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THE PALAEARCTIC, ORIENTAL AND NEARCTIC SPECIES OF THE GENUS ONTHOLESTES GGLB. (COL., STAPHYLINIDAE).

ALEŠ SMETANA (Praha)

The genus Ontholestes was established by Ganglbauer (1895: 417) for the species of the genus "Leistotrophus Kraatz nec Perty". However Kraatz included into his genus Leistotrophus not only the species which were later ranged by Ganglbauer into the genus Ontholestes, but also the Southamerican species Leistotrophus versicolor Grav., which is yet the only representative of the genus Leistotrophus Perty 1830, known only from the tropical regions of South America. Up to that moment there did not exist such a genus as Leistotrophus Kraatz and therefore Ganglbauer described under the name Ontholestes a new genus in the proper sense and did not suggest only a new name. However Ganglbauer did not include in the new genus Ontholestes originally only two centraleuropean species O. murinus (L.) and O. tesselatus (Fourcr.), as was suggested by Blackwelder (1952: 275). This results clearly from Ganglbauer's statement "Die wenig artenreiche Gattung ist über alle Theile der Erde verbreitet". Unfortunately Ganglbauer did not mention directly the names of further non-european species, which he ranged as well into his genus Ontholestes.

In 1915 Bernhauer (Tijdschr. Ent. 58: 233) described a new genus Thoracostrongylus closely related to the genus Ontholestes Gglb. Into this genus he ranged Fauvel's species Leistotrophus birmanus and he described a further species T. javanus. Gridelli (1924: 204—212) later described three further species of this genus and simultaneously he postulated that Bernhauer's genus Thoracostrongylus is in fact only a subgenus of the genus Ontholestes Gglb. A few years later Cameron (1932: 213) included in this genus also some other species, described earlier by Fauvel as Amichrotus. I suggest, that it is possible to consider on the ground of the characters which are mentioned in the key, the original genus Thoracostrongylus Bernh. as a really independent genus. All species of the genus Thoracostrongylus Bernh. known as yet, are found only in the oriental region.

Recently Coiffait (1956) in the work, in which he divided the genus *Staphylinus* L. into a large number of independent genera, placed the genus *Ontholestes* Gglb. as a simple subgenus of the genus *Abemus* Muls. et Rey (sensu Coiffait). We disagree not only with such a differentiation of so uniform a genus as *Staphylinus*, as I have already mentioned on another place (Smetana, 1958: 260), but also with this placing of the genus *Ontho-*

lestes Gglb. under the supposed genus Abemus Muls. et Rey, which is supported, according to the author, only by a corresponding arrangement of the copulatory organ of the males. Even if there is a great similarity in the shape of the ædœagus and the properties of the internal sac in the subgenus Abemus Muls. et Rey and the genus Ontholestes Gglb., all the other external characters are so important, that it is impossible to have any doubts of the independence of the genus Ontholestes Gglb. If Coiffait would have known at least all palæarctic and oriental species of the genus Ontholestes he would have never done so. Although the shape and arrangement of the ædœagus is certainly a very important character, it is not a reason for overestimating it in such a way. Similar changes must be done very cautiously and only after a very minute evaluation of all characters, i. e. both characters of copulatory organs and characters of the exoskeleton.

The three related genera, *Ontholestes* Gglb., *Thoracostrongylus* Bernh, and *Leistotrophus* Perty can be differentiated according to the following kev:

- 1 (2) Mandibles in the basal half with a sharply incised groove, the two sharp edges, which border this groove, carrying numerous long bristles. Metasternum unusually large, with a protuberance on the metasternum outside of the hind coxæ. Middle tibiæ slender in basal half, in apical half suddenly enlarged, the enlarged part densely covered with strong and long bristles. Each elytron at the apical border with a protuberance, with a smooth longitudinal keel in the male Leistotrophus Perty 1830
- 2 (1) Mandibles with an indistinctly limited groove on the basal half only, the two blunt edges, which border this groove without long bristles.*) Metasternum of normal size, without a protuberance outside of the hind coxæ. Middle tibiæ more or less gradually enlarged toward the apex. Elytra flat, without a protuberance at the apical border and also without a smooth longitudinal keel in male.
- 3 (4) Mesosternum with distinct complete longitudinal keel, broadly rounded behind, middle coxæ rather widely separated. Gular sutures distinctly and rather widely separated. Anterior angles of thorax sharp, prominent Ontholestes Ganglibauer 1895

Without regard to the old synonyms, about 35 species of the genus Ontholestes Gglb. have been described up to date. Some of the recently described species seemed to be analogous with some of those described earlier or in some instances they were described several times under different names. Under these circumstances the distribution of the genus Ontholestes Gglb. in the separate zoogeographical regions is approximately as follows. The greatest development of this genus is reached in the palearctic and oriental region, where it is represented by a total of 23 species. Out of that number there are 14 species in the palearctic region, and 9 species in the oriental region. Two of the oriental species (O. aurosparsus Fauv. and O. tenuicornis Kraatz) reach Yunnan in the north of their area of

^{*)} There are only a few short bristles developed at the base of mandibles.

distribution. This is on the boundary of the oriental and palæarctic region and it is not impossible, that they are present even in some more northern areas. In the same way another oriental species *O. moluccarum* Fauv. extends beyond the border of the oriental region in the southeast and advances even into the australian region (Molucca Islands). In view of the whole distribution of this genus we have in this case to deal with an oriental species reaching the Australian region and not the reverse. A closely related species *O. louwerensi* Cam. occurs in Java. However it must be noticed, that the border between the malayan subregion of the oriental region and the melanese subregion of the australian region is as yet very poorly investigated and therefore not quite reliable.

In the other zoogeographical regions the genus *Ontholestes* Gglb. is only poorly represented. Thus in the nearctic region we can find one species, in the neotropic region also only one single species and in the ethiopian region we know finally 4 species. Even if we cannot await in any case in the said regions to find such a multitude of species as in the oriental and palæarctic region, it is however evident, that other new species will be

discovered. This applies particularly for the ethiopian region.

The palæarctic and oriental species of this genus, which are discussed in this work, can be divided into two groups, which are characterised by a different arrangement of the antennæ. This difference can be noticed both in the length of the five basal segments and in the length of the penultimate segments and further in the total appearance of the antennæ and their pubescence. In the first group, which includes the typical species as O. murinus (L.), O. borneensis Cam. and O. moluccarum (Fauv.) the antennæ are mostly short, more enlarged toward the apex, the first 5 segments are not obviously long and the penultimate segments are mostly more or less transverse, only rarely as broad as long. The pubescence of the antennal segments is in all species of this group analogous and quite constant (unlike

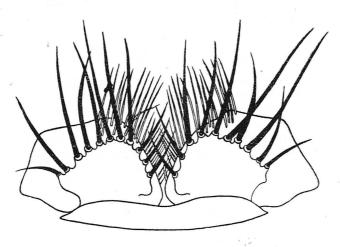


Fig. 1. Ontholestes murinus (L.) — labrum. (Orig.)

the second group). The first four segments bear only long bristles but otherwise they are hairless and therefore somewhat shining, whereas all the other segments, beginning with the fifth are covered with very dense, short hairs and therefore dull. In the second group (e. g. O. variegatus Cam. and

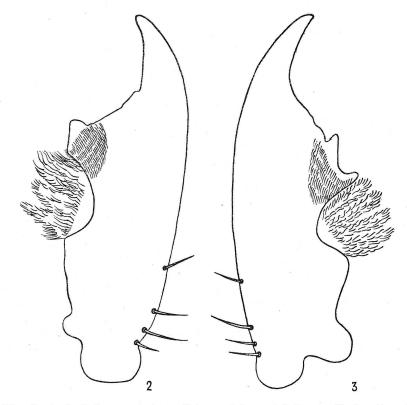


Fig. 2-3. Ontholestes murinus (L.) — right and left mandibula. (Orig.)

O. gracilis Sharp) the antennæ are longer, only slightly enlarged toward the apex; the first 5 segments are markedly long and the penultimate segments at least somewhat longer then broad. The pubescence of the antennal segments is different in the typical species (the two above mentioned species) in the sense, that they have a dense and short pubescence developed only from the 6th segment, so that all the 5 basal segments are shining and bear only long bristles. It is however noteworthy that we encounter the same arrangement and pubescence of the antennæ also in the genus Leistotrophus Perty (therefore we cannot make use of that character for differing that genus from the genus Ontholestes Gglb., as was suggested by Ganglbauer). In some species of that second group (e. g. O. talyschensis Kirsch., O. tenuicornis Kraatz) the first five segments are not so markedly long and the dense and short pubescence appears on the apical part of the 5th segment. These species evidently form a transitory link to the first group.

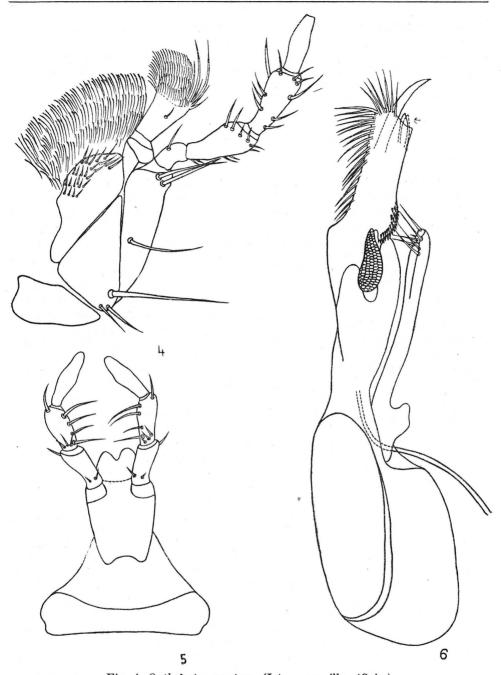


Fig. 4. Ontholestes murinus (L.) — maxilla. (Orig.) Fig. 5. Ontholestes murinus (L.) — labium. (Orig.) — Fig. 6. Ontholestes tesselatus (Fourcr.) — ædæagus. (Orig.)

With these species we place also two further species O. orientalis Bernh. and O. proximus Kirsch., which have a rather isolated position due to the slender structure of the anterior part of the body and especially because of their rather indistinct pubescence, which forms only a few indistinct spots on the elytra. The above species resemble in this respect some species of the genus Thoracostrongylus Bernh.

I suggest that it is not necessary to present in this report a minute diagnosis of the genus *Ontholestes* Gglb., as it is already well known from the literature. For the mouth parts of this genus, I refer to the figures 1—5. I would like to mention only more closely some data on the copula-

tory organs of the males—the ædœagus.

The ædæagus is normally turned in the abdomen about 90°, so that it lies on its right side. Its general structure corresponds to that described by Coiffait (1956: 179—182) for the genus Staphylinus (sensu lato). The median lobe (lobus medianus) in invariably symmetric. The basal bulb is always less chitinised and as in all related genera a membrane bordering the genital chamber, where the ædœagus is located when out of action, is inserted in it always near the base of the paramere. At the same place the ductus ejaculatorius enters the ædœagus. The parameres are fused in an unpaired lamella, which is always thin and long and at the apical end always rounded and only quite exceptionally emarginated (O. dieckmanni Smet.). This paramere is joined to the median lobe only very narrowly at its base. At the apical margin of the paramere there are always long bristles (mostly 6-8). Beside those long bristles there are on the apical margin of the paramere also some quite short and thin hairs. The internal sac is relatively not very voluminous, so that it is located when out of action only in the apical part of the median lobe. It is formed by a poorly chitinised tube, which is provided on the basal part of the sternal side with two paired and one unpaired sac-like formation ("caroncule basale" and "caroncule apicale" of Coiffait, 1956). The basal formations are covered with regularly ranged papillæ; the unpaired apical formation with short and dense spines. On the tergal side the internal sac is densely covered with long spines. The distal end of the internal sac is provided with three copulatory processes ("pieces copulatrices" of Coiffait, 1956). The two smaller are forming a pair, one tergal copulatory process is unpaired and obviously very sharp. (Fig. 6.)

To conclude this general part I have the pleasure to express my thanks to all those who supported in different ways my work and thus helped to publish this report. I thank specially Mr. E. B. Britton (British Museum, Natural History, London), M. G. Fagel (Institut Royal des Sciences Naturelles de Belgique, Bruxelles) and Dr. R. L. Wenzel (Chicago Natural History Museum, Chicago) to which I am indebted for having the possibility to study some types or authentic examples of Cameron's, Fauvel's and Bernhauer's collections. For lending of different materials I thank Mr. Z. Kaszab (Zoological Department of the Hungarian National Museum, Budapest), Mr. H. Kulzer (Museum G. Frey, München), Dr. J. Machatschke (Deutsches Entomologisches Institut, Berlin), Dr. J. Mařan (Zoological Department of the National Museum, Praha) and Mr. J. Roubal (Praha).

For drawing the figures I owe my special thanks to my wife Eve.

I. PALAEARCTIC AND ORIENTAL SPECIES

- 1 (30) Antennal segments 4 and 5 short, 4th segment at most 1.5× longer than broad, 5th segment usually scarcely longer than broad only rarely longer. Penultimate antennal segments more or less transverse. Antennæ altogether comparatively short and more or less enlarged toward the apex. (Fig. 16—18, 21, 22.)
- 2 (5) Tempora as long as the largest diameter of eyes visible from above or at most a little shorter. (Fig. 7, 8.)
- 3 (4) Ground-colour of body orange-red. Thorax very distinctly narrowed backwards. Head, thorax and elytra orange-red with patches of golden and brown pube-scence, abdomen with the first two and last visible tergites reddish yellow, the intermediate tergites black with bluish green reflex. Elytra on each with two small patches of silvery hairs. Scutellum closely covered with golden pubescence and on each side with a patch of dark brown hairs. Antennæ with the first five segments reddish brown, the following black. Legs reddish yellow, all femora indistictly infuscate about the middle, the posterior tiblæ infuscate at the apex. Length 13—14 mm.

 O. borneensis Cameron 1942, Ent. mon. Mag. London, 78: 137 (siamensis Cameron, 1945, Ann. Mag. nat. Hist. London, 12: 685, nov. syn.)*)

The species is known so far only from Borneo: Brunei (type)**) and from Siam: Renong (leg. Doherty, type of siamensis Cam.).

4 (3) Ground-colour of body black. Thorax only moderately narrowed backwards. Head, thorax and elytra green-metallic with patches of yellowish-grey and blackish pubescence, the first four visible tergites with two patches of black tomentose pubescence, bordered with yellow-golden hairs. Scutellum closely covered with black tomentose pubescence, on each side an anterior angle with green-yellowish hairs and in the middle with a longitudinal line of yellowish hairs. Antennæ with the first four or five segments yellowish-brown, the following black. Legs reddish-yellow with darkened tarsi, all femora with the exception of apical part black, the hind femora on the underside on the extreme apex also black, hind tibiæ darkened on the underside.***) Length 14—19 mm.

. O. tesselatus (Fourroy 1785)
Entomol. Paris, 1: 165 (Staphylinus)
This species is very widely distributed throughout the whole of Europe (with
the exception of the extreme north) and Siberia: "Quellgebiet des Irkut", leg.
Leder (coll. E. Reitter); "Nordl. Mongolei, Changai", leg. Leder (coll. E. Reitter);
"Siberia or., Suczan" (coll. Roubal, Praha); Manchukuo, Gaolinzcy; East-Siberia,
Vladivostok, leg. Frieb (coll. Museum G. Frey, Munich).

- 5 (2) Tempora distinctly shorter than the largest diameter of eyes visible from above. Eyes sometimes very large, occupying nearly the whole lateral parts of head, so that the tempora are extremely short. (Fig. 10—13).
- 6 (11) Reflexed sides of elytra yellow-red.

**) This type is not a female as Cameron writes, but a male carrying at the apical border of the 6th sternite a small arcuate emargination, which is absolutely conformable with that of borneensis Cam.

***) Some Siberian specimens have the legs nearly or entirely black.

^{*)} The types of these two species are absolutely conformable. The type of borneensis Cam. however is dirty and therefore darker coloured with the pubescence matted and indistinct. The type of siamensis Cam. on the other hand is a very well preserved specimen with unalterated colour and pubescence.

This species is recorded from Armenia only and it seems to be known from the single type specimen.

- 8 (7) Antenæ and legs for the most part yelowish-red. The two penutimate segments of abdomen without a coherent golden-yellow pubescence.

This species has been described on specimens from South-Ussuri region and from East-Mongolia. I have seen specimens from East-Siberia: Ussurisk, 1 specimen (coll. Mus. Nat. Praha), from Korea: Gen-San, 2 spec. (coll. Mus. Nat. Praha) and from China: Pekin, 1 spec. (coll. Inst. R. Sci. nat. Belg., Bruxelles).*)

10 (9) Apical border of the 5th sternite at most with a rather small and indistinct indication of an emargination in the middle. The 6th sternite with narrower and obstuse triangular emargination (fig. 25). Ædeagus with the apical part broad and enlarged toward the apex, on apical margin broadly rounded. Apex of the ædeagus in lateral view not hooked (fig. 28, 29). Head, thorax and elytra strongly cooper-bronzed with patches of golden-yellowish, silvery-greyish and dark pubescence. Reflexed sides of elytra widely, the posterior margins of elytra narrowly yellow-red. The first three visible tergites in the middle covered with golden-yellow pubescence and with two indistinct oblong patches of dark tomentose hairs. Fourth visible tergite covered with dark pubescence and in the middle with a triangular spot of golden-yellowish hairs. Basis of the fifth and sixth tergite with light yellowish hairs. Scutellum closely covered with black tomentose hairs, base, lateral sides (very narrowly), anterior angles and a longitudinal line in the middle with yellowish or golden-yellowish hairs. Antennæ and legs reddish-yellow, femora with a very large black spot. Length 11—14 mm.

Sci. Torino: 171, pl. 1, fig. 4 (Emus) This species is widely distributed in the western mediterranean area and it has been recorded from Portugal, Spain, Corsica, Sardinia and from North-Africa: Tunis, Algeria, Morocco.

- 11 (6) Reflexed margins of elytra dark, of the same colour as the whole elytra.
- 12 (19) Eyes moderately large, twice or three times longer than tempora (from hind-margin of eye to posterior angle of head). (Fig. 10.)
- 13 (18) Legs entirely, or for the most part, black.
- 14 (17) Elytra covered with grey-yellowish, dark brown and golden hairs and with indistinct patches of black pubescence. Black tomentose pubescence of scutellum divided in the middle by a longitudinal line of yellowish-golden hairs. Antennæ redish-yellow with infuscate penultimate segments.

^{*)} This specimen from Fauvel's collection is labeled by Fauvel's hand as "chinensis Fauv.". There are two locality-labels under this specimen. On the first label is written "Mandschourie, Ourga à Tsitsikhaz", on the second "Géhol près Pekin".

15 (16) Ædæagus with paramere long and narrow, only scarcely enlarged toward the apex, at the apex simple, rounded (fig. 34). The first four visible tergites with golden-yellow pubescence and with two patches of black tomentose hairs. Base of the 5th and 6th tergite covered with light yellowish hairs. Slightly larger, the puncturation of head and thorax somewhat coarser, eyes less convex, the puncturation of the abdomen more distinct and somewhat closer. Length 10—15 mm.

O. murinus (Linné 1758) Systema Naturæ, Hollmiæ, ed. X: 421 (Staphylinus)

This species is widely distributed throughout the whole palæarctic region. Some asiatic records: West-Siberia, Čeljabinsk, leg. Jureček; East-Siberia, "Amur" leg. Christoph (coll. Mus. Nat. Praha); Siberia, "Kultuk, Baicalsee, Gv. Irkutsk"; East-Siberia, Vladivostok, leg. Frieb (coll. Mus. G. Frey, Munich); Transbaikalia, Tschita, leg. Frieb; West-Siberia, Barnaul, leg. Frieg; "Delishan, 1911, Klzr." (coll. Mus. G. Frey, Munich).

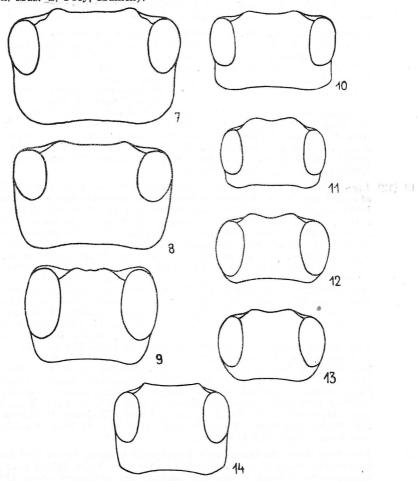


Fig. 7—14. Heads of the genus Ontholestes Gglb. — 7. O. tesselatus (Fourcr.). — 8. O. borneensis Cam. — 9. O. variegatus Cam. — 10. O. murinus (L.). — 11. O. aurosparsus (Fauv.) \, \varphi . — 12. O. louwerensi Cam. — 13. O. oculatus (Sharp.) — 14. O. orientalis Bernh. (Orig.)

This species has been described from a single male specimen from Germany: Mark Brandenburg, Beeskow, leg. L. Dieckmann (coll. Smetana). It appears to have been confused to the present time with O. murinus (L.) and it will occur probably also in other European countries.

17 (14) Elytra predominantly covered with golden-russet hairs, silvery-grey and dark pubescence reduced into a few indistinct patches. Black tomentose pubescence of scutellum without a longitudinal line of yellowish hairs, base of scutellum covered with golden-russet hairs. Antennæ dark-reddish, first and penultimate segment distinctly blackish.*) The first three visible tergites covered with golden-

Brachélytres, St. Pétersbourg: 21 (Emus) Geographical distribution: Irkutsk, Transbaikalia, South-Ussurian region, North Mongolia (after Kirschenblatt, 1936). I have seen specimens from "Tunkun, Sajan"; "Turan, Baikal"; East-Siberia, Schipka-Gora, leg. Bodemeyer (all coll. Mus. Nat. Praha); North-Mongolia, Changai, leg. Leder (coll. Mus. Nat. Budapest); "Nikolajewsk" (col. Mus. Nat. Budapest); "Chabarovka, Amur", leg. Graeser (coll. Mus. Nat. Budapest).

This species seems to be widely distributed in South-Europe and rarely extends to south parts of Central Europa. I have seen specimens from Yugoslavia: Jezersko (coll. Mus. Nat. Praha); "Central-Bosnien" (coll. Mus. Nat. Budapest); Hungary: Sátoristye (coll. Mus. Nat. Budapest); Austria (many records); Czechoslovakia: Bohemia (very rarely), Slovakia (many records, but from southern part only); Germany: München (coll. Mus. G. Frey, Munich); Switzerland: Maienfeld (coll. D.E.I. Berlin); USSR, Ukraine: Mukačevo (coll. Mus. Nat. Praha) and Italy: "Piave, Perozolo" (coll. Mus. G. Frey, Munich); Bulgaria: Rila-Kloster (coll. D.E.I. Berlin).

- 19 (12) Eyes very large and many times longer than tempora (from hind margin of eye to posterior angle of head), sometimes extremely large, taking nearly the whole lateral parts of head, so that the tempora are extremely short. (Fig. 11—13.)
- 20 (23) Elytra covered with one-coloured russet-red pubescence.

^{*)} Very rarely is the first antennal segment not darkened.

21 (22) Tempora extremely short and developed only as a small tooth-shaped protuberance. The first four antennal segments dark brown with lighter basal parts, remaining segments blackish. Head and thorax with dark metallic lustre. Abdomen with black pubescence, the whole second visible tergite and the base of fifth tergite covered with light yellowish hairs. Apical angles of third and fourth visible tergites with a patch of light yellow hairs on each side. Legs reddish-yellow, Stor. nat. Genova 12: 249 (Leistotrophus) (purpuripennis Bernhauer 1915, Verh. zool.-bot. Ges. Wien 65: 144, mov. syn.)*)
This species has so far been recorded only from the Molucca Islands and from

Celebes. It will be probably more widely distributed in Malayan subregion.

22 (21) Tempora longer, distinctly developed and arcuate. Only the first segment and the base of the second antennal segment reddish-yellow, remaining segments blackish. Head and thorax with dark blackish-blue metallic lustre. Abdomen with black pubescence, the more silvery pubescence on the second visible tergite interrupted on each side of the middle by a large black velvety-like spot. The pubescence at the sides of the segments and at the base of the fifth segment also more silvery. Legs reddish-yellow, all tibiæ lightly infuscate, the black spot

Proc. R. ent. Soc. London (B) 5: 183 This species is known to me only from East-Java: Toempoek Bij, Popoh, Zuider

23 (20) Elytra covered with speckled pubescence altogether dark and never with onecoloured russet-red pubescence.

Geb (types, leg. Louwerens); Pandanaroem, Res. Kediri (coll. British Museum).

24 (25) Antennæ and legs unicoloured, black. Head and thorax with dark blackish-blue metallic lustre. Scutellum covered with black tomentose pubescence and only at anterior angles and at apex with some golden hairs. Elytra covered with golden and yellowish-golden hairs and with some indistinct spots of blackish pubescence. The first two visible tergites each with a triangular spot of golden pubescence in the middle of the base and at each side with a patch of golden hairs. The third tergite with a median basal spot of yellow-silvery pubescence and at the sides with a patch of similar coloured hairs. The fourth tergite on each side at the base with a spot of silvery pubescence. The fifth tergite with transverse fascia of silvery hairs at the base. Length 10,5—12 mm.

Ent. France, Caen, 14: 245 (Leistotrophus) (ophthalmicus Kirschenblatt 1936, Trav. Inst. zool. Leningrad 3: 560, nov. syn.; assamensis Cameron 1944, Proc. R. ent. Soc. London (B), 13: 11, nov. syn.)

This species has been recorded from Sikkim, Assam, Burma and Bengal, but it occurs also in China: Koui-Tcheu, 1 & (coll. Mus. Nat. Praha).

**) The fact, that this species was twice described recently is due to an erroneous conception of Cameron, which says (1932: 211), that this species has the first four antennal segments reddish and legs reddish-yellow with femora and tibiæ more or less extensively black or blue black. I nad the oportunity to study one specimen of this species from Fauvel's collection which has two locality cards: "Kurzeong, Bengalle occ."

^{*)} I had the possibility to study the Bernhauer's type of O. purpuripennis and also two further specimens from Bernhauer's collection. These three specimens are absolutely identical with the three specimens of O. moluccarum Fauv. from Fauvel's collection, out of which one is designated as "Type" and has a locality-card "Moligues", the two others are comming from the same locality as Bernhauer's type of O. purpuripennis (S. Celebes, Bonthain, leg. Ribbe, 1884). According to my opinion it must be impossible to distinguish these two species and therefore I consider Bernhauer's species as a synonym.

- 25 (24) Antennæ with basal joints reddish. Legs never unicolouredly black, usually reddish-yellow, all femora with a more or less developed black spot, sometimes also tibiæ infuscate.

Holotype &: "Tonkin" (de Cooman), coll. Mus. Nat. Praha. — Allotype &: "Rég. de Luc-Nam, Tonkin" (L. Blaire), coll. Institut Royal des Sciences Naturelles de Belgique, Bruxelles (ex coll. Fauvel).*)

- 27 (26) Labrum yellow or reddish-yellow.
- 28 (29) Median lobe of ædæagus with apical part distinctly pointed. Apical border of the fifth sternite of male with a flat arcuate emargination. Sixth sternite of male with broad and acute triangular emargination. The three or four basal joints of antennæ, palpi and legs testaceous, all femora black above and with a black ring at the middle. Elytra with patches of golden, silvery and blackish pubescence. The first three visible tergites covered with yellowish pubescence, on each side of the middle with a patch of blackish hairs, these patches on the third tergite are very extensive. Apical angles of the fourth tergite with a patch of yellowish-silvery hairs. The fifth and sixth visible tergites with a basal transversal fascia of yellowish silvery hairs. Ædæagus fig. 26. Length 9,5—12,5 mm.

 O. marmoratus (Erichson 1840), Gen. Spec. Staph., Berlin: 926 (Leistotrophus)

and "Darjeeling, Sikkim" named by Fauvel's hand as "aurosparsus Fvl." and having a card "Ex-typis". This specimen having quite black antennæ and legs (see Fauvel's original description) is absolutely analogous with the species O. assamensis Cam. (I have studied one specimen from the classical locality: Assam, Shugan, alt. 3000 feet, coll. Brit. Museum and designated by Cameron as O. assamensis.) Fauvel's species O. aurosparsus is also analogous with Kirschenblatt's description of O. ophthalmicus, which was described according to one single specimen from Sikkim (Darjeeling). Both species O. assamensis Cam. and O. ophthalmicus Kirsch, are undoubtedly identical with Fauvel's O. aurosparsus. Unfortunately it is not yet possible to determine which species was erroneously considered by Cameron as O. aurosparsus. The only specimen bearing Cameron's notation "Ontholestes aurosparsus Fvl." (India, Bowring 63, 47) which I could aquire from the British Museum, is unfortunately in a deplorable state and has a dirty colour and therefore it is not possible to determine its proper species in a reliable way. However it seems to belong to O. tenuicornis Kraatz. This specimen has the first four segments of antennæ (remaining segments are lacking) reddish and his legs are of the most part reddish-yellow.

*) This specimen from Fauvel's collection was called by Fauvel as "Leistotrophus n. sp.".

This species has been recorded till now only by Erichson from Java (type) and by Kraatz (Arch. Naturg. 25, 1859: 68) from Ceylon (see also Cameron, 1932: 211). The following are the records known to me: Sumatra, Fort de Kock, 920 M, 1925 (E. Jacobson); Ceylon, Balangoda, 1776 ft., 13—16. III. 1882 (G. Lewis); "B. Aroe Hassa, Sambawa, 2-5000', IX. X." (Doherty); "Sumatra, 19.32" (all coll. British Museum); "Sambawa" (coll. Inst. R. Sci. nat. Belg. Bruxelles, ex coll. Fauvel); "Java" (coll. D. E. I. Berlin).

29 (28) Median lobe of ædœagus with apical part broadly rounded at apex. Apical border of the fifth sternite of male simple, without an emargination. The emargination at the apical border of the sixth sternite of male is less broad and less deep. In coloration and pubescence very similar to the former species. Length 12 mm. (abdomen very extended) O. oculatus (Sharp 1874), Trans. ent. Soc. London: 29 (Leistotrophus)

I have seen only a single specimen from Japan: Nagasaki, leg. G. Lewis (type).

- 30 (1) Antennal segments 4 and 5 long, 4th segment at least twice as long as broad, usually even longer, 5th segment very distinctly longer than broad. Penultimate antennal segments longer than broad or at most as long as broad, only very rarely ± transverse (O. superbus Bernh.). Antennæ comparatively long and only scarcely enlarged toward the apex. (Fig. 15, 19, 20, 23.)
- 31 (34) Anterior angles, sides and base of the thorax, the sides, posterior margin and suture of the elytra reddish.

O. superbus Bernhauer 1915, Verh. zool.-bot. Ges. Wien 65: 144

This species has been described from a single specimen from Borneo (Lundu, 8. I. 1914, Sarawak-Museum, type). I have seen the type from Bernhauer's collection and a further specimen from Fauvel's collection labeled "Borneo, Sarawak" and designated by Fauvel as "rufocinctus Fvl.".*)

33 (32) Legs reddish-yellow, anterior coxæ reddish-yellow, all femora with a very small and indistinct dark brown spot at the middle of the anterior border, all tibiæ unicolouredly reddish-yellow. Head and thorax greenish-bronze, densely covered with greenish-yellow pubescence mottled with black. Scutellum covered with black tomentose pubescence, at the basal border with golden-yellowish hairs and in the middle with a longitudinal line of golden-yellowish hairs.**) Elytra bronze-black, covered with greenish-yellow pubescence mottled with black. Abdomen black, the posterior and lateral margins of the first three visible tergites reddish, the 6th tergite yellow. The first three visible tergites covered with golden-yellow pubescence, the first tergite with large black tomentose patch in the middle, the second tergite with a pair of small patches of dark

^{*)} It is possible, that O. elegans Cameron 1938, which is unknown to me, is identical with this species. Unfortunately it was impossible to study the type of this Cameron's species.

**) This longitudinal line is sometimes very indistinct.

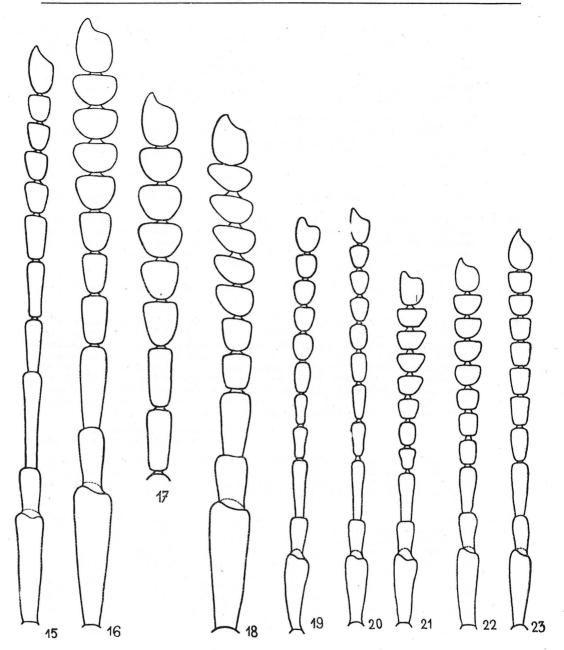


Fig. 15—19. Antennæ of the genus Ontholestes Gglb. — 15. O. variegatus Cam. — 16. O. tesselatus (Fourcr.), — 17. O. cingulatus (Grav.). — 18. O. borneensis Cam. — 19. O. gracilis (Sharp). (Orig.)

Fig. 20—23. Antennæ of the genus Ontholestes Gglb. — 20. O. tenuicornis (Kraatz). — 21. O. oculatus (Sharp). — 22. O. murinus (L.). — 3. O. orientalis Bernh. (Orig.). —

marginatus Cameron 1945, Ann. Mag. nat. Hist. 12: 688, nov. syn.)

This species seems to be widely distributed in the oriental region. The records known to me are the following: "Birmah, Karen Mts.", leg. Doherty (type of variegatus Cam.); "Siam, Renong", leg. Doherty (type of olivaceus Cam. and marginatus Cam.); Indo-China, Luang Prabang: Muong Honoc., 10. V. 1920, 2 spec., leg. R. V. de Salvaza; Laos, "Pakhay", 7. VIII. 1918, 1 spec., leg. R. V. de Salvaza (all coll. British Museum).

- 34 (31) Thorax and elytra unicoloured.
- 35 (38) Fore body covered with a very fine and short, indistinct pubescence and with a very distinct dark coppery lustre. Legs black with upper edges of tibiæ and legs brownish-red.
- 36 (37) Clypeus pitchy black with fine but distinct longitudinal grooves. Thorax usually distinctly narrowed backwards, the smooth longitudinal line in the middle very rudimental and developed only in the hind half. The penultimate antennal segments slightly longer than broad. Elytra covered with very close and short goldenish and brownish pubescence, which makes no distinct patches. Scutellum covered with black tomentose pubescence, at the anterior angles with some yellowish hairs. Abdomen black, the first three visible tergites covered with yellowish-golden pubescence and in the middle with two patches of blackish hairs. These patches on the 3rd tergite are very large. The 4th tergite at the apical angles with a spot of silvery hairs, the 5th tergite with an interrupted basal transversal fascia of silvery hairs. Length 10,5—14 mm.

O. orientalis Bernhauer 1906 München, kol. Z. 3: 125

This species has been described after the specimens from the environs of Vladivostok and it seems to be widely distributed in East-Siberia. Kirschenblatt (1936: 556) gives the following records: Irkutsk; South-Usurian region: Vladivostok, Sidemi, Sedanka, Vinogradovka, Shkotovo, mine Tjutiche. I have seen several specimens from Vladivostok (leg. Jureček, coll. Mus. Nat. Praha); Shipka-Gora (leg. v. Bodemeyer, coll. Mus. G. Frey, München); Chitaizki-Sterana (leg. v. Bodemeyer, coll. Mus. G. Frey, München). All these localities are in USSR. This species lives however also in China: "Géhol près Pekin", 1 ? from coll. Fauvel (coll. Inst. R. Sci. nat. Belg., Bruxelles).

- 37 (36) Clypeus light yellow, smooth, without longitudinal grooves. Thorax only slightly narrowed backwards, the smooth longitudinal line developed in the whole length of the thorax and in front and behind enlarged. The penultimate antennal segment as long as broad. Length 11,5 mm. (After Kirchenblatt, unknown to me.) O. proximus Kirschenblatt 1936,

 Trav. Inst. zool. Leningrad 3: 556
 This species has been described after a single female specimen from Sze-chwan (South-China) and this is also the single record known till now.
- 38 (35) Fore body covered with more or less distinct patches of golden-yellow, blackish, brown and silvery-greyish pubescence. Legs yellow, femora with a more or less large black spot, sometimes also tibiæ blackish.

^{*)} This species, described by Cameron after a single female specimen, has been later redescribed by the same author under the names O. olivaceus and O. marginatus. The types of all these three species appear to be absolutely identical. The difference in the colour of pubescence of head and thorax in O. marginatus ("Head black, the pubescence black, thorax black, the pubescence black") is only apparent. Although the type of this species is very damaged, it is possible to recognise, that this pubescence is very greasy and dirty and therefore only seemingly black.

. O. talyschensis Kirschenblatt 1936,
Trav. Inst. zool. Leningrad 3: 554
This species has been described after the three female specimens from Talyshmountains (Southeast-Transcaucasia). The following are the records known to me: "Perse", 1 ?, from coll. Fauvel (coll. Inst. R. Sci. nat. Belg., Bruxelles);**)
"Astrabad, Persia", 1 & (coll. Mus. Nat. Praha); "Lenkoran", leg. Leder, 1 ?, from coll. E. Reitter (coll. Mus. Nat. Budapest).**)

40 (39) Abdomen unicoloured. Head and thorax with a dark greenish lustre, never bronzed.

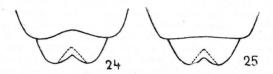


Fig. 24—25. The 5th and 6th sternite of the genus Ontholestes Gglb. in male. 24. O. simulator Kirsch. — 25. O. marginalis (Gené). (Orig.)

41 (42) Surface of head and thorax very closely, rather finely rugosely punctured. Labrum unicolourous yellow. Scutellum covered with black tomentose pubescence, at the apical angles with some yellowish hairs. Abdomen black, the first three visible tergites black bifariate, in the middle and at the sides with short yellowish pubescence. The two black spots of black hairs on the second visible tergite very small, rounded. The 5th and 6th tergite with short silvery pubescence along the base. Legs yellow, femora with extended black spot below, tibiæ distinctly blackish above, tarsi brownish. Smaller and more slender. Length 11—12,5 mm.

Otenuicornis (Kraatz 1859), Arch.
Naturg. Berlin 25: 68 (Leistotrophus)

This species has so far been recorded only from India, but it lives also in Southwest-China: Yunnan (6 spec. in coll. Mus. Nat. Praha). From India I have seen two examples from Chakrata Distr., Kanasar, 7050' (coll. British Museum) and the type from Kraatz's collection in D. E. I. Berlin.

42 (41) Surface of head and thorax less densely and very coarsely and rugosely punctured. Labrum reddish-yellow, distinctly blackish around the emargination. Scutellum covered with black tomentose pubescence, at the base and apical angles with golden-yellow hairs, in the middle with longitudinal line of golden-yellow hairs. Abdomen black, the first three visible tergites in the middle closely covered with

^{*)} This black spot is sometimes very small and indistinct.
**) This specimen is called by Fauvel "tenuicornis Kr. var.?"

^{***)} Both specimens are called O. callistus Hochh. See also the note refering to O. callistus Hochh.

This species has been described after the specimens from Japan and it seems to be videly distributed in this country. I have seen specimens from Mimasaka, 7. VII. 1912, 1 \(\forall \) (coll. British Museum); Mt. Ohtaki-yama, Ohnuma-gun, Fukush. Pref., 15. VII. 1950, 1 \(\sigma \), leg. Kurosawa; Yunokami, Minami-Aizu-gun, Fukush. Pref., 4. VI. 1951, 1 \(\forall \), leg. Kurosawa; Kyoto, 7. VI. 1949, 1 \(\sigma \), leg. Kurosawa (all my collection); Sado-island, 1 \(\forall \); Unzen Shimabara, 4 spec. (all. coll. Mus. G. Frey, München). This species however is also widely distributed in South-Ussurian region in USSR: Yevseevka, St. Ilihill, Spasskovo, valley of the river Szernigovka, Vinogradovka (after Kirschenblatt, 1936) and in Manshukuo Jablonja (coll. D. E. I. Berlin).

In this key I have omitted three species unknown to me. From their descriptions it was not possible to include them there reliably. The description of these species are as follows.

1. Ontholestes elegans Cameron 1938

Proc. R. ent. Soc. London (8), 7: 151.

Head black, the anterior border yellowish-red, closely covered with short golden pubescence; thorax black, the anterior angles, sides and base yellowish-red, closely covered with short golden pubescence and spots of silvery hairs, one at the anterior angle, another about the middle of the side, one on each side of the disc and one in the middle near the base; scutellum black, velvety; elytra black, the anterior angles, reflexed and posterior margins yellowish-red, closely covered with short golden pubescence variegated with tufts of silvery and black hairs; abdomen black, the posterior margins of the first two and last segments broadly yellowish-red, the base of the first two segments each with a black velvety spot at the base on each side of the middle, the first three segments each with a median and lateral spot of golden hairs; 5th segment with transverse fascia of silvery pubescence at the base; besides these with numerous long golden and black hairs. Antennæ yellowish-red. Legs yellow, the femora with a black marking about the middle, the anterior and middle tibiæ blackish externally. Length 12 mm.

Very similar to marmoratus Er. in the colour of the fore-parts and pubescence, but more brightly coloured, the head broader, distinctly broader than the thorax, the sculpture a little coarser. Antennæ longer and thinner, 3rd to 5th segments distinctly longer than broad, the following serrate, scarcely transverse. Thorax as in marmoratus, the sculpture as on the head. Elytra a little longer than in marmoratus, the variegated pattern very similar

East Java: Res. Kediri, Kalibamban. Unique.

This species is very closely related to the two species *O. variegatus* Cam. and *O. superbus* Bernh. and it is possible, that it is identical with *O. superbus* Bernh. See also remark on the page

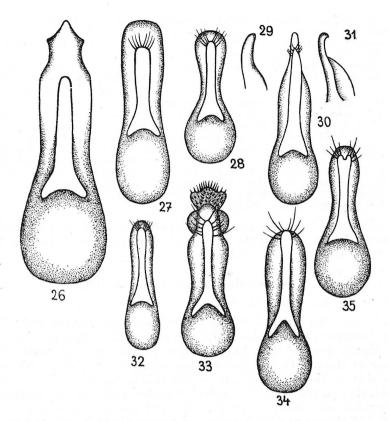


Fig. 26—35. Ædæagi of the genus Ontholestes Gglb. — 26. O. marmoratus (Er.). — 27. O. asiaticus n. sp. — 28—29. O. marginalis (Gené). — 29. Apex of the ædæagus in lateral view. — 30—31. O. simulator Kirsch. — 31. Apex of the ædæagus in lateral view. — 32. O. talyschensis Kirsch. — 33. O. haroldi (Epp.). — 34. O. murinus (L.). — 35. O. dieckmanni Smet. (Orig.)

2. Ontholestes (?) callistus (Hochhuth 1849)

Bull. Soc. natural. Moscou 22: 114 (Staphylinus).

Capite thoraceque subaureo-cupreis, elytris nigris, depresso tomentosis, scutello holosericeo, abdomine nigro, basi subaureo-tomentosis, antennis, palpis pedibusque rufo-testaceis, femoribus fusco annulatis. Long. 5 lin.

Noch bedeutend größer als die größten Exemplare des St. chloropterus, dem er sich am nächsten schließt. Das Verhältnis der einzelnen Theile und die Färbung der Taster, Fühler und Füße ist ganz wie bei diesen, nur daß die Farbe mehr ins Rötliche zielt.

Kopf und Halsschild haben eine etwas mit Goldglanz gemischte Kupferfarbe, und erscheinen auf ihrer Oberfläche durch dichter gestellte Puncte und Runzeln rauher als bei St. chloropterus.

Die Flügeldecken sind schwarz, mit anliegendem Borstenfilze besetzt, und mit der Loupe betrachtet zeigt sich in der Schultergegend beiderseits noch etwas Kupferglanz. Der Hinterleib ist oben auf den drei ersten Segmenten mit ins Goldfarbene ziehenden Härchen besetzt, auf dem ersten freien Segmente hinter den Flügeldecken befinden sich 2 große, runde, und auf dem dritten zwei kielförmige, schwarz seideglanzende Flecken und die äußersten Ränder dieser Segmente sind von der Farbe der Füße. Auf der Unterseite ist der Käfer glänzend, nur dünn behaart, und die Farbe des Unterleibes spielt etwas ins Bläuliche.

Aufgefunden von B. Gotsch.

According to Kirschenblatt (1936: 553) this species does not belong to the genus *Ontholestes* Gglb., because Hochhuth's type, reviewed by B. A. Karabajev does not have a longitudinal keel on the mesosternum.

3. Ontholestes brevicornis (Motschulsky 1860)

Étud. Ent. Helsingfors 9: 11 (Trichoderma).

Trichoderma brevicornis Motsch. (Staphilinus), figura attenuata Leistotrophi murini L., sed fere duplo major, vix puberula, opaca, nigra, elytris pedibusque rufo-brunneis, prolabro testaceo; capite subtriangulari, postice subdilatato, angulis prominulis, cum thorace creberrime granulato-punctato, palporum articulo ultimo acuminato, præcedente vix longiore, antennis crassiusculis, capite paulo solum superantibus, articulis primis subelongatis, penultimis transversis, ultimo apice valde exciso; thorace capitis latitudine, postice semilunato, fusco-puberolo; scutello triangulari, velutinonigro: elytris thorace paulo latioribus, quadratis, subtiliter rugoso-punctatis, sparsim cinereo-pubescentibus; abdomine attenuato, supra subsericeo-micans, sparsim punctulato et fusco-piloso, subtus segmentis ad basin cinereo-puberulis. Long. 6 l. — lat. elytr. 1 ²/₃ l.

II. NEARCTIC SPECIES

There is only a single species of *Ontholestes* Gglb. so far known as live in North America. This species is *O. cingulatus* (Grav.). The second species (*O. capitatus* Bland) recorded from North America in the Catalogue of Leng, Mutchler (1920: 109) is not an *Ontholestes* Gglb. I had the opportunity to study five specimens of this species from the Chicago Nat. Hist. Museum collection. These specimens agree absolutely with Bland's description (Proc. Ent. Soc., 3: 65) and they belong to the genus *Staphlylinus* L. in the vicinity of the European species *Staphylinus* (*Dinothenarus*) flavocephalus Goeze.

Fauvel (1874: 396) has also recorded from North America the widely distributed palæarctic species O. murinus (L.). But Fauvel himself doubts about the accuracy of the origin of the single specimen he have seen from this country. This species has not been found again in North America and it surely does not live there. Accordingly the single Northamerican species of Ontholestes Gglb. is

1. Ontholestes cingulatus (Gravenhorst 1802)

Coleoptera Microptera Brunsvicensia, Brunsvigæ: 166 (Staphylinus).

This species is very similar to the common palæarctic species *O. tesselatus* (Fourcr.), is of the same build and general coloration of the body, but it differs in several distinct characters. Antennæ distinctly longer with much longer 4th and 5th segments and with penultimate segments scarcely longer than broad or as long as broad (fig. 17). Humeral angles, reflexed sides and posterior borders of elytra (narrowly) reddish. The last three visible tergites closely covered with light yellow tomentose pubescence. The first of these three tergites, similarly as the preceding tergites, at the base with two spots of pitchy brown or pitchy black tomentose hairs.

I have seen many specimens from North America. This species seems

to be frequent and widely distributed there.

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