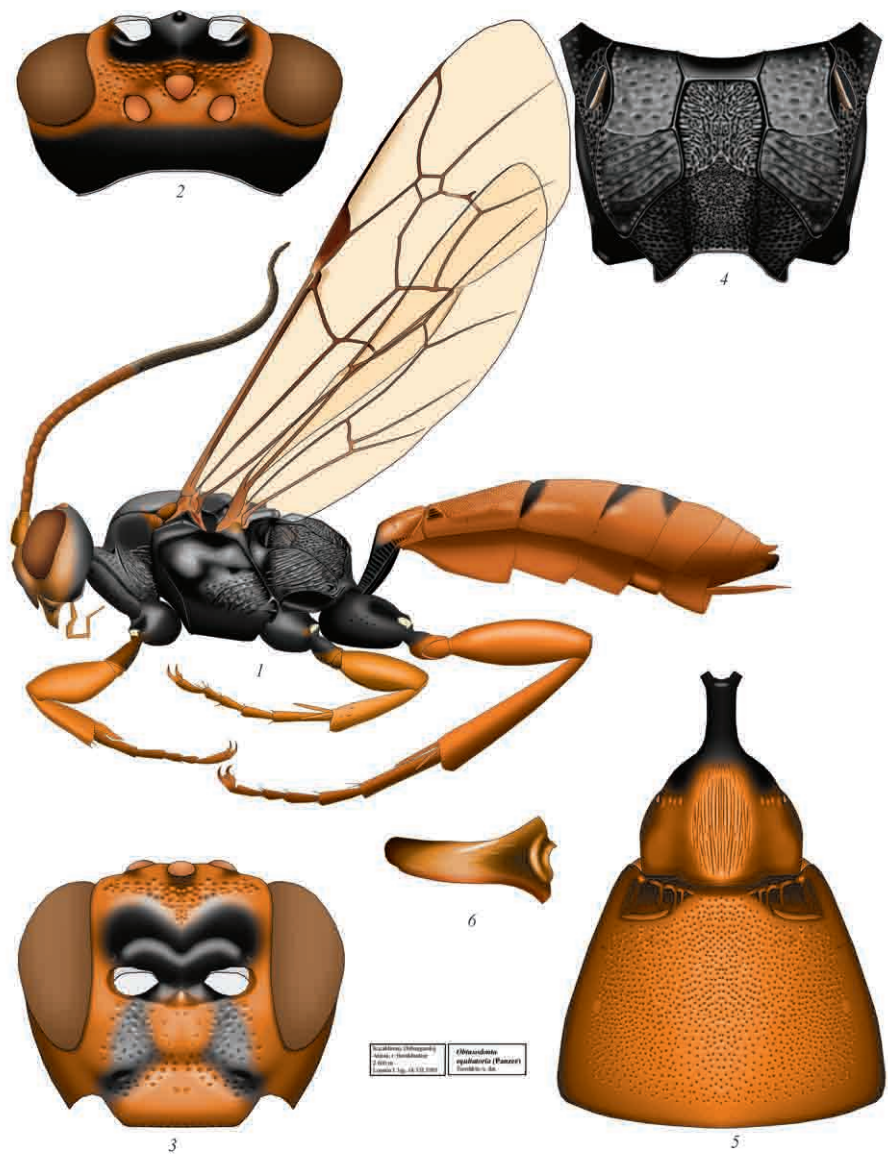


Plate 14: *Obtusodonta equitatoria* (PANZER), female.

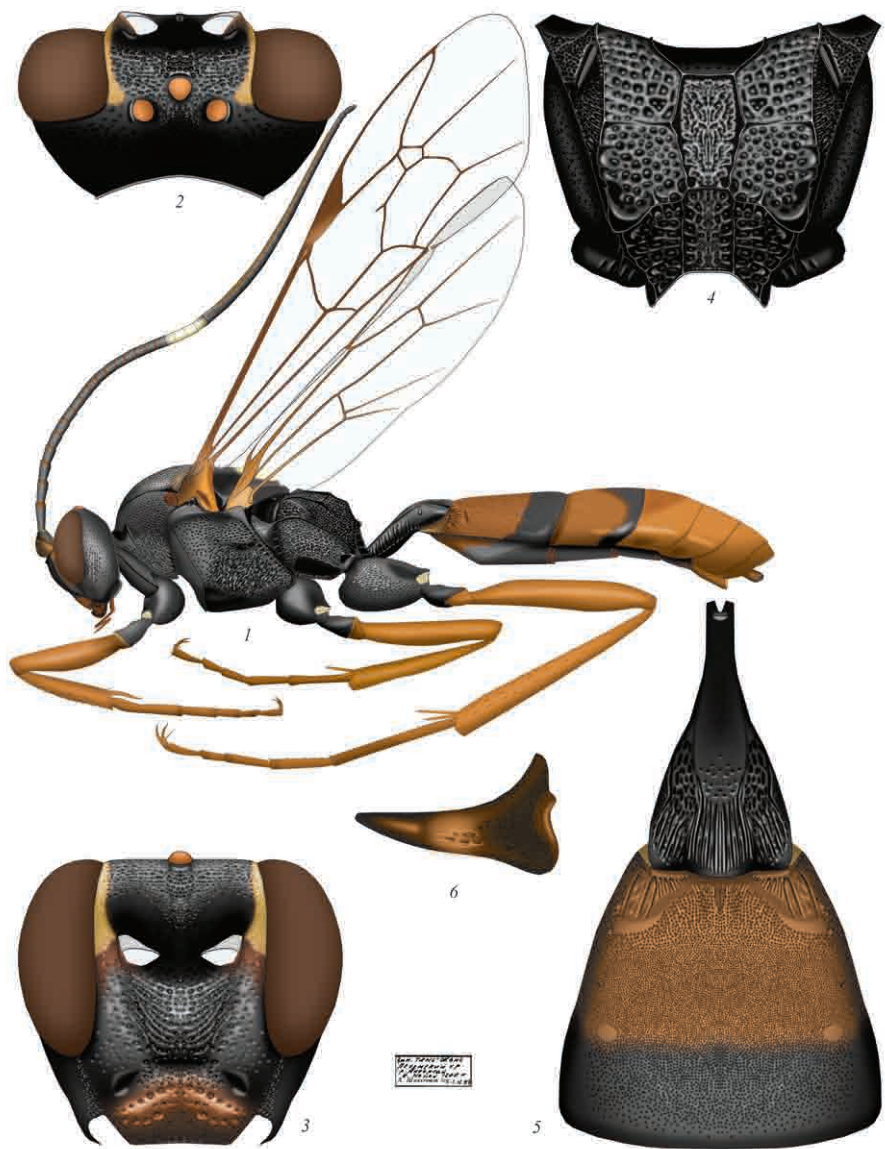


Plate 15: *Fileanta radoszkovskii* (BERTHOUMIEU), female.



Plate 16: *Triptognathus uniguttatus* (GRAVENHORST), female.

