

REVISION OF EUROPEAN SPECIES OF THE GENUS CHEILOTRICHIA,
SUBGENUS EMPEDA (DIPTERA, LIMONIIDAE)

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Abstract. Relationships of *Empeda* to *Cheilotrichia* s. str. and *Gonempeda* are discussed and the monophyly of this group is claimed. European *Empeda* species are divided into two species-groups according to the venational characters. Two new species are described, *C. (E.) caerulea* sp. n. from Czechoslovakia and Austria and *C. (E.) mendli* sp. n. from Portugal and Sardinia, and 6 species, viz. *C. (E.) areolata*, *C. (E.) minima*, *C. (E.) affinis*, *C. (E.) cinerascens*, *C. (E.) neglecta* and *C. (E.) staryi*, are rederscribed, with special attention to the structure of the male genitalia. Lectotype of *C. (E.) neglecta* is designated. Detailed illustrations of the male genitalia are provided for all species treated and a key for identification is attached.

As a result of several classificatory shifts *Empeda* Osten-Sacken, 1869*) [type-species *Empeda stigmatica* O.-S. (Nearctic); subseq. des. by Coquillett, 1910] is now understood as a subgenus of *Cheilotrichia* Rossi, 1848 [type-species *Erioptera imbuta* Meig. (Palearctic); mon.]. This classification was established by Edwards [1938] and has generally been accepted. The two subgenera presently included, *Cheilotrichia* s. str. and *Empeda*, differ considerably from the other groups of the tribe Eriopterini**) in some significant somatic and genitalic characters. They represent a natural group owing to important synapomorphies, especially in the structure of the male genitalia. Systematic position of the third subgenus, originally ascribed to *Cheilotrichia* s. lat. by Edwards [1938], viz. *Gonempeda* Alexander, 1924, appears somewhat obscure and the affinities of this taxon are discussed below.

*) *Platytoma* Lioy, 1863 was erected for *Erioptera cinerascens* Meig. being thus senior subjective synonym of *Empeda* Osten-Sacken, 1869. Hence, Edwards [1939] re-established it as a valid name to replace the latter. However, *Empeda* has become well-established being in general current use practically since its erection and has been widely used even after *Platytoma* was introduced by Edwards [1939]. *Platytoma*, on the other hand, had been totally ignored till its re-establishment. I therefore prefer, for the time being, to use the name *Empeda* for this extensive group with worldwide distribution, as do most of the recent crane fly students.

**) The tribe Eriopterini is conceived here in a wider sense, compared with the conception of Savchenko [cf. Savchenko et Krivolutsкая, 1976], comprising the tribes Eriopterini and Molophilini as delimited by the latter author, with the exclusion of the genus *Rhabdomastix* Skuse.

As far as the world fauna is concerned *Empeda* is rather numerous in species. There presently are known some 90 forms occurring in all zoogeographic regions, most numerous in Oriental and Neotropical ones.

The principal characters diagnosing the subgenus *Empeda* and distinguishing it from the other groups of the tribe *Eriopterini* may be summarized as follows (if not otherwise stated they are valid for the genus *Cheilotrichia* as a whole):

- (1) Pedicel more or less enlarged, representing the largest antennal segment in both sexes (cf. Figs. 12—14).
- (2) No pteropleural hairs, pleurae quite bare (in *Cheilotrichia* s. str. a few such hairs present).
- (3) Sc_1 short, ending at most slightly beyond half the length of R_s ; Sc_2 , consequently, situated near tip of Sc_1 , sometimes vestigial or even atrophied (in some eastern Palaearctic and Oriental species, Sc_1 is somewhat longer, reaching nearly to the end of R_s).
- (4) R_{2+3} relatively long, its branches correspondingly shortened, R_2 at most about $\frac{3}{4}$ the length of R_{2+3} ; cross-vein r well before the fork, at about $\frac{1}{4}$ the length of R_{2+3} [certain variation beyond the range delimited above occurs in some species of *Cheilotrichia* s. str.)*]
- (5) Male genitalia completely inverted; inner (dorsal) apical lobe of basistyle lying in normal position between the bases of the two dististyles; outer dististyle two-armed.

In addition to the character stated under (1) it is necessary to note that in most species a rather strong sexual dimorphism in the antennae is observable, those of males having the pedicel greatly enlarged and the flagellum very slender, with extremely long dorsal verticils on proximal segments (Fig. 13). It should however be emphasized that the female antennae are also not "normal" for the tribe but that they also are characterized by an enlarged pedicel even though its size is not so considerable as is usual in the males. Moreover, the above sexual dimorphism is somewhat less pronounced in *C. (E.) affinis* (Fig. 12) and practically not observable in the newly discovered *C. (E.) mendli* sp. n. (Fig. 14) and cannot therefore be considered diagnostic for the subgenus as a whole. Consequently, the antennal diagnosis has had to be modified as quoted above under (1).

All the other above-mentioned characters have already been emphasized as diagnostic in various papers and were summarized and discussed by Edwards (1938). In addition, two further peculiarities in the structure of the male genitalia in *Empeda* should be noted:

- (6) Aedeagal complex modified, with parameres fused and forming a membranous blade above the penis (cf. Figs. 1, 4, 6—11). This autapomorphic feature appears to be the principal genitalic one that distinguishes *Empeda* from *Cheilotrichia* s. str., the parameres

*) The above notation of radial veins, widely used in descriptive literature, is actually incorrect, the so called cross-vein r appearing to represent a verticalized R_2 .

- of the latter sugbenus being well developed and separate.
- (7) Basistyles fused basally on sternal side, with no indication of a separate 9th sternite. 9th tergite weakly developed, placed above the basal portion of the basistylar fusion element, its position thus suggesting that the absence of a separate 9th sternite is not due to its simple atrophy but that the described condition has most probably arisen as a result of a fusion of the 9th sternite to the basistyles. This character is considered here to be a highly apomorphic evolutionary step that might have evolved from the condition known e.g. in *Parilisia* and *Ormosia* species, in which the basistyles touch each other basally or are even narrowly connected on sternal side, the 9th sternite being, however, well developed and separated from the basistyles by a distinct suture. The character described is shared not only by *Cheilotrichia* s. str. but also by *Gonempeda*, representing thus an important morphological link between the taxa in question.

Affinities of *Gonempeda*

Gonempeda was erected by Alexander (1924) as a subgenus of the large and, in contemporary conception of that author, rather heterogeneous genus *Erioptera* Meigen, 1803. The European *Limnobia flava* Schummel, 1829 was fixed as type-species of this subgenus by original designation. Later, *Gonempeda* was, as already mentioned, associated with *Cheilotrichia* and *Empeda* to form a separate genus *Cheilotrichia* s. lat. (Edwards, 1938) and still later it was raised to generic rank (Alexander, 1967). Savchenko (1971) even doubts its close relationship to *Cheilotrichia* s. lat., stressing the non-inverted hypopygium in *Gonempeda* as the essential diagnostic character. *Gonempeda* comprises only a few species and is so far known from the Palaearctic and Nearctic Regions.

Although *Gonempeda* may be distinguished from *Cheilotrichia* s. lat. in some external characters (details of wing venation, structure of male pretarsus and the tarsal claws, absence of anterior pits) it is here considered to be relatively closely related to the latter genus. This relationship may be demonstrated, above all, by synapomorphy in the fusion of the basistyles, as described under (7). The latter character appears to be unique within the family Limoniidae and therefore it does not seem probable that it would have evolved in such an expressly similar state in different evolutionary lines. Also, some further features indicate the relationship of *Gonempeda* to *Cheilotrichia* s. lat., namely the subgenus *Empeda* (sexual dimorphism in antennae, absence of pteropleural hairs, length of R_{2+3}).

Moreover, the examination of presumably non-inverted hypopygium of *Gonempeda flava* has revealed a strong reduction and slight asymmetry of the 8th abdominal segment, the feature generally correlated with the inversion of hypopygium in Limoniidae. Though seemingly occupying a non-inverted position the hypopygium of *G. flava* shows sometimes a very slight deflection about the long axis of the body, compared

with the 7th and preceding abdominal segments. The case warrants, however, a detailed study, under consideration of the rotation of hypopygium in other groups, before a more precise judgement of the situation in *Gonempeda* is possible.

On the basis of the above-mentioned characters it appears that *Cheilotrichia* s. str., *Empeda* and *Gonempeda* represent a monophyletic, relatively apomorphic group,*] being more closely related to each other than to any other genus of the tribe Eriopterini. For the time being, it is desirable to accept the recent ranking, classifying *Cheilotrichia* s. str. and *Empeda* as subgenera of one genus, *Cheilotrichia* s. lat., and retaining the generic rank for somewhat more isolated *Gonempeda*.

European species of *Empeda*

In the present paper a taxonomic revision of the European *Empeda* species is presented. Two new species are described and 6 species re-described, with special attention to the structure of the male genitalia. Detailed figures of the hypopygium are provided for all species treated and a key for identification is appended.

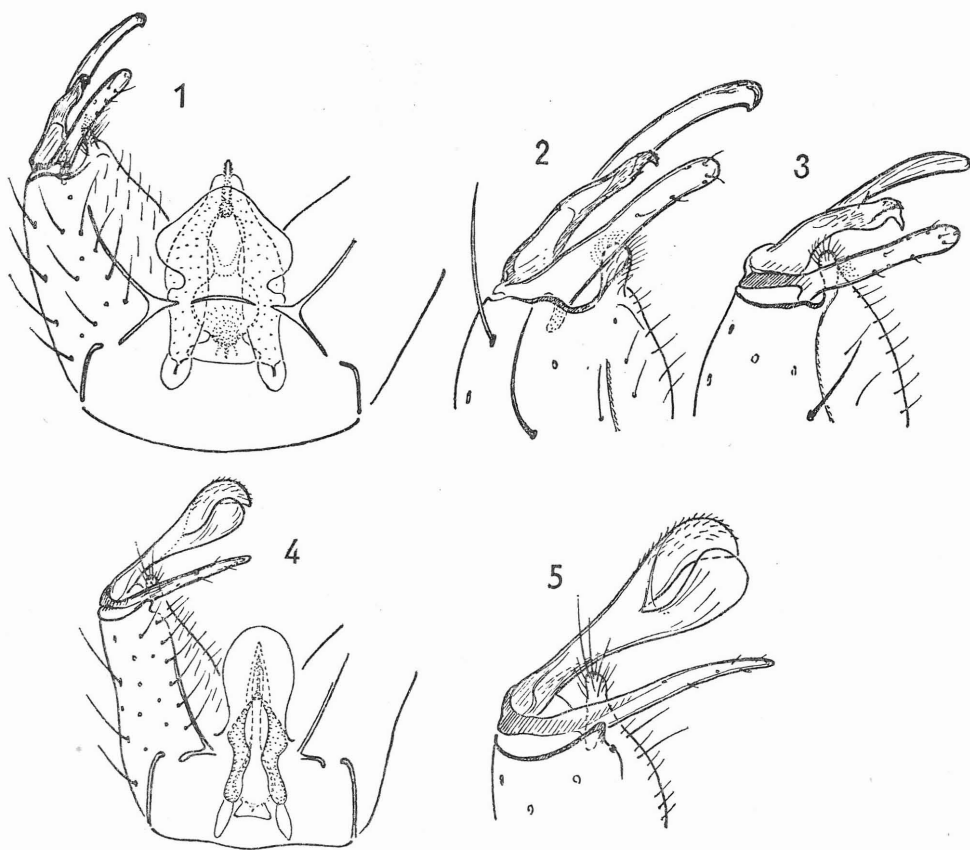
The European *Empeda* species may be separated into two species-groups, the most obvious difference between them being the presence or absence of a closed discal cell in the wing:

C. (E.) minima — group: *C. (E.) areolata* (Lundström, 1912) and *C. (E.) minima* (Strobl, 1898). Size very small (wing length 2.5—4.5 mm); Sc₁ ending before half the length of Rs; R₂ short, from about 1/2 to 1/4 the length of R₂₊₃, almost straight, oblique, tending to be even subvertical; discal cell closed. According to the closed discal cell the included species were sometimes assigned to *Cheilotrichia* s. str. or *Gonempeda*. The modification of the parameres as a membranous blade above the penis proves, however, unambiguously that they belong to *Empeda*.

C. (E.) cinerascens — group; *C. (E.) affinis* (Lackschewitz, 1927), *C. (E.) caerulea* sp. n., *C. (E.) cinerascens* (Meigen, 1804), *C. (E.) mendli* sp. n., *C. (E.) neglecta* (Lackschewitz, 1927) and *C. (E.) staryi* Mendl, 1973. Size larger (wing length 3.5—7 mm); Sc₁ ending slightly beyond half the length of Rs; R₂ longer, about 3/4 the length of R₂₊₃, arcuate, not oblique distally; discal cell open by the atrophy of m (tp) (except in abnormal specimens).

Especially within *C. (E.) cinerascens* — group the species are superficially much similar, differing only rarely in the structure of the male antennae (cf. Figs. 12—14). Body coloration may sometimes provide hints on identification, there is, however, frequently a great deal of infraspecific variability. If not unambiguously defined by somatic characters or not associated with the respective males, the females appear

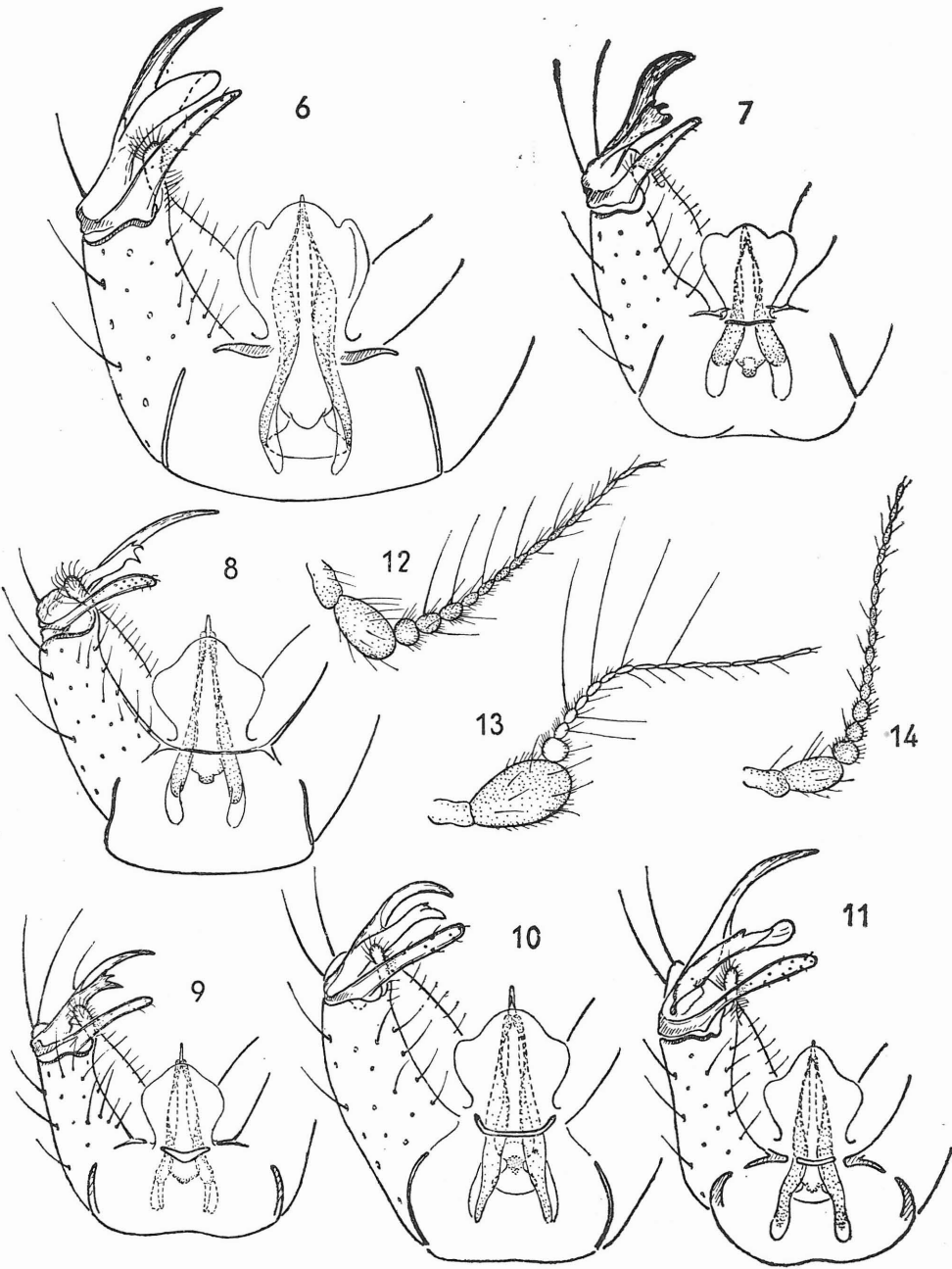
*) The Nearctic genus *Gonomyodes* Alexander, 1948, recorded as Palaearctic recently (cf. Savchenko, 1980; Vestnik zoologii, No. 1, pp. 17—25), likewise appears to belong here.



Figs. 1—5: Male genitalia, ventral, 1—3: *Cheilotrichia (Empeda) areolata* (Lundstr.), general view (specimen from Sweden) [1], dististyles of the same [2] and of the specimen from the Far East (Primorye) [3], 4—5: *Cheilotrichia (Empeda) minima* (Strobl) (Czechoslovakia), general view [4] and dististyles [5], [9th tergite omitted in Figs. 1 and 4].

so far unidentifiable, their genitalia mostly not providing distinct specific criteria. The relative characters in the structure and shape of the female cerci, as stated here for particular species, are rather slight in *C. (E.) cinerascens* — group (except in *C. (E.) affinis*) and their possible variability has not yet been evaluated.

Reliable specific criteria for all species treated are provided by the structure of the male genitalia, namely the shape of the dististyles and the penis. However, this organ also is rather uniform in European *Empeda* species. Consequently, some of them (*C. (E.) affinis*, *C. (E.) neglecta*) were often ignored as valid taxa until recently. The present



detailed examination has, however, proved that the specific separation of particular forms, as recognized in this paper is justified, though certain variation in the structure of the male genitalia may be observed. Some distinguishing genitalic characters (e.g. the shape and undulation of penis) are described and illustrated here for the first time (Figs. 21—28).

The type specimens of *C. (E.) affinis*, *C. (E.) neglecta* and *C. (E.) staryi* have been examined by me and the lectotype of *C. (E.) neglecta* is designated herein. *C. (E.) areolata* was redescribed and the lectotype designated by Tjeder (1963). The type specimens of *C. (E.) minima* have been examined only recently by Mendl (in litt.) who provided me with very useful information. According to the letter communication by Dr. L. Matile the single specimen of *C. (E.) cinerascens* in Meigen's collection at the Paris Museum is too damaged for accurate determination and the interpretation of de Meijere (1920) is adopted here for this species.

In addition to the above-mentioned type specimens an extensive material has been studied, mostly originating from Czechoslovakia. Of the 8 species presently treated 6 are now known to occur in this country. Of them, besides the newly described *C. (E.) caerulea* sp. n., *C. (E.) minima* and *C. (E.) neglecta* are recorded from Czechoslovakia for the first time. *C. (E.) areolata* is confined to northern areas of Palaearctic (and possibly also Nearctic — see below) being so far known in Europe from northernmost Fennoscandia only and *C. (E.) mendli* sp. n. appears to be a South European form. The other species prove to have wider distribution than previously supposed and the scarce literature data on some of them may be due to misidentification and confusion with the commonest *C. (E.) cinerascens*.

For invaluable information and/or for the loan of type and a few other specimens I am much indebted to Dr. L. Matile (Muséum National d'Histoire Naturelle, Paris), Dr. H. Mendl (Kempten/Allgäu), Dr. E. N. Savchenko (Zoological Institute, Academy of Sciences, Kiev), Dr. H. Schumann (Museum der Humboldt-Universität, Berlin) and Dr. Theowald van Leeuwen (Instituut voor taxonomische Zoölogie, Amsterdam). Appreciation is extended to Dr. H. Mendl also for providing me with specimens of *C. (E.) mendli* sp. n. and for kindly allowing me to describe this species.

Figs. 6—14: Male genitalia and male antennae, 6—11: Male genitalia, general view, ventral, 6: *Cheilotrichia (Empeda) affinis* (Lack.) [Czechoslovakia], 7: *Cheilotrichia (Empeda) caerulea* sp. n. (holotype), 8: *Cheilotrichia (Empeda) cinerascens* (Meig.) [Czechoslovakia], 9: *Cheilotrichia (Empeda) mendli* sp. n. (paratype, Sardinia), 10: *Cheilotrichia (Empeda) neglecta* (Lack.) [Czechoslovakia], 11: *Cheilotrichia (Empeda) staryi* Mendl [Czechoslovakia], 12—14: Male antenna: 12: *Cheilotrichia (Empeda) affinis* (Lack.), 13: *Cheilotrichia (Empeda) cinerascens* (Meig.), 14: *Cheilotrichia (Empeda) mendli* sp. n., [9th tergite omitted in Figs. 6—11].

C. (E.) minima — group***Cheilotrichia (Empeda) areolata* (Lundström, 1912)**

(Figs. 1—3, 21)

Empeda areolata Lundström, 1912, Acta Soc. Fauna Flora Fenn., 36: 61, Taf. V, Figs. 66—67 (♂ gen.), 70—71 (wing).

Cheilotrichia (Platytoma) areolata; Tjeder, 1963, Notulae Ent., 43: 133, Figs. 2—4 (♂ gen.), 5—8 (♀ gen.).

Other references: Kuntze, 1914: 382 (Fig., key); Pierre, 1924: 110 (key); Lackschewitz, 1935: 11; Tjeder, 1955: 238; Mendl, 1975: 69, 70; 1978: 374.

Body coloration generally pale greyish brown to brown, pruinose, considerably different from that of *C. (E.) minima*. Pleurae paler, yellowish brown. Body length 2.5—3 mm, wing length 2.5—4.5 mm.

♂: Head greyish black on vertex. Antennae of the type as described for *C. (E.) minima*, distal segments of flagellum appearing somewhat shorter. Dorsal verticils as in the latter species.

Thorax pale greyish brown to pale grey. Praescutum grey with a brownish tinge, without any distinct pattern. Areas along the lateral suture of praescutum yellowed. Scutum of much the same basic coloration as praescutum, with yellow markings near bases of wings. Scutellum mostly pale yellow, darkened medially near the anterior margin. Pleurae frequently distinctly paler than praescutum, yellowish brown, patterned with yellow proximally near the praescutal suture. Generally, yellow markings on the thorax are more extensive, as compared with *C. (E.) minima*. Wing venation substantially not different from that of the latter species.

Abdomen greyish brown. Male genitalia (Figs. 1—2, 21): Inner apical lobe of basistyle small, approximately as in *C. (E.) minima*. Dististyles pale, outer one glabrous, inner one sparsely covered with setae. Outer arm of the outer dististyle comparatively long, gently curved, almost parallel-sided, hook-shaped apically, tip subacute. Inner arm much shorter, reaching to about half the length of the outer arm, similarly hook-shaped apically, with distinctly acute tip and with irregularly scattered minute teeth or spines on the outer surface near apex. Inner dististyle stouter than in *C. (E.) minima*, parallel-sided, almost straight, with obtuse apex. Penis (viewed laterally) of rather complex shape, generally very stout, somewhat constricted at mid-length, greatly dilated distally, with conspicuous undulated subapical dorsal projection, and drawn out into a slender long apical portion. Other details are evident from Figs. 1—2, 21.

♀: No female specimen is available to me but Tjeder (1963) published detailed figures of the female genitalia of a specimen (U.S.S.R., Kola Peninsula) that he had compared with the male lectotype. According to these figures cerci of the female ovipositor are relatively stout and short, strongly upturned, differing thus considerably from those of *C. (E.) minima*. As far as internal structures are concerned the shape of the vaginal apodeme as illustrated by Tjeder (1963) is not substantially

different from that of *C. (E.) minima*. This fact thus indicates similar taxonomic unreliability of the latter character as is also case in the species of *C. (E.) cinerascens* — group.

According to Lundström (1912) and Tjeder (1963) the type-series comprises 15 ♂♂ and 1 ♀ from Finland (Muonio, Enontekis), deposited in Museum Helsingfors (the female presently missing — cf. Tjeder, 1963). Male lectotype was designated and detailed illustrations of male and female genitalia were presented by Tjeder (1963).

Material examined (10 ♂♂):

Sweden: Lule Lappmark, Högrträsk, 14.—21. vii. 1971, 1 ♂ (Mendl; light trap). U.S.S.R.: Region Primorye, district Khasan, vicinity of Primorskiy, 31. v. 1976, 4 ♂♂ (Klestov); North Kurils, Island Paramushir, vicinity of Severo-Kurilsk, 10. vii. 1977, 5 ♂♂ (Savchenko).

C. (E.) areolata is readily distinguishable from the only other European representative of this species-group, *C. (E.) minima*, in body coloration and the structure of male and female genitalia, as indicated in the respective descriptions and figures.

The examined specimen from Sweden differs a little from the lectotype (cf. Tjeder, 1963, Figs. 2—4) in the shape of the outer dististyle, the outer arm being longer and the apex of the inner arm somewhat differently shaped. The specimens from the Far East show certain range of variation in the shape of the outer dististyle (one specimen is illustrated here for comparison — Fig. 3) and the length of R_2 , the vein being sometimes longer and less oblique than stated for the species of *C. (E.) minima* — group elsewhere in this paper. Otherwise, however, all the examined specimens agree fairly well with each other in other features, notably the shape of the penis.

According to the letter communication by Dr. E. N. Savchenko *Erioptera (Empeda) rectispina* Alexander, 1955 from Alaska and Canada may be identical with *C. (E.) areolata*.

Distribution: Finland (Lundström, 1912), Norway (Lackschewitz, 1935), Sweden (Tjeder, 1955, 1963; Mendl, 1975), U.S.S.R. (Kola Peninsula) (Tjeder, 1963), the Far East (Primorye, North Kurils) (material examined). (Possibly also North America — see the above note).

***Cheilotrichia (Empeda) minima* (Strobl, 1898)**

(Figs. 4—5, 22)

Gonomyia minima Strobl, 1898, Glas. zem. muz. Bosni Herceg., 10: 606.

Cheilotrichia (Empeda) gnoma Alexander, 1975, Journ. N. Y. Ent. Soc., 83: 122, Figs. 2 [wing], 5 [♂ gen.]; **syn. n.**

Other references: Strobl, 1906: 413; 1910: 277; Kuntze, 1914: 382 (Fig., key); Pierre, 1924: 110 (key); Lackschewitz, 1940: 63; Nielsen, 1961, 306; 1963: 6; Mannheims, 1967a: 181; 1967b: 473; Savchenko et Parkhomenko, 1974: 1049; Mendel, 1978: 374.

Body coloration dark grey to greyish black, pruinose. Body length 2—3 mm, wing length 2.5—4 mm.

♂: Head almost black on vertex, silvery grey pruinose. Antennae almost black, their structure not substantially different from that of

C. (E.) cinerascens, with greatly enlarged pedicel, rather slender distal portion of flagellum and extremely long dorsal verticils.

Thorax generally dark grey to greyish black. Areas along the lateral suture of praescutum yellowed, otherwise praescutum, scutum and scutellum are concolorous, dark grey to greyish black, the latter with only the extreme posterior margin yellowed. Pleurae of much the same basic coloration as other parts of thorax, not paler, very restrictedly patterned with obscure yellow proximally near the praescutal suture. Wing venation characterized by the features typical for the subgenus or the respective species-group, as stated also elsewhere in this paper: Sc_1 ending before half the length of Rs ; Sc_2 near tip of Sc_1 , mostly vestigial or atrophied; R_2 very short, shorter than in *C. (E.) cinerascens* — group, from about $\frac{1}{2}$ to $\frac{1}{4}$ the length of R_{2+3} , almost straight, oblique, tending to be even subvertical; crossvein r well before the fork, at about $\frac{1}{4}$ the length of R_{2+3} ; discal cell closed, narrowed proximally.

Abdomen greyish black with a very slight dark brownish tinge. Male genitalia (Figs. 4—5, 22): Inner apical lobe of basistyle rather small. Dististyles pale. The two arms of the outer dististyle subequal in length, dilated distally. Outer arm somewhat curved, with a subacute point and with minute spines or setae on outer surface distally. Inner arm appearing as a broad rounded glabrous blade. Inner dististyle sparsely covered with setae, very slender, rod-like, almost straight, with obtuse apex. Penis (viewed laterally) gently upturned, approximately parallel-sided, somewhat darkened distally, with an acute tip and a conspicuous subapical dorsal tubercle. Other details are evident from Figs. 4—5, 22.

♀: In general appearance resembling the male. Antennae not modified as in the male, much the same as in females of the other species. Pedicel only moderately enlarged, flagellum not conspicuously slender, the longest verticils a little exceeding the length of the respective segments. Compared with the figures provided by Tjeder (1963) for *C. (E.) areolata*, cerci of the female ovipositor of *C. (E.) minima* are considerably different, being comparatively long and slender, only very gently upturned.

The species was described on the basis of 2 ♂♂ from Yugoslavia (Mostar) (Strobl, 1898), now deposited in Strobl's collection at Admont, Austria. According to the letter communication by Dr. H. Mendl who examined the two syntypes recently having thus proved the correct interpretation of *C. (E.) minima*, the specimens are pinned together, the one without left wing, the other nearly destroyed, only a fragment remaining on the pin.

Material examined (29 ♂♂, 44 ♀♀):

Czechoslovakia: Slovakia: Belenské Tatry Mts., Tatranská Kotlíha, valley of the Belá (750 m), 22. vi. 1975, 5 ♂♂ (Starý). Bulgaria: Kresna nr. Simitli, valley of the Struma (230—300 m), 30. v. 1976, 1 ♂, 2 ♀♀, 31. v. 1976, 17 ♂♂, 28 ♀♀, 1. vi. 1976, 6 ♂♂, 14 ♀♀ (Lauterer et Majer; at light).

In body coloration and the structure of the male and female genitalia *C. (E.) minima* is readily distinguishable from *C. (E.) areolata*.

According to the description and figures provided by Alexander (1975) *C. (E.) gnoma* of Iran is unquestionably conspecific with the above species.

Distribution: Yugoslavia (Hercegovina) (Strobl, 1898), Austria (Strobl, 1910; Lackschewitz, 1940), Albania (Lackschewitz, 1940; Mannheims, 1967b), U.S.S.R. (Turkmenia) (Savchenko et Parkhomenko, 1974), Afghanistan (Nielsen, 1961, 1963), Iran (Alexander, 1975; as *gnoma*). According to the material examined also Czechoslovakia and Bulgaria. In Czechoslovakia the species was taken in June, swarming above the stony bank of a stream.

C. (E.) cinerascens — group

Cheilotrichia (Empeda) affinis (Lackschewitz, 1927)

(Figs. 6, 12, 15, 23)

Empeda affinis Lackschewitz, 1927, Korr.-bl. Naturf.-Ver. Riga, 59: 10, Fig. 2 (♂ gen.).

Other references: Edwards, 1938: 119 (Fig.); Bangert, 1939: 485; 1946: 194; Coe, 1950: 54 (Fig., key); Savchenko, 1969: 107 (Fig., key); Starý, 1971a: 77 (Figs.); Mendl, 1973a: 66 (Fig.); 1976: 284; 1977: 118; 1978: 374.

Body coloration yellowish brown to greyish brown, pruinose, pleurae and ventral part of abdomen much paler, yellow to yellowish brown. Generally, the body has a distinct yellowish brown tinge, the species being rather pale, relatively easily distinguishable from all the other species of *C. (E.) cinerascens* — group. Body length 3.5—5 mm, wing length 4.5—7 mm.

♂: Head greyish black on vertex. Antennae with pedicel somewhat smaller than in *C. (E.) cinerascens* and with flagellum not so slender distally (Fig. 12). The longest verticils distinctly shorter, about 5 times as long as the respective segments, hardly half as long as in the other species of the group (except for *C. (E.) mendli* sp. n.).

Thorax appearing generally yellowish brown mostly due to the coloration of pleurae. Dorsal parts including praescutum with much the same basic coloration as in *C. (E.) cinerascens*, with restricted yellow areas as described for the latter species. Pleurae much paler, yellow to yellowish brown, restrictedly patterned with pale yellow proximally near the praescutal suture. Wing venation not substantially different from that of *C. (E.) cinerascens*.

Abdomen dark greyish brown, ventral part much paler, yellow to yellowish brown. Male genitalia (Figs. 6, 15, 23): Inner apical lobe of basistyle relatively large, larger than in *C. (E.) caerulea* sp. n. and *C. (E.) neglecta*. Outer dististyle glabrous, inner one sparsely covered with setae. Outer arm of the outer dististyle gently curved, gradually tapering to a subacute tip. Inner arm comparatively long, reaching over half the length of the outer arm, generally finger-like, apex broadly

rounded. Inner dististyle very gently curved, gradually narrowed to an obtuse tip. Penis (viewed laterally) relatively long and slender, upturned beyond mid-length, almost parallel-sided, apical portion still somewhat more narrowed. Other details are evident from Figs. 6, 15, 23.

♀: In general appearance resembling the male. The structure of the antennae much the same as in females of the other species. Cerci of the female ovipositor comparatively long and slender, only very moderately upturned, fairly different from all the other species of the group.

Holotype ♂: U.S.S.R., Latvia (Curlonia), Embute (= Amboten), 27. ix. 1925 (Lackschewitz); deposited in Museum für Naturkunde der Humboldt-Universität, Berlin. Only the right fore leg is attached to the specimen, three further legs glued separately. Labels: a small blank green paper square; "Curon. Amboten 27. IX. 1925 Dr. P. Lackschewitz"; "Typus" (red); "*affinis*". Genitalia preserved in a plastic tube with glycerine pinned with the specimen.

Other material examined (55♂♂, 21♀♀):

Germany: Allgäu, Kreuzthal, 15.—30. ix. 1971, 1 ♂, 1 ♀ (Mendl; light trap). Czechoslovakia: Bohemia: Jizerské Mts., Jizerka (800 m), 18. ix. 1979, 1 ♂, Bukovec (900 m), 20. ix. 1979, 2 ♂♂, 1 ♀ (all Starý); Krkonoše Mts., Harrachov, 9. ix. 1976, 1 ♂ (Olejníček). Moravia: Lobodice nr. Tovačov, 27. ix. 1978, 6 ♂♂, 6 ♀♀; Daskabát nr. Olomouc, 2. x. 1979, 1 ♂; Hlubočky nr. Olomouc, 19. ix. 1968, 1 ♂ (all Starý); Hrubá Voda nr. Olomouc, 27. ix. 1969, 2 ♂♂ (Martinovský), 8. x. 1969, 1 ♂, 4 ♀♀, 1. x. 1971, 1 ♂, 20. ix. 1972, 7 ♂♂, 1 ♀, 10. x. 1972, 2 ♂♂, 1 ♀, 26. x. 1976, 11 ♂♂, 2 ♀♀; Smilov nr. Olomouc, 24. ix. 1977, 1 ♂; Jívová nr. Olomouc, 8. x. 1969, 1 ♂, 2. x. 1975, 2 ♂♂, 3 ♀♀; Děřichov n. Bystř. (distr. Bruntál), 28. ix. 1974, 4 ♂♂, 28. ix. 1977, 3 ♂♂, 2 ♀♀; Horní Město, Skály (distr. Bruntál), 11. ix. 1974, 1 ♂; Jeseníky Mts., Praděd, valley of the Bílá Opava (1200 m), 13. ix. 1972, 2 ♂♂, 5. ix. 1974, 1 ♂, 14. ix. 1977, 3 ♂♂ (all Starý).

In contrast to the other species of *C. (E.) cinerascens* — group, *C. (E.) affinis* is relatively easily recognizable on the basis of body coloration. Otherwise the species is characterized by the structure of the male antennae and the male genitalia as described above and illustrated in Figs. 6, 12, 15, 23.

Distribution: U.S.S.R. (Latvia) (Lackschewitz, 1927), Switzerland (Bangert, 1939, 1946), Czechoslovakia (Starý, 1971a), Germany (Mendl, 1973a, 1977), Austria (Mendl, 1976). Autumnal species, locally common in Czechoslovakia at virtually all altitudes.

Note: Santos Abreu (1923) described *Polymeda nemorensis* from the Canary Islands (Palma) the species having proved to be an *Empeda* (= *Platytoma*) (Theowald, 1977). The latter author provided a redescription of this species and designated the male lectotype from the series of 7 syntypes (3 ♂♂, 4 ♀♀), all from the same collecting site*). In addi-

*) Two further males from the same locality were listed by Theowald (1977) as paralectotypes of *C. (E.) nemorensis*. Since, however, they had been designated and described as "var. *obscura*" of the latter taxon by Santos Abreu (1923) — i. e.,

tion, further material was examined by Theowald (1977) comprising 1 ♂ and 1 ♀ from Gran Canaria and 3 ♂♂ from Tenerife. I have had the opportunity to examine one of the above males from Tenerife (Las Mercedes, 25. xi. 1973, M. Baez leg.) kindly sent to me by Dr. Theowald van Leeuwen. Superficially this specimen is rather similar to *C. (E.) affinis* and, moreover, all details of the hypopygium considered taxonomically important in this paper reveal only slight variation, as compared with the latter species. It appears that *C. (E.) nemorensis* may at most represent a subspecies of *C. (E.) affinis*. Since, however, only the one specimen is at my disposal and no type material of *C. (E.) nemorensis* has been examined by me, I, for the time being, refrain from establishing formally the above-suggested status and from consequent adopting the relevant change of name for the species treated here as *C. (E.) affinis*. The identity of *C. (E.) nemorensis* var. *obscura* described by Santos Abreu (1923) on the basis of two males (see the relevant footnote) remains unknown to me.

***Cheilotrichia (Empeda) caerulea* sp. n.**

(Figs. 7, 16, 24)

Body coloration very dark, mostly rather conspicuously differing from that of the other species of the group (except perhaps from extremely dark specimens of *C. (E.) cinerascens*), dark grey to greyish black, pruinose, with a slight but distinct bluish tinge (not obvious in the paratype which is preserved in alcohol, possibly due to discoloration). Pleurae not distinctly paler. Body length 4 mm, wing length 4.5 mm.

♂: Head greyish black on vertex. Antennae of similar structure as described for *C. (E.) cinerascens* and stated also for *C. (E.) neglecta* and *C. (E.) staryi*. Dorsal verticils extremely long.

Thorax generally dark grey to greyish black, with a slight bluish tinge. Praescutum with comparatively distinct yellow areas along the lateral suture. Other pale markings on dorsal parts of the thorax, described for *C. (E.) cinerascens*, mostly obscured by the dark basic coloration, scutellum being obscure yellow on extreme posterior margin only. Pleurae concolorous with praescutum, dark grey with a slight bluish tinge, restrictedly but distinctly patterned with yellow proximally near the praescutal suture. Wing venation as in *C. (E.) cinerascens*.

Abdomen generally dark grey, the bluish tinge not so apparent, compared with the thorax. Ventral part not paler. Male genitalia (Figs. 7, 16, 24): Inner apical lobe of basistyle small, the smallest of all the species of *C. (E.) cinerascens* — group. Dististyles rather darkened, compared with those of the other species, especially the outer one. Outer dististyle glabrous, inner one sparsely covered with setae. Outer arm of the outer dististyle relatively very short, rather stout and strongly

using the formulation of Article 72(b) of the Code, they had been referred to as variants — they cannot be regarded as members of the above type-series and should, consequently, be excluded from the paralectotypes (see also Štys, 1973).

curved, its tip obtuse. Inner arm still more darkened, reaching over half the length of the outer arm. Apex of the inner arm tridentate as in *C. (E.) cinerascens*. Configuration of the teeth approximately the same as in the latter species, the lower tooth, however, distinctly obtuse and the middle one somewhat more curved. In all paratypes the upper tooth is minute, placed on the convex surface of the middle tooth, suggesting thus the condition described for *C. (E.) neglecta*. (This tendency is observable also in some specimens of *C. (E.) cinerascens*.) Inner dististyle almost straight and parallel-sided, only gradually narrowed to an obtuse tip. Penis [viewed laterally] comparatively short, drawn out into a short and slender apical portion. Other details are evident from Figs. 7, 16, 24.

♀: The female that is here associated with the male type specimens resembles the males in general appearance, especially the body coloration. Antennae generally as in females of *C. (E.) cinerascens* and the other species of the group. Cerci of the female ovipositor appearing in length and shape intermediate between those of *C. (E.) cinerascens* and *C. (E.) affinis*, resembling the condition in *C. (E.) staryi*.

Holotype ♂: Czechoslovakia, Moravia, Jeseníky Mts., Rejvíz (700 m), 25. v. 1969 (Starý); deposited in coll. J. Starý, Olomouc.

Paratypes: Czechoslovakia, Slovakia, Belanské Tatry Mts., dolina Siedmich prameňov (valley) (1000 m), 30. vii. 1974, 1 ♂, Tatranská Kotlina, valley of the Belá (750 m), 4. vii. 1979, 1 ♂ (all Starý); Austria, Ötztaler Alpes, Obergurgl (2000 m), 19. vi. 1976, 1 ♂ (Stockner) (in alcohol); deposited in coll. J. Starý, Olomouc, H. Mendel, Kempten/Allgäu, and National Museum, Prague.

Other material examined (excluded from the type-series): Czechoslovakia, Moravia, Jeseníky Mts., Praděd, Kursovní chata (chalet) (1300 m), 4. vii. 1968, 1 ♀ (Starý).

The bluish tinge of the body is rather striking in the examined dried specimens. The only reliable specific features are, however, exhibited by the structure of the male genitalia as described above and illustrated in Figs. 7, 16, 24.

Distribution: Czechoslovakia, Austria. According to the specimens examined the species may be confined to mountainous areas. The specimens were taken in spring or summer, indicating thus quite different seasonal distribution from *C. (E.) affinis*, *C. (E.) mendli* sp. n., *C. (E.) neglecta* and *C. (E.) staryi* (but see the relevant comment on *C. (E.) neglecta*).

***Cheilotrichia (Empeda) cinerascens* (Meigen, 1804)**

(Figs. 8, 13, 17, 25)

Erioptera cinerascens Meigen, 1804, Klass., 1:52.

Limnobia? nubila Schummel, 1829, Beitr. Ent., 1: 147, Tab. 2, Fig. 4 (wing) (synonymized by Edwards, 1938).

Erioptera diluta Zetterstedt, 1851, Dipt. Scand., 10: 3793 (synonymized with *nubila* by Strobl, 1895).

Empeda nubila forma *alpina* Strobl, 1895, Mitt. naturwiss. Ver. Steierm., 3 (1894): 232 (synonymized by Mendl, in litt.).

Empeda nubila; de Meijere, 1920, Tijdschr. Ent., 63: 85, Taf. 10, Figs. 87a-b (♂ gen.).

Further (selected) references: Lundström, 1907: 22 (Fig.) (in part; as *nubila*); 1912: 61 (Figs.) (as *nubila*); Kuntze, 1914: 382 (Fig., key) (as *nubila*); Goetghebuer et Tonnoir, 1920: 143 (as *nubila*); Pierre, 1924: 109—110 (Figs., key) (as *nubila*); Nielsen, 1925: 60 (Fig.) (as *nubila*); Lackschewitz, 1927: 11 (Fig.) (as *nubila*); 1935: 11 (as *nubila*); Edwards, 1938: 119 (Figs.); Bangertner, 1946: 192, 194; Coe, 1950: 54 (Figs.); Tjeder, 1955: 238; Savchenko, 1969: 107 (Fig. key); Theowald, 1971: 226; 1977: 185; Alexander, 1975: 126; Mendl, 1974: 207; 1977: 118; 1978: 374.

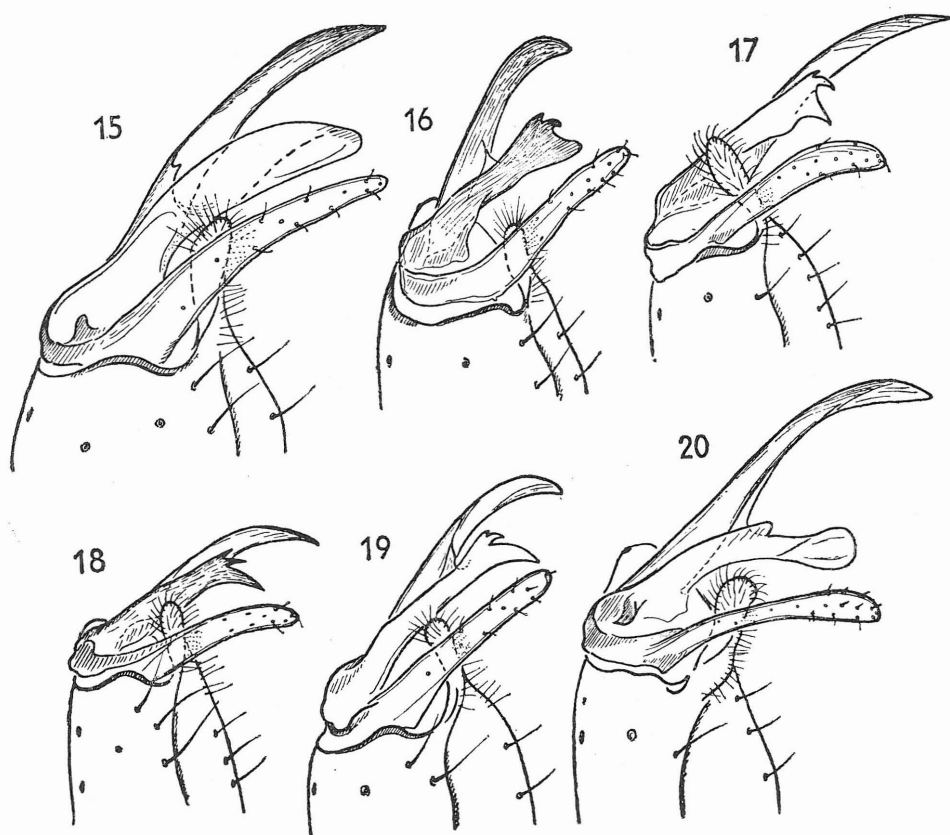
Records from Czechoslovakia: Kowarz, 1894: 5 (as *diluta*); Vimmer, 1909: 40 (as *diluta*); 1913: 15 (as *diluta*); Riedel, 1918: 138 (as *nubila*); Czižek, 1931: 107 (Fig.) (as *nubila*); Lackschewitz, 1940: 63 (as *nubila*); Starý, 1968: 136; Starý et Martinovský, 1969: 13; Starý et Rozkošný, 1970: 117 (Fig.); Starý, 1971b: 159.

Body coloration generally greyish brown to dark greyish brown, pruinose, pleurae and ventral part of abdomen mostly somewhat paler, brown to greyish brown. The species is rather variable in body coloration, in extreme cases superficially not differing from any other species of *C. (E.) cinerascens* — group treated in this paper (except perhaps from *C. (E.) affinis*). Body length 3—5 mm, wing length 4—6.5 mm.

♂: Head greyish black on vertex. Antennae short, bent backwards not reaching the bases of wings (the same is true for all the other species treated), generally brown to dark brown. Pedicel greatly enlarged, oval. 1st flagellar segment spherical, distinctly larger than the following segments, these being oval, gradually narrowed and lengthened distally, distal segments of flagellum subcylindrical, rather long and very slender. Dorsal verticils of flagellum extremely long on proximal segments, the longest ones exceeding the length of the respective segments 10 times or more (Fig. 13).

Thorax generally greyish brown to dark greyish brown. Praescutum dark greyish brown, mostly without any distinct pattern, only rarely with faint indications of two longitudinal stripes. Areas along the lateral suture of praescutum yellowed. Scutum with much the same basic coloration as praescutum, areas near the bases of wings paler, sometimes obscurely yellow. Scutellum yellowish brown to obscure yellow, especially the distal portion. Pleurae mostly somewhat paler than praescutum, brown to greyish brown, restrictedly patterned with obscure yellow proximally near the praescutal suture. Wing venation characterized by the features typical for the subgenus or the respective species-group, as indicated also elsewhere in this paper: Sc_1 ending slightly beyond half the length of R_s ; Sc_2 near tip of Sc_1 , mostly vestigial; R_2 relatively short (compared with other genera of *Eriopterini*), about $\frac{3}{4}$ the length of R_{2+3} , arcuated, not oblique distally; cross-vein r well before the fork, at about $\frac{1}{4}$ the length of R_{2+3} ; discal cell open by the atrophy of m (except in abnormal specimens; cf. Edwards, 1938, Text-fig. 23b).

Abdomen dark greyish brown, ventral part paler, brown to greyish brown. Male genitalia (Figs. 8, 17, 25): Inner apical lobe of basistyle large, the largest of all the species treated. Dististyles pale, outer one glabrous, inner one sparsely covered with setae. Outer arm of the outer dististyle long, gently curved, gradually tapering to a subacute tip. Inner



Figs. 15—20: Male genitalia, dististyles, ventral (the same specimens as in Figs. 6—11). 15: *Cheilotrichia (Empeda) affinis* (Lack.), 16: *Cheilotrichia (Empeda) caerulea* sp. n., 17: *Cheilotrichia (Empeda) cinerascens* (Meig.), 18: *Cheilotrichia (Empeda) mendli* sp. n., 19: *Cheilotrichia (Empeda) neglecta* (Lack.), 20: *Cheilotrichia (Empeda) staryi* Mendl.

arm arising at a very acute angle, much shorter, reaching to about half the length of the outer arm, its apex with three acute teeth, somewhat variable in shape, the most frequent configuration of the teeth is evident from Fig. 8 and 17. Sometimes, the uppermost tooth tends to be rather minute and situated on the convex surface of the middle tooth, suggesting thus the condition described for *C. (E.) neglecta*. These somewhat aberrant specimens are, however, easily distinguishable from the latter species in other features discussed. Inner dististyle gently curved, dilated distally, with an obtuse apex. In some specimens, the distal dilation is not so evident as in Figs. 8 and 17, the dististyle being almost

parallel-sided. Penis (viewed laterally) upturned, narrowed beyond mid-length, moderately dilated distally and drawn out into a slender and sometimes slightly undulated apical portion. Other details are evident from Figs. 8, 17, 25.

♀: In general appearance resembling the male. Antennae not modified as in the male, with only moderately enlarged pedicel. Flagellum not conspicuously slender, flagellar segments suboval, gradually diminishing distally. The longest verticils moderately exceeding the length of the respective segments. Cerci of the female ovipositor comparatively short and rather strongly upturned.

As Dr. L. Matile kindly informed me there is a single specimen labelled as „*cinerascens*“ in Meigen's collection at the Paris Museum. According to the wing venation and the structure of the antennae this is unambiguously a male of *C. (E.) cinerascens* — group. The abdomen is, however, broken so that the specific identity could not be judged on the basis of examination of the hypopygium. *C. (E.) cinerascens* is here, therefore, conceived in the generally accepted and, most probably, correct interpretation of de Meijere (1920) who first presented sufficiently detailed figures of the male genitalia of the species in question.

Material examined (118 ♂♂, 16 ♀♀):

Spain: Granada, Pampineira (900 m), 9. iv. 1966, 1 ♂ (Lyneb. — Martin — Langem.). Czechoslovakia: Bohemia: Jizerské Mts., Jizerka (850 m), 19. ix. 1979, 1 ♂; Radostín, Malé Dářko (620 m), 30. ix. 1979, 1 ♂ (all Starý). Moravia: Popice nr. Znojmo, 3. ix. 1977, 1 ♂ (Elsner; at light); Konice nr. Znojmo, 29. v. 1977, 1 ♂; Lednice, 27. v. 1977, 1 ♂; Pouzdřany (distr. Břeclav), 8. v. 1979, 1 ♂; Radějov, Lučina (distr. Hodonín), 28. ix. 1979, 1 ♂; Brno — Hády, 3. v. 1975, 1 ♂; Slatinice, Kosíř (distr. Olomouc), 14. ix. 1966, 1 ♂, 3 ♀♀, 14. v. 1967, 1 ♀, 22. v. 1973, 1 ♂; Grygov nr. Olomouc, 25. ix. 1966, 2 ♀♀ (all Starý), 25. ix. 1976, 1 ♂ (Elsner; at light); Krčmaň nr. Olomouc, 2. vi. 1977, 1 ♂; Daskabát nr. Olomouc, 2. x. 1979, 1 ♂; Olomouc — Černovír, 6. v. 1967, 1 ♂, 18. v. 1967, 1 ♂, 27. iv. 1972, 3 ♂♂; Hlubočky nr. Olomouc, 17. viii. 1967, 1 ♀; Hrubá Voda nr. Olomouc, 15. v. 1968, 4 ♂♂, 15. v. 1969, 6 ♂♂, 17. v. 1969, 1 ♂, 6. viii. 1969, 1 ♀, 12. v. 1970, 1 ♂, 22. vi. 1970, 1 ♂, 13. viii. 1970, 1 ♂, 2. v. 1972, 2 ♂♂, 28. x. 1975, 1 ♂; 25. v. 1977, 1 ♂; Smilov nr. Olomouc, 24. ix. 1977, 1 ♂; Jívová nr. Olomouc, 14. v. 1970, 1 ♂, 18. vi. 1972, 1 ♂, 2. x. 1975, 1 ♂; Domašov n. Bystř. (distr. Olomouc), 29. v. 1969, 1 ♂; Dětrichov n. Bystř. (distr. Bruntál), 11. viii. 1971, 2 ♂♂, 28. ix. 1977, 2 ♂♂; Rešov, waterfall of the Huntava (distr. Bruntál), 5. viii. 1972, 1 ♂; Horní Město, Skály (distr. Bruntál), 11. ix. 1974, 1 ♂; Velké Losiny, 10. v. 1978, 1 ♂; Jeseníky Mts., Branná (700 m), 9. viii. 1972, 4 ♂♂, (900 m), 15. vii. 1972, 1 ♂; Praděd, valley of the Bílá Opava (1200 m), 25. vi. 1974, 1 ♂, 15. ix. 1976, 1 ♂ (all Starý); Rejvíz (750 m), 3. v. 1966, 1 ♂ (Martinovský), 5. ix. 1967, 3 ♂♂, 1 ♀, 6. ix. 1967, 1 ♂, 25. v. 1969, 1 ♂, 26. v. 1969, 2 ♂♂, (700 m), 26. v. 1970, 1 ♀, 31. v. 1972, 1 ♂, 1. vi. 1973, 1 ♂; Kletné nr. Suchdol n. O., 30. vii. 1977, 1 ♂, 13. viii. 1977, 2 ♂♂ (all Starý); Vysoké Pole (distr. Gottwaldov), 30. x. 1976, 3 ♂♂ (Elsner; at light); Štípa nr.

Gottwaldov, 20. iv. 1967, 4 ♂♂, 2 ♀♀; Lešná nr. Gottwaldov, 20. iv. 1967, 7 ♂♂, 3 ♀♀, 7. viii. 1970, 3 ♂♂ (all Starý; at light), 30. ix. 1976, 1 ♂, 5. x. 1976, 1 ♂, 15. x. 1976, 1 ♂ (Elsner; at light); Hostýnské vrchy (hills), Vlčková, 8. viii. 1970, 1 ♂ (Starý; at light); Valašské Meziříčí, 9. v. 1967, 2 ♂♂; Hukvaldy (distr. Frýdek-Místek), 26. iv. 1979, 1 ♂ (all Starý). Slovakia: Šaštín (distr. Senica), 3. x. 1979, 1 ♂; Malé Karpaty Mts., Smolenice — Jahodník, 3. vi. 1974, 1 ♂ (all Starý); Oravica, Tichá dolina (valley), 14. vi. 1977, 2 ♂♂; Žemberovce (distr. Levice), 5. ix. 1978, 3 ♂♂ (all Elsner; at light); Západné Tatry Mts., Jakubovany, 4. vi. 1965, 1 ♂, 1 ♀ (Rozkošný); Štrba — Lieskovec (distr. Poprad), 29. viii. 1972, 1 ♂; Belanské Tatry Mts., Tatranská Kotlina, valley of the Belá (750 m), 27. vii. 1974, 1 ♂, 29. vii. 1974, 1 ♂, 30. vii. 1974, 2 ♂♂, 23. v. 1976, 2 ♂♂, 25. vi. 1977, 1 ♂, 4. ix. 1977, 1 ♂, 7. ix. 1977, 1 ♂, 8. ix. 1977, 1 ♂, Šarpanec (750 m), 6. ix. 1977, 1 ♂; Tristárska dolina (valley) (1100 m), 28. vii. 1974, 1 ♂; Slovenský kras, Zádiel, 22. v. 1978, 1 ♂, 2. vi. 1979, 1 ♂ (all Starý). Bulgaria: Kresna nr. Simitli, valley of the Struma (230—300 m), 31. v. 1976, 1 ♂ (Laterer; at light). U.S.S.R.: Georgia, Transcaucasia, Arsian Ridge, Goderdzi Pass, 16. viii. 1970, 1 ♂ (Parkhomenko).

C. (E.) cinerascens is rather varibale in body coloration. Reliable specific features are provided by the structure of the male genitalia (Figs. 8, 17, 25). Particular differences and similarities are discussed in the respective descriptions.

According to the letter communication by Dr. H. Mendl *Empeda nubila* forma *alpina* Strobl, 1895 is identical with *C. (E.) cinerascens*. The identity of *Empeda nubila* var. *fuscohalterata* Strobl, 1906, described from Spain, remains unknown to me. However, the one specimen from Spain listed above has the body coloration rather dark grey, including the pleurae, and the halteres somewhat infuscated, as stated for the latter variety by Strobl (1906). The genitalia show only slight and specifically insubstantial differences in shape of the dististyles and the specimen pertains undoubtedly to *C. (E.) cinerascens*.

It should be emphasized that the specimen from Transcaucasia listed above is identical with the material from Czechoslovakia its genitalia revealing no variation, as compared with the described and illustrated standard.

Distribution: *C. (E.) cinerascens* is the commonest species of the subgenus, widespread throughout Europe. I was able to note more than 60 literature records published since 1900. The species has been reported from virtually all European countries and even though some data may be based on misidentified specimens the wide distribution of this species is evident. Extra-European records include the Canary Islands (Theowald, 1977), Transcaucasia (material examined) and Iran (Alexander, 1975). In Czechoslovakia the species is very common on diverse types of biotopes being on the wing from early spring to late autumn. The Czechoslovak material listed above shows localities and seasonal distribution rather than abundance of the species.

***Cheilotrichia (Empeda) mendli* sp. n.**

(Figs. 9, 14, 18, 26)

Body coloration generally brown to dark brown, pleurae and abdomen somewhat paler. All type specimens are preserved in alcohol and, consequently, discoloured to a certain degree. Body length 3—5 mm, wing length 3.5—4.5 mm.

♂: Head brownish black on vertex. Antennae strikingly different from those of males of the other species, not modified as usual in the subgenus, resembling those of females of this and the other European species. Pedicel only moderately enlarged, oval. Proximal flagellar segments nearly spherical, gradually narrowed to long-oval shape distally, all of approximately same length. Verticils short, the longest ones only moderately exceeding the length of the respective segments (Fig. 14).

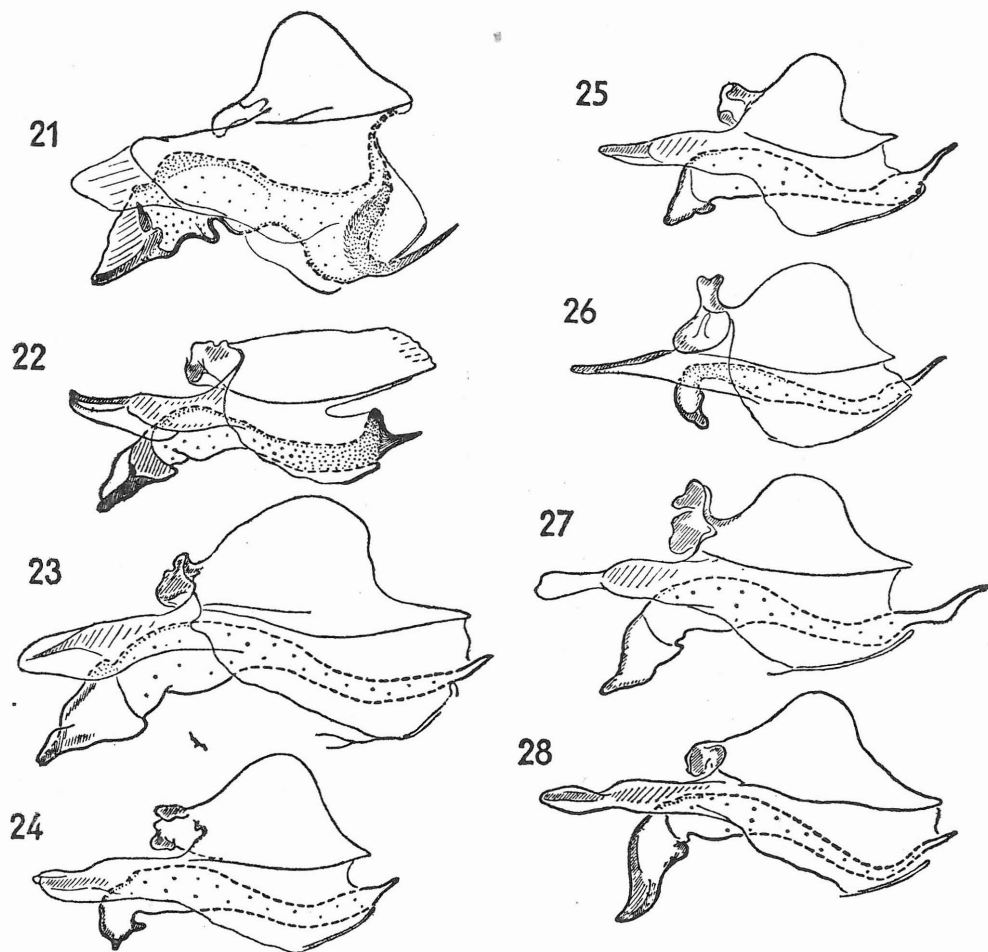
Thorax generally dark brown, shining in the available specimens in alcohol but most probably grey pruinose in dried material. Praescutum, scutum and postscutellum dark brown, scutellum and pleurae paler. Areas along the lateral suture of praescutum yellow. Wing venation as in the other species of the group.

Abdomen appearing paler than thorax, yellowish brown. Male genitalia (Figs. 9, 18, 26) resembling those of *C. (E.) cinerascens* but differing in details. Inner apical lobe of basistyle smaller than in *C. (E.) cinerascens* about as in *C. (E.) neglecta*. Dististyles mostly pale, inner arm of the outer dististyle somewhat darkened. Outer dististyle glabrous, inner one sparsely covered with setae. Outer arm of the outer dististyle relatively short, shorter than in *C. (E.) cinerascens*, otherwise, however, much the same as in the latter species, gradually tapering to a subacute tip. Inner arm strongly resembling that of *C. (E.) cinerascens*, arising at a very acute angle, tridentate at apex. Apical teeth acute, differing from the condition in *C. (E.) cinerascens* especially in that the lowermost tooth is not so vertical as in the latter species. Inner dististyle gently curved, nearly parallel-sided, with an obtuse apex. Penis (viewed laterally) upturned, only slightly narrowed beyond mid-length, then moderately dilated and drawn out into a slender apical portion. General shape of the penis approximately as in *C. (E.) caerulea* sp. n. or *C. (E.) cinerascens*, however, in contrast to these species, the penis is extremely slender, strongly narrowed basally, with the vesica recurved. Other details are evident from Figs. 9, 18, 26.

♀: In general appearance resembling the male. Antennae resembling those of the male, appearing only slightly longer, their structure much the same as in females of the other species. The longest verticils moderately exceeding the length of the respective segments. Cerci of the female ovipositor much as in *C. (E.) cinerascens*.

Holotype ♂: Italy, Sardinia, Musei, 27. x. 1976 (Hartig) (in alcohol); deposited in coll. J. Starý, Olomouc.

Paratypes: Portugal, Rio Coura, Mantelães, 14. x. 1975, 1 ♂, 1 ♀ (da Terra); Italy, Sardinia, Musei, 27. x. 1974, 9 ♂♂, 7 ♀♀ (at light), 7. xi. 1974, 9 ♂♂, 15 ♀♀ (at light), 27. x. 1976, 2 ♂♂, 2 ♀♀, Belvi (700 m), 2. x. 1976,



Figs. 21—28: Male genitalia, aedeagal complex, lateral, 21: *Cheilotrichia (Empeda) areolata* [Lundstr.] [Sweden], 22: *Cheilotrichia (Empeda) minima* [Strobl] [Czechoslovakia], 23: *Cheilotrichia (Empeda) affinis* [Lack.] [Czechoslovakia], 24: *Cheilotrichia (Empeda) caerulea* sp. n. (holotype), 25: *Cheilotrichia (Empeda) cinerascens* [Meig.] [Czechoslovakia], 26: *Cheilotrichia (Empeda) mendli* sp. n. (paratype, Sardinia), 27: *Cheilotrichia (Empeda) neglecta* [Lack.] [Czechoslovakia], 28: *Cheilotrichia (Empeda) staryi* Mendl [Czechoslovakia].

1 ♂, 1 ♀ (at light), Mt. Istiddi (700 m), 22. x. 1977, 2 ♂♂ (all Hartig; all preserved in alcohol); deposited in coll. H. Mendl, Kempton/Allgäu, J. Starý, Olomouc, and National Museum, Prague.

Owing to the discoloration of the type specimens the general appearance of *C. (E.) mendli* sp. n. cannot be compared here with the other

species. It may only be assumed that the coloration of particular parts will prove to be somewhat darker in dried specimens than described above, most likely greyish brown to dark grey, pruinose, perhaps as in *C. (E.) neglecta* and *C. (E.) staryi*. In the structure of the male genitalia *C. (E.) mendli* sp. n. resembles *C. (E.) cinerascens*. Distinguishing genitalic features between the two species are rather slight but appear quite sufficient and, moreover, are validated by the striking distinctions in the structure of the male antennae.

Distribution: Portugal, Italy (Sardinia). Autumnal species.

The new species is dedicated to Dr. H. Mendl (Kempten/Allgäu), a specialist on the European Limoniidae, who provided me with the above type material and kindly allowed me to describe the species.

***Cheilotrichia (Empeda) neglecta* (Lackschewitz, 1927)**

(Figs. 10, 19, 27)

Empeda neglecta Lackschewitz, 1927, Korr.-bl. Naturf.-Ver. Riga, 59: 10, Fig. 3 (♂ gen.).

Other references: Edwards, 1938: 119 (Fig.); Coe, 1950: 54 (Fig., key); Savchenko, 1969: 107 (Fig., key); Mendl, 1978: 374.

Body coloration much as in *C. (E.) staryi*, generally dark grey, with a brownish tinge, pruinose. Pleurae not distinctly paler, only somewhat more brownish. Body length 3–5 mm, wing length 4–6 mm.

♂: Head greyish black on vertex. Antennae of much the same structure as described for *C. (E.) cinerascens* and stated also for *C. (E.) caerulea* sp. n. and *C. (E.) staryi*. Dorsal verticils extremely long as in the above-mentioned species.

Thorax dark grey, with a brownish tinge, generally somewhat darker than in *C. (E.) cinerascens*. Dorsal parts with restricted paler markings as described for the latter species. Pleurae mostly not distinctly paler than praescutum, only slightly more brownish, restrictedly patterned with obscure yellow proximally near the praescutal suture. Wing venation not substantially different from that of the other species of the group.

Abdomen dark greyish brown, ventral part not distinctly paler. Male genitalia (Figs. 10, 19, 27): Inner apical lobe of basistyle distinctly smaller than in *C. (E.) cinerascens*. Dististyles pale, outer one glabrous, inner one sparsely covered with setae. Outer arm of the outer dististyle relatively short and strongly curved, compared with the other species of the group (except for *C. (E.) caerulea* sp. n.), narrowed only before apex to a subacute tip. Inner arm reaching over half the length of the outer arm, its apex tridentate (sometimes seemingly bidentate), the teeth unequal in length, the lowermost tooth very strong, the second one much shorter and bearing a third minute tooth on its convex surface. Inner dististyle almost straight and parallel-sided, with a broadly rounded apex. Penis (viewed laterally) comparatively long, upturned beyond mid-length, somewhat dilated and conspicuously undulated distally. Other details are evident from Figs. 10, 19, 27.

♀: In general appearance resembling the male. Antennae as in the female of *C. (E.) cinerascens* and allies. Cerci of the female ovipositor not substantially different from those of *C. (E.) cinerascens*, relatively short and strongly upturned.

Lectotype ♂ (designated hereby): U.S.S.R., Latvia [Curovia], Paplaka (= Paplaken), 11. x. 1925 (Lackschewitz); deposited in Museum für Naturkunde der Humboldt-Universität, Berlin. The specimen in good condition, only the left fore leg missing. Labels: a small blank green paper square; "Curon. Paplaken 11. x. 1925 Dr. P. Lackschewitz"; "Typus" (red); "neglecta"; "Lectotypus Ch. (Empeda) neglecta (Lack.) ♂ Starý des. 1976". Genitalia preserved in a plastic tube with glycerine, pinned with the specimen.

Paralectotype: U.S.S.R., Latvia [Curovia], Paplaka (= Paplaken), 21. ix. 1924, 1 ♂ (Lackschewitz); deposited with lectotype. The specimen labelled as "cotypus" and accordingly labelled as paralectotype by the present author. Distal portion of abdomen is missing but no celluloid slide preparation of the genitalia in Canada balsam, as Lackschewitz used to mount, is pinned with the specimen.

Other material examined (105 ♂♂, 24 ♀♀):

Czechoslovakia: Bohemia: Radostín, Malé Dářko (620 m), 30. ix. 1979, 1 ♂ (Starý). Moravia: Brno, valley of the Bobrava nr. Želešice, 3. vi. 1964, 1 ♂, 2. ix. 1964, 1 ♂; Moravičany (distr. Šumperk), 1. x. 1975, 25 ♂♂, 6 ♀♀, 8. x. 1976, 4 ♂♂, 1 ♀, 13. x. 1976, 4 ♂♂, 8 ♀♀, 5. x. 1977, 24 ♂♂, 2 ♀♀, 20. x. 1977, 5 ♂♂, 1 ♀, 9. x. 1979, 1 ♂; Dolany, Nové Sady (distr. Olomouc), 13. ix. 1970, 2 ♂♂; Daskabát nr. Olomouc, 2. x. 1979, 5 ♂♂, 1 ♀ (all Starý); Olomouc — Černovír, 26. ix. 1968, 2 ♂♂, 20. ix. 1969, 1 ♂ (Martinovský); Hlubočky nr. Olomouc, 24. ix. 1967, 1 ♂; Hrubá Voda nr. Olomouc, 8. x. 1969, 1 ♂, 1. x. 1971, 2 ♂♂, 20. ix. 1972, 3 ♂♂; Jívová nr. Olomouc, 2. x. 1975, 3 ♂♂, 2 ♀♀; Dětrichov n. Bystř. (distr. Bruntál), 13. ix. 1973, 1 ♂, 28. ix. 1977, 14 ♂♂, 3 ♀♀; Horní Město, Skály (distr. Bruntál), 11. ix. 1974, 1 ♂ (all Starý); Staměřice nr. Přerov, 18. ix. 1968, 1 ♂; Jindřichov nr. Hranice n. Mor., 25. ix. 1969, 1 ♂ (all Martinovský); Kletné nr. Suchdol n. O., 23. ix. 1972, 1 ♂ (Starý).

Superficially, *C. (E.) neglecta* is very similar to *C. (E.) staryi* but differs from it in all details of structure of the male genitalia, as described above and illustrated in Figs. 10, 19, 27.

In all published figures of the male genitalia. [cf. Lackschewitz, 1927; Edwards, 1938; Coe, 1950; Savchenko, 1969], actually copied from a single original illustration by Lackschewitz (1927), the two arms of the outer dististyle are reversely drawn, most probably due to displacement in the relevant slide preparation, and the tridentate character of the apex of the inner arm is not obvious.

Distribution: U.S.S.R. (Latvia) [Lackschewitz, 1927], Czechoslovakia (material examined). In Czechoslovakia the species is locally common occurring in lowlands and hilly districts, apparently at somewhat lower altitudes [Czechoslovak localities lie from 210 to 680 m] than super-

ficially very similar *C. (E.) staryi*. *C. (E.) neglecta* is on the wing in autumn but the one specimen taken in June (see material examined) indicites that it may range over a longer period

***Cheilotrichia (Empeda) staryi* Mendl, 1973**

(Figs. 11, 20, 28)

Cheilotrichia (Empeda) staryi Mendl, 1973a: Nachrichtenbl. Bayer. Ent., 22: 85: Abb. 1—3 (♂ gen.).

Other references: Stary, 1974: 135; Mendl, 1973b: 181; 1974: 207; 1977: 118, 1978: 374.

Body coloration dark grey with a brownish tinge, pruinose, generally darker than in *C. (E.) cinerascens*, much similar to that of *C. (E.) neglecta*. Pleurae not distinctly paler, only somewhat more brownish. Body length 3—5 mm, wing length 4—6.5 mm.

♂: Head on vertex as in the other species of the group, greyish black. Antennae of much the same structure as described for *C. (E.) cinerascens* and stated also for *C. (E.) caerulea* sp. n. and *C. (E.) neglecta*. Dorsal verticils extremely long as in the above-mentioned species.

Thorax dark grey with a brownish tinge, concolorous with that of *C. (E.) neglecta*. Praescutum and other dorsal parts of thorax dark greyish brown to greyish black, with restricted paler markings as described for *C. (E.) cinerascens*. Pleurae mostly not distinctly paler than praescutum, only slightly more brownish, restrictedly patterned with obscure yellow proximally near the praescutal suture. Wing venation as in the other species of *C. (E.) cinerascens* — group.

Abdomen as in *C. (E.) neglecta*, dark greyish brown, ventral part not distinctly paler. Male genitalia (Figs. 11, 20, 28): Inner apical lobe of basistyle smaller than in *C. (E.) cinerascens* but larger than in *C. (E.) caerulea* sp. n. and *C. (E.) neglecta*. Dististyles pale, outer one glabrous, inner one sparsely covered with setae. Outer arm of the outer dististyle curved and relatively long, the apex appearing more obtuse than e.g. in *C. (E.) cinerascens*. Inner arm comparatively long, finger-like, with somewhat dilated and broadly rounded apex and with a distinct tooth of tubercle on outer surface near base. The angle included by the two arms alters according to the aspect viewed yet it is distinctly less acute than in the other species of the group. Inner dististyle gently curved and moderately dilated distally, with an obtuse apex. Penis (viewed laterally) long and slender, strongly S-shaped, gradually tapering to a subacute tip. Other details are evident from Figs. 11, 20, 28.

♀: In general apperance resembling the male. Antennae much the same as in females of the other species of the group. Cerci of the female ovipositor somewhat intermediate in length and shape between those of *C. (E.) cinerascens* and *C. (E.) affinis*.

Holotype (♂) and 26 male paratypes were designated (Mendl, 1973a). Apart from those listed below they originate from Algovia, West

Germany, and are preserved in alcohol*). Holotype and most paratypes deposited in coll. H. Mendl, Kempten/Allgäu.

Paratypes: Czechoslovakia, Moravia, Jeseníky Mts., Praděd, valley of the Bílá Opava (1200 m), 26. viii. 1967, 3 ♂♂, 23. ix. 1971, 3 ♂♂ (Starý); deposited in coll. J. Starý, Olomouc.

Other material examined (82 ♂♂, 13 ♀♀):

Germany: Allgäu, Kreuzthal, 15.—30. ix. 1971, 1 ♂, 2 ♀♀ (Mendl; lighth trap). Czechoslovakia: Bohemia: Jizerské Mts., Bukovec (900 m), 20. ix. 1979, 3 ♂♂ (Starý); Krkonoše Mts., Harrachov, 9. ix. 1976, 3 ♂♂ (Olejníček). Moravia: Jeseníky Mts., Praděd, valley of the Bílá Opava (1200 m), 6. ix. 1972, 21 ♂♂, 1 ♀, 13. ix. 1972, 10 ♂♂, 2 ♀♀, 6. ix. 1973, 3 ♂♂, 5. ix. 1974, 2 ♂♂, 10. ix. 1974, 2 ♂♂, 15. ix. 1976, 15 ♂♂, 3 ♀♀, 14. ix. 1977, 13 ♂♂, 5 ♀♀ (Starý). Slovakia: Belanské Tatry Mts., Tatranská Kotlina, valley of the Belá (750 m), 4. ix. 1977, 2 ♂♂, 7. ix. 1977, 1 ♂; Tristárska dolina (1100 m), 5. ix. 1977, 6 ♂♂ (all Starý).

The differences from the most similar *C. (E.) neglecta* are discussed in the respective descriptions and illustrated in Figs. 11, 20, 28.

Distribution: Germany (Mendl, 1973a, 1977), Czechoslovakia (Mendl, 1973a; Starý, 1974), Italy (Mendl, 1973b, 1974). Autumnal species, locally common in Czechoslovakia. In contrast to superficially very similar *C. (E.) neglecta* it appears to be restricted to mountainous areas only. In locality *C. (E.) staryi* is frequently associated with *C. (E.) affinis* (cf. also Mendl, 1973a).

Key to European species of the subgenus *Empeda*

1. Size very small (wing length 2.5—4.5 mm); Sc_1 ending before half the length of Rs ; R_2 short, from about $\frac{1}{2}$ to $\frac{1}{4}$ the length of R_{2+3} , almost straight, oblique, tending to be even subvertical; discal cell closed. [*C. (E.) minima* — group] 2
- Size larger (wing length 3.5—7 mm); Sc_1 ending slightly beyond half the length of Rs ; R_2 longer, about $\frac{3}{4}$ the length of R_{2+3} , arcuate, nit oblique distally; discal cell open by the atrophy of m [*C. (E.) cinerascens* — group] 3
2. Body coloration pale greyish brown; outer dististyle of the male genitalia with the two arms unequal in length, both comparatively slender, outer one glabrous, inner one with a few scattered minute teeth or spines near the hook-shaped apex (Figs. 1—3); penis generally very stout, somewhat constricted at mid-length, greatly dilated distally, with a conspicuous undulated subapical projection (Fig. 21); cerci of the female ovipositor short and stout, strongly upturned. *C. (E.) areolata* (Lundstr.)
- Body coloration dark grey to greyish black; outer dististyle of the male genitalia with the two arms subequal in length, both dilated

*) An unspecified number of further specimens, mostly from the same area, were mentioned by Mendl (1973a) and, since not expressly excluded from or regarded as doubtfully associated with the type-series in the original description, they, actually, represent paratypes, too (see Article 72(b) of the Code and Štys, 1973).

- distally to form broad blades, outer one with minute spines or setae, inner one glabrous (Figs. 4—5); penis parallel-sided, with a subapical darkened tubercle (Fig. 22); cerci of the female ovipositor comparatively long and slender, only gently upturned *C. (E.) minima* (Strobl).
3. Sexual dimorphism in the antennae not obvious, the longest verticils of the male antennae only moderately exceeding the length of the respective segments (Fig. 14); (male genitalia cf. Figs. 9, 18, 26) *C. (E.) mendli* sp. n.
- Sexual dimorphism in the antennae more or less pronounced, the longest verticils of the male antennae at least 5 times the length of the respective segments (Figs. 12—13) 4
4. Body coloration generally yellowish brown; the longest verticils of the male antennae about 5 times the length of the respective segments (Fig. 12); (male genitalia cf. Figs. 6, 15, 23); cerci of the female ovipositor comparatively long and only gently upturned *C. (E.) affinis* (Lack.)
- Body coloration distinctly darker, greyish brown to greyish black; the longest verticils of the male antennae 10 times the length of the respective segments or more (Fig. 13); cerci of the female ovipositor shorter and more strongly upturned 5
5. Apex of the inner arm of the outer dististyle broadly rounded (Figs. 11, 20); penis as in Fig. 28. *C. (E.) staryi* Mendl
- Apex of the inner arm of the outer dististyle tridentate (Figs. 7, 8, 10, 16, 17, 19) (in extreme cases bidentate or virtually so); penis as in Figs. 24, 25, 27. 6
6. Inner apical lobe of basistyle large, outer arm of the outer dististyle rather long, gently curved, inner dististyle gently curved, sometimes dilated distally (Figs. 8, 17); penis as in Fig. 25. *C. (E.) cinerascens* (Meig.)
- Inner apical lobe of basistyle smaller, outer arm of the outer dististyle shorter and more strongly curved, inner dististyle almost straight and parallel-sided (Figs. 7, 10, 16, 19); penis as in Figs. 24, 27. 7
7. Body coloration dark grey with a brownish tinge; outer dististyle pale, apex of the inner arm as in Figs. 10, 19; penis long and conspicuously undulated distally (Fig. 27); (flight mostly in September — October; lowlands, hills). *C. (E.) neglecta* (Lack.)
- Body coloration dark grey to greyish black with a bluish tinge; outer dististyle darkened, apex of the inner arm as in Figs. 7, 16; penis short, not conspicuously shaped (Fig. 24); (flight in May — July; mountains) *C. (E.) caerulea* sp. n.

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