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Ischnocera B.

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Mallophaga parasitizing *Passeriformes* and *Pici*. II. *Brueeliinae*

Mallophaga pasożytujące na *Passeriformes* i *Pici*. II. *Brueeliinae* *

Subfamily *Brueeliinae* Wd. Eichl. includes very divergent forms united by a characteristic system and pattern of spots and structures of the forehead which is in general parabolically elongated and sometimes rounded. Silhouette more or less elongated. Male genital apparatus usually small.

Basing on the morphological and ecological characters I divide *Brueeliinae* into 5 groups of genera.

Group I. Stocky forms with broad head and egg-shaped abdomen. Forehead semicircular or tending to get parabolic. This shape of head is regarded as the most primitive one in the whole suborder *Ischnocera*. However, the shape of the abdomen shows marked differentiation. There are well developed triangular plates similar to those in *Philopterinae*.

Sole representative: *Corvonirmus* Wd. Eichl. s. str.

Occurrence: on some *Corvidae*.

Group II. *Mallophaga* resembling in habitus *Corvonirmus* but more slender, with more elongated, parabolic forehead. Main difference is the lack of triangular tergopleural plates on the abdomen. On the other hand, characteristic are the narrow pleural slats which are totally or partially dark coloured.

Representatives: *Olivinirmus* g. n. known from some *Corvidae*; *Maculinirmus* g. n. from *Orioliidae*; and *Nigrinirmus* g. n. from some *Fringillidae* and probably *Motacillidae*.

Group III. Rather small, elongated forms with narrow, parabolic forehead. Pleurites with narrow, variously formed pleural slats, not contrasting in colour with the rest of yellow-brownish abdomen.

Representatives: *Brueelia* Kéler s. str., widespread among *Passeriformes* and occurring also on *Pici*; *Spironirmus* g. n. from *Sturnidae* and *Laniidae*.

The three described groups of lice have as their common character the zygoma simple in form, passing continuously to the clypeolus where it meets the forehead-trense (Vorderkopftrense according to Eichler).

* Further parts of *Mallophaga* parasitizing *Passeriformes* and *Pici* will appear in this journal and bear the subtitles as follows:

III. *Philopterinae*, *Degeeriellinae*;

IV. *Menacanthinae*, *Ricinidae*;

V. Problems of linked evolution of parasites and hosts.

Two following groups of *Mallophaga* have the zygoma broken on both sides in the region of the clypeal signature.

Group IV. Genera resembling in form the lice from the third group. Zygoma divided in its front part by very narrow slits.

Representatives: *Allobrueelia* Wd. Eichl., *Turdinirmus* Wd. Eichl. and *Allonirmus* g. n.

Occurrence: *Turdidae*. Typical are the small ranges of particular genera and parallel occurrence of *Allobrueelia* and *Turdinirmus* with *Brueelia* from the third group.

Group V. Forms with elongated forehead, with straight or slightly concave lateral margins. Consequently, the forehead is not parabolic, but almost an elongated trapezoid. Zygoma broken by grooves which are broader and more posteriorly located than in lice from the former group.

Representatives: *Hirundiniella* from *Hirundinidae*; *Panurinirmus* g. n. from *Panurus*; *Pleurinirmus* g. n. from *Paridae*; *Alaudinirmus* g. n. from *Alaudidae*; *Rostrinirmus* g. n. from *Fringillidae*; *Paranirmus* g. n. from *Picidae*; *Penenirmus* Clay et Meinertz. from *Troglodytidae*, *Certhiidae*, *Turdidae* and *Picidae*; *Sturnidoecus* Wd. Eichl. rather widespread among *Passeriformes*.

List of lice from the subfamily *Brueeliinae* Wd. Eichl. (*Ischnocera*)

Genus *Hirundiniella* Carriker, 1963
Syn.: *Acronirmus* Kéler, nom. nud.

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|---|--|
| xx <i>domestica</i> * (Kell. et Chapm.) | — <i>Hirundo rustica erythrogastra</i> Bodd. |
| <i>gracilis</i> (Burm.) | — <i>Delichon u. urbica</i> (L.) |
| <i>tenuis</i> (Burm.) | — <i>Riparia r. riparia</i> (L.) |

Genus *Alaudinirmus* g. n.

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|------------------------------|---|
| <i>hibari</i> (Uchida) | — <i>Alauda arvensis sala</i> Swinh. |
| <i>patevi</i> (Bal.) | — <i>Anthus c. campestris</i> (L.) |
| x <i>pavlovskiyi</i> (Blag.) | — <i>Galerida cristata ivanovi</i> Zar. |

Genus *Allobrueelia* Wd. Eichl.

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|-----------------------------|---|
| xx <i>abluda</i> sp. n. | — <i>Turdus ericetorum philomelos</i> Br. |
| xx <i>amsel</i> Wd. Eichl. | — <i>Turdus m. merula</i> L. |
| <i>daumae</i> (Clay) | — <i>Turdus dauma</i> Lath. |
| xx <i>marginata</i> (Burm.) | — <i>Turdus pilaris</i> L. |
| xx <i>viscivori</i> (Denny) | — <i>Turdus v. viscivorus</i> L. |

Genus *Allonirmus* g. n.

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|--------------------------|-------------------------------------|
| x <i>tristis</i> (Gieb.) | — <i>Erithacus r. rubecula</i> (L.) |
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Genus *Brueelia* Kéler

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|------------------------------------|--|
| x <i>alexandri</i> Wd. Eichl. | — <i>Petronia petronia barbara</i> Erl. |
| x <i>antimarginalis</i> Wd. Eichl. | — <i>Turdus pilaris</i> L. |
| <i>blagovescenskij</i> Balát | — <i>Emberiza schoenicus</i> (L.) |
| xx <i>brachythorax</i> (Gieb.) | — <i>Bombycilla g. garrulus</i> (L.) |
| xx <i>breueri</i> Balát | — <i>Chloris ch. chloris</i> (L.) |
| <i>concocephala</i> (Blag.) | — <i>Sitta europaea</i> L. |
| <i>currucae</i> Bechet | — <i>Sylvia c. curruca</i> (L.) |
| xx <i>cyclothorax</i> (Burm.) | — <i>Passer montanus</i> (L.) |
| <i>delicata</i> (Nitzsch) | — <i>Emberiza c. citrinella</i> L. |
| <i>ecizqua</i> (Nitzsch) | — <i>Phoenicurus ochrurus gibraltarensis</i> (Gm.) |
| x <i>fixa</i> sp. n. | — <i>Dryobates leucotos</i> Bechst. |

* Sign "xx" is used for species known from Poland on the basis of my collection; "x" is for species described on the basis of specimens obtained from prof. Wd. Eichler, DDR. Species which bear no sign are known to me from literature only.

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|-------------------------------|--|
| <i>glizi</i> Balát | — <i>Fringilla montifringilla</i> L. |
| xx <i>iliaci</i> (Denny) | — <i>Turdus m. musicus</i> L. |
| <i>infraguens</i> (Carr.) | — <i>Calcarius c. lapponicus</i> (L.) |
| <i>inornata</i> Timm. | — <i>Turdus musicus coburni</i> Sharpe |
| x <i>intermedia</i> (Nitzsch) | — <i>Turdus torquatus alpestris</i> Brehm |
| x <i>jacobi</i> Wd. Eichl. | — <i>Turdus merula</i> L. |
| <i>kluzi</i> Balát | — <i>Fringilla c. coelebs</i> L. |
| <i>lais</i> (Gieb.) | — <i>Luscinia m. megarhynchos</i> Brehm |
| <i>lullulae</i> Bechet | — <i>Lullula a. arborea</i> (L.) |
| <i>modularis</i> (Piag.) | — <i>Prunella modularis</i> (L.) |
| x <i>nivalis</i> (Gieb.) | — <i>Plectrophenax n. nivalis</i> (L.) |
| xx <i>obligata</i> Wd. Eichl. | — <i>Passer d. domesticus</i> (L.) |
| <i>parviguttata</i> (Blag.) | — <i>Alauda arvensis cantarella</i> Bonap. |
| <i>pelikani</i> Balát | — <i>Emberiza melanocephala</i> Scop. |
| <i>rosickyi</i> Balát | — <i>Sylvia nisoria</i> (Bechst.) |
| xx <i>straminea</i> (Denny) | — <i>Dryobates major anglicus</i> Hart. |
| <i>superciliosa</i> (Nitzsch) | — <i>Dryobates m. medius</i> (L.) |

Genus *Corvonirmus* Wd. Eichl.

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|------------------------------------|--|
| xx <i>argulus</i> (Burm.) | — <i>Corvus c. corax</i> L. |
| <i>biguttatus</i> (Kell. et Pain.) | — <i>Pyrrhocorax g. graculus</i> (L.) |
| <i>biocellatus</i> (Piag.) | — <i>Pica pica leucoptera</i> Gould. |
| <i>multipunctatus</i> (Clay) | — <i>Nucifraga caryocatactes multipunctatus</i> Gould. |
| xx <i>perforatus</i> sp. n. | — <i>Corvus f. frugilegus</i> L. |
| <i>rotundatus</i> (Osborn) | — <i>Corvus corone brachyrhynchus</i> Brehm |
| <i>uncinosus</i> (Burm.) | — <i>Corvus corone cornix</i> L. |
| xx <i>varius</i> (Burm.) | — <i>Coloeus monedula spermologus</i> (Vieill.) |

Genus *Maculinirmus* g. n.

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| xx <i>mundus</i> (Nitzsch) | — <i>Oriolus o. oriolus</i> (L.) |
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Genus *Nigronirmus* g. n.

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| <i>corydallus</i> (Timm.) | — <i>Anthus p. pratensis</i> (L.) |
| x <i>densilimbus chrysoomytris</i> (Blag.) | — <i>Carduelis spinus</i> (L.) |
| <i>densilimbus densilimbus</i> (Nitzsch) | — <i>Carduelis c. carduelis</i> (L.) |
| x <i>densilimbus stadleri</i> (Wd. Eichl.) | — <i>Carduelis c. cannabina</i> (L.) |
| <i>ferianci</i> (Balát) | — <i>Anthus t. trivialis</i> (L.) |
| xx <i>juno</i> (Gieb.) | — <i>Coccothraustes c. coccothraustes</i> (L.) |
| <i>kratochvili</i> (Balát) | — <i>Motacilla flava feldgeji</i> Mich. |
| xx <i>limbatus</i> (Burm.) | — <i>Loxia c. curvirostra</i> L. |
| <i>parae</i> (Ansari) | — <i>Anthus richardi rufulus</i> Vieill. |
| <i>propinquus</i> (Gieb.) | — <i>Loxia pityopsittacus</i> Borkh. |
| x <i>pyrrhularum</i> (Wd. Eichl.) | — <i>Pyrrhula pyrrhula coccinea</i> (Gm.) |

Genus *Olivinirmus* g. n.

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|-----------------------------|---|
| xx <i>glandarii</i> (Denny) | — <i>Garrulus glandarius rufitergum</i> Hart. |
| xx <i>olivaceus</i> (Burm.) | — <i>Nucifraga c. caryocatactes</i> (L.) |

Genus *Panurinirmus* g. n.

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| xx <i>visendus</i> sp. n. | — <i>Panurus biarmicus</i> (L.) |
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Genus *Paranirmus* g. n.

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| x <i>heteroscelis</i> (Nitzsch) | — <i>Dryocopus m. martius</i> (L.) |
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Genus *Penenirmus* Clay et Meinertz. (incl. *Picophilopterus* Ansari)

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|-------------------------------|--|
| xx <i>accuratus</i> sp. n. | — <i>Dryocopus m. martius</i> (L.) |
| xx <i>albiventris</i> (Scop.) | — <i>Troglodytes t. troglodytes</i> (L.) |
| xx <i>auritus</i> (Scop.) | — <i>Dryobates major pinetorum</i> Brehm |
| <i>gulosus</i> (Nitzsch) | — <i>Certhia familiaris macrodactyla</i> Brehm |
| <i>nirnoideus</i> (Nitzsch) | — <i>Saxicola rubetra</i> (L.) |

xx *pici* (J. C. Fabr.)
 xx *serrilimbus* (Burfm.)
 xx *silesiacus* sp. n.

— *Picus viridis* L.
 — *Junx torquilla* L.
 — *Dryobates medius* (L.)

Genus *Pleurinirmus* g. n.

xx *pari* (Denny)
 "pari" (Denny)
 "pari" (Denny)

— *Aegithalos caudatus rosaceus* Math.
 — *Parus ater britannicus* Shar. et Dress.
 — *Parus coerulesus* L.

Genus *Rostrinirmus* g. n.

buresi (Balát)
 "buresi" (Balát)
 xx *refractariolus* sp. n.

— *Emberiza melanocephala* Scop.
 — *Emberiza hortulana* L.
 — *Passer d. domesticus* (L.)

Genus *Spironirmus* g. n.

xx *cruciatus* (Burm.)
fuscopleurus (Blag.)
 x *imponderabilicus* (Wd. Eichl.)
 xx *nebulosus* (Burm.)

— *Lanius collurio* L.
 — *Pastor roseus* (L.)
 — *Lanius excubitor* L.
 — *Sturnus v. vulgaris* L.

Genus *Sturnidoecus* Wd. Eichl.

aeneas (Piag.)
 xx *blandus* sp. n.
melodicus (Wd. Eichl.)
pastoris (Denny)
quadrilineatus (Nitzsch)
ruficeps (Nitzsch)
simplex (Kellogg)
 xx *sturni* (Schränk)

— *Motacilla alba* L.
 — *Carduelis c. carduelis* (L.)
 — *Turdus ericetorum philomelos* Br.
 — *Sturnus roseus* (L.)
 — *Aegithalos caudatus* (L.)
 — *Passer montanus* (L.)
 — *Turdus m. migratorius* L.
 — *Sturnus vulgaris* L.

Genus *Turdinirmus* Wd. Eichl.

xx *merulensis* (Denny)

— *Turdus m. merula* L.

Genus *Corvonirmus* Wd. Eichler, 1944

Species typica: *Nirmus uncinosus* Burm. from *Corvus corone cornix* L.

Corvonirmus s. str. (Phot. 1 and 2), with *Olivinirmus* g. n. pro *Nirmus glandarii* excluded, is characterized by the following morphological features: Forehead broad, semicircular. Zygoma and forehead-trense sharply outlined. dark. Antennae with marked sexual dimorphism; in male the first segment thickened and bigger than the rest (Fig. 1), in female not thickened. In both sexes the first segment of antennae fair in color, the next thickened, with dark spots; the shape and color are of value in specific taxonomy. Abdomen with triangular tergopleural plates, which often join by two in the middle of segments. Plates are perforated in the centre by single or double fenestrae. Male genital apparatus not complicated (Fig. 1 d, e). Parameres more or less elongated, running towards each other.

Occurrence: *Corvus*, *Coloesus*, *Pyrrhocorax*, *Pica* and probably *Nucifraga*.

Corvonirmus argulus (Burmeister, 1838)

Typical host: *Corvus corax corax* L.

Material examined from *Corvus corax laurencei* Hume: 1 ♀, Palestine, Emaus. 11.III.1913, leg. Zlotorzyczka from a skin, collection of Zoological Museum, Wrocław University.

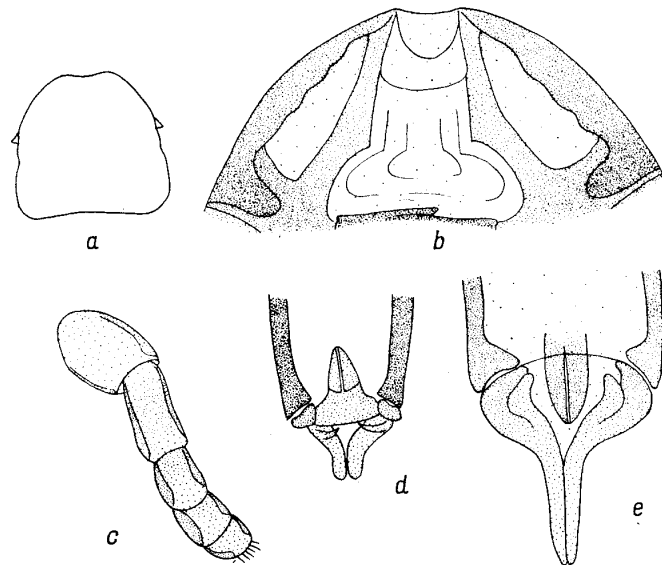


Fig. 1. *Corvonirmus* sp.sp.: a — head of *C. argulus* (Burm.) ♀ from *C. c. corax* L., prep. 1/a/16, × 58; b — forehead, × 200; c — right palpus, × 345; and d — male genital app. of *C. perforatus* sp.n. ♂ (Holotype) from *C. f. frugilegus* L., prep. 1/c/26—1, × 320; e — of *C. varius* (Burm.) from *C. monedula* L., prep. 1/d/4, × 320

Female medium sized. Head outlines as in Fig. 1a. Antennae rather small, filiform. First segment colorless, the further ones brownish. Abdomen oval. The first 7 segments with paired tergopleural plates with paired fenestrae. Segment viii* with large brown spot, ix with two oblique, oval spots.

<i>Corvonirmus argulus</i> (Burm., 1838)	♀ 1/a/16		
	long.	lat.	index
Cephalon	0.45	0.46	97
Prothorax	0.16	0.26	
Mesometathorax	0.19	0.42	
Abdomen	0.95		
Longitudo totalis	1.58		

* Abdominal segments (the visible, not actual ones) are signed with small Latin numbers, in contradistinction to the parts of thorax and legs signed with capital Latin numbers.

Male characters according to the description given by Denny 1842 (p. 123, Pl. VIII, Fig. 4). Male more stocky than female. Tergopleural plates in both sexes similar. Antenna with markedly thickened first segment. Three further segments with dark spots, the last segment colorless.

Corvonirmus biguttatus (Kellogg et Paine, 1914)

Typical host: *Pyrrhocorax graculus graculus* (L.).

Kellogg et Paine 1914 have described *Nirmus biguttatus* from *Pyrrhocorax g. graculus* (L.) and *Nucifraga caryocatactes multipunctata* Gould.

Clay 1936 has stated *Pyrrhocorax g. graculus* as type host, and has described the species *Degeeriella multipunctata* (now *Corvonirmus*) from *Nucifraga caryocatactes multipunctata*.

Corvonirmus biocellatus (Piaget, 1880)

Syn.: *Nirmus nigropictus* Carriker, 1902, from *Pica pica hudsonia* (Sab.).

Typical host: *Pica pica leucoptera* Gould.

The species can occur also on *Pica pica pica* (L.) in Central Europe. Fresca 1925 (Fig. 11) gives a drawing of the male genital apparatus which is characteristic in structure for the genus *Corvonirmus*.

Corvonirmus multipunctatus (Clay, 1936)

Typical host: *Nucifraga caryocatactes multipunctata* Gould.

According to descriptions given by Clay 1936 (Fig. 2) and 1951 (Fig. 18) I placed this species in the genus *Corvonirmus*.

For the Centralearopean *Nucifraga c. caryocatactes* (L.) is known the species *C. olivaceus* assigned by Eichler 1944 to the genus *Corvonirmus*, and separated by me into the genus *Olivinirmus* g. n. *Corvonirmus multipunctatus* can theoretically occur on *Nucifraga c. caryocatactes*, as it was found on *Nucifraga c. multipunctata*, because lice from different subspecies of birds belong, as a rule, to the same species.

Corvonirmus perforatus sp. n.

Typical host: *Corvus frugilegus* L.

Material examined: 1 ♂ (holotype, coll. mea) 1/c/26-1, Opatowice near Wrocław. 15.I.1952, leg. Zlotorzyska. Paratypes: Opatowice, 3 ♂♂, 1 larva 1/c/13-5 from the same bird as holotype; 1 ♂ 1/c/8, 26.XI.1951; Wrocław, 2 ♂♂, 2 ♀♀, 11, 12.II.1955; 1 ♀ 1/c/76, 4.II.1960, leg. Zlotorzyska.

Habitus as in Phot. 1 and 2. Male head semicircular, a bit broader than it is long. Preantennal part much shorter than the postantennal one. The system of spots on the forehead and antennae as shown in Fig. 1b, c. Prothorax almost rectangular, mesometathorax flat, quinquelateral, with slightly convex lateral margins. Abdomen egg-shaped, in male broader than in female. Tergopleural plates from segment i to v with paired, joined fenestrae. Fenestrae on segments from vi to vii are not joined with each other and spots on segment viii have singular fenestrae along the central line. Male genital apparatus massive in the basal part, parameres short (Fig. 1d).

Female longer and more slender than male, with less contrasting pattern of pigment spots. Head slightly longer than in male, antennae smaller, darker, filiform. Abdomen elongated. The fenestrae in tergopleural plates bigger, their junction on the first five segments more expressed than it is in male. A spot on segment viii without any perforation. Last segment bilobate with two spots.

<i>Corvonirmus perforatus</i> sp. n.	♂ holotypus			♀ paratypus		
	long.	lat.	index	long.	lat.	index
Cephalon	0.44	0.52	85	0.53	0.54	98
Prothorax	0.20	0.31		0.20	0.31	
Mesometathorax	0.23	0.53		0.21	0.53	
Abdomen	1.01	1.68		1.18	0.58	
Genitalia	0.24			2.03		
Longitudo totalis	1.75					

Corvonirmus rotundatus (Osborn, 1896)

Typical host: *Corvus corone brachyrhynchus* Brehm.

According to a drawing given by Neuffer 1954 (Abb. 3) it is a broad-headed, typical representative of the genus *Corvonirmus*.

Corvonirmus uncinus (Burmeister, 1838)

Typical host: *Corvus corone cornix* L.

A description given by Denny 1842 (Pl. V, Fig. 1) indicates that this species should be put into the genus *Corvonirmus*. Male stocky. Head semicircular. Tergopleural spots with singular fenestrae opening anteriorly. Male antenna according to Denny (Fig. 1a) pigmented only on segment III and IV.

Corvonirmus varius (Burmeister, 1838)

Typical host: *Coloeus monedula spermologus* (Vieill.).

Material examined from *Coloeus monedula monedula* L.: Wrocław; 1 ♂, 5 ♀♀, 6.II.1951; 1 larva, 28.XI.1952, leg. Zlotorzyska.

<i>Corvonirmus varius</i> (Burm., 1838)	♂ 1/d/4			♀ 1/d/5-1		
	long.	lat.	index	long.	lat.	index
Cephalon	0.43	0.46	94	0.44	0.49	90
Prothorax	0.15	0.24		0.14	0.27	
Mesometathorax	0.14	0.42		0.15	0.46	
Abdomen	0.75	0.59		0.96	0.60	
Genitalia	0.34			1.67		
Longitudo totalis	1.43					

Smaller than *C. perforatus* sp. n. with parabolic forehead and finer drawing of pigment spots. Antennae of a male have a heavily thickened, colorless first segment, the rest of segments being brownish. Dark prothorax, narrower than in *C. perforatus*. Mesometathorax broad with rounded lateral margins. Male abdomen stocky. Tergopleural plates with large fenestrae joined by two. The last segment pigmented only in its central part, sacciform elongated, with numerous bristles at the end. Male genital apparatus big and massive. Parameres narrow, elongated (Fig. 1e).

Female slightly longer than male. The first segment of filiform antennae colorless, the rest of them brown. Abdomen oval, with tergopleural spots similar to those of a male.

Genus *Olivinirmus* gen. novum

Species typica: *Nirmus glandarii* Denny, from *Garrulus glandarius* (L.).

Differs in appearance (Phot. 3 and 4) from *Corvonirmus* by a more elongated silhouette. Zygoma and ventral carina similar to those in *Corvonirmus*, but dark colored is the zygoma only. Antennae simple, alike in both sexes, with the first segment slightly thickened. No triangular tergopleural plates; there are only dark, narrow pleural slats, their outlines obliterated at the median side. These slats are visible from segment i to viii. Middle part of abdomen light yellow. At the centres of segments from i to vi rectangular darker patches. Segments vii and viii with a common triangular spot. General coloring of the body yellow-brown with an olive undertone.

Occurrence: *Corvidae* (*Garrulus*, *Nucifraga*).

Olivinirmus glandarii (Denny, 1842)

Syn.: *Nirmus affinis* Nitzsch, 1874 (nec *N. affinis* Children, 1836) from *Garrulus glandarius glandarius* (L.).

Typical host: *Garrulus glandarius rufitergum* Hart.

I have stated that this species belongs to the genus *Olivinirmus* on the basis of the original description given by Denny 1842 (Pl. VIII, Fig. 3).

<i>Olivinirmus glandarii</i> (Denny, 1842)	♂ 1/f/19-4			♀ 1/f/19-5		
	long.	lat.	index	long.	lat.	index
Cephalon	0.41	0.39	105	0.42	0.41	102
Prothorax	0.12	0.22		0.14	0.26	
Mesometathorax	0.15	0.34		0.18	0.37	
Abdomen	0.81	0.52		0.99	0.56	
Genitalia	0.26					
Longitudo totalis	1.42			1.65		

Material examined from *Garrulus g. glandarius* (L.): Opatowice near Wrocław; 4 ♀♀, 3 larvae, 9.II.1951; Wrocław — Zoo, 6 ♂♂, 34 ♀♀, 1 larva, 3.V.1957, leg. Złotorzycka; Bukowo, district Sławno in Pomorze, 1 ♂, 3 ♀♀, 30.IX.1961, leg. Gromadzki. Kartuzy (Kełpino), 8 ♂♂, 16 ♀♀, 19 larvae, 18.V.1957; Dierzążno, 1 ♀, 16.IX.1957.

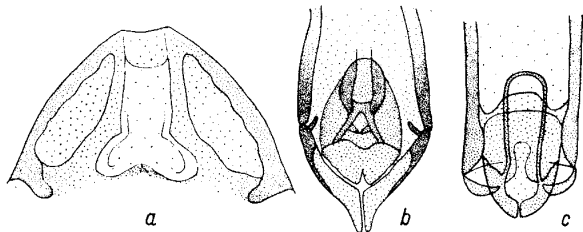


Fig. 2. *Olivinirmus* sp.sp.: a — forehead of *O. glandarii* (Denny) ♀ from *G. g. glandarius* (L.), prep. 1/f/19-15, $\times 150$; b — male genital app. of *O. glandarii* (Denny) from *G. g. glandarius*, prep. 1/f/19-4, $\times 265$, c — of *O. olivaceus* (Burm.) from *N. c. caryocatactes* (L.), prep. 1/h/2, $\times 200$

Habitus as in Phot. 3 and 4. Head almost triangular, nearly as broad as long. Forehead as shown in Fig. 2a. Prothorax and mesometathorax with dark spots along the lateral margins. Abdomen in both sexes elyptoid. Male genital apparatus as in Fig. 2b.

Olivinirmus olivaceus (Burmeister, 1838)

Typical host: *Nucifraga caryocatactes caryocatactes* (L.).

This species was found for the first time in Poland by Kéler 1939.

Material examined from *Nucifraga c. caryocatactes* (L.): 1 ♂, 1 ♀, 1 larva from an old skin from Śląsk, collection of Zoological Museum, Wrocław University.

<i>Olivinirmus olivaceus</i> (Burm., 1838)	♂ 1/h/2			♀ 1/h/5		
	long.	lat.	index	long.	lat.	index
Cephalon	0.41	0.45	91	0.47	0.49	96
Prothorax	0.16	0.26		0.16	0.25	
Mesometathorax		0.43			0.43	
Abdomen	0.73	0.54		1.12	0.62	
Genitalia	0.22			1.79		
Longitudo totalis	1.32					

Head broader than in *O. glandarii*, approaching rather in outlines the *Corvonirmus*. The pattern of pigment spots as well as the antennae typical for the genus *Olivinirmus*. Thorax with large spots, fused at the median line. Male abdomen stocky, egg-shaped, with the two last segments strongly elongated posteriorly. Male genital apparatus relatively big and complicated (Fig. 2c). Parameres bent semicircularly towards the middle of the body, slightly resembling those of *Maculinirmus* g. n.

Female much bigger than male. Abdomen ovally elongated. The last segment short, almost colorless.

Rather good pictures of this species were given by Denny 1842 (Pl. XI, Fig. 5) and by Giebel 1873 (Tab. VI, Fig. 10).

Genus *Maculinirmus* gen. novum

Species typica: *Nirmus mundus* Nitzsch, 1866 from *Oriolus oriolus oriolus* (L.).

Habitus as in Phot. 5 and 6, a little resembling *Olivinirmus* g. n. and *Brueelia* s. str. Head with its forehead slightly narrowing anteriorly, with almost straight and a little convergent lateral margins. The whole body almost colorless with small, black pigment spots which are set as follows: two spots above the clavi, one a little lighter on the occiput, prothorax dark bordered on both sides and at the end except the central part, two long spots on the mesometathorax, single spots on the pleurites of abdomen. These spots are contrasting with the background and are not blurred as it is in *Olivinirmus* g. n. Male genital apparatus (Fig. 3a) small, uncolored, simple in structure. The last genital segment in male sacciform elongated, in female twofold.

Occurrence: Found only on *Oriolus oriolus* as the species *mundus*, classified till now in the genus *Brueelia* Kéler.

Maculinirmus mundus (Nitzsch, 1866)Typical host: *Oriolus oriolus oriolus* (L.).

<i>Maculinirmus mundus</i> (Nitzsch, 1866)	♂ 3/a/2-4			♀ 3/a/2-8		
	long.	lat.	index	long.	lat.	index
Cephalon	0.41	0.36	114	0.44	0.38	137
Prothorax	0.15	0.23		0.14	0.22	
Mesometathorax	0.16	0.34		0.17	0.35	
Abdomen	0.79	0.45		0.96	0.45	
Genitalia	0.17					
Longitudo totalis	1.39			1.55		

Extensive description can be found in Balát 1955 (Tab. II, 8).

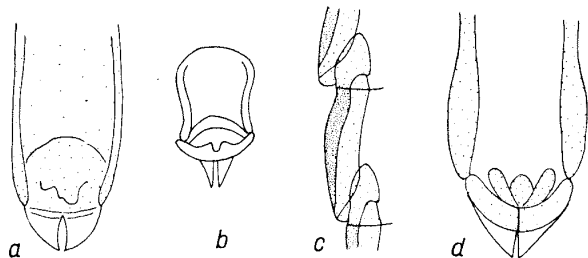
Material examined from *Oriolus o. oriolus* (L.): 7 ♂♂, 5 ♀♀, 3 larvae, Zawiercie, VIII.1955, leg. Dąbrowski; 1 larva, Swojec near Wrocław, 28.VIII.1954, leg. Zlotorzyczna.

Fig. 3. *Maculinirmus* and *Nigronirmus* sp.sp.: a — male genital app. of *M. mundus* (Nitzsch) from *O. o. oriolus* (L.), prep. 3/a/2, × 350, b — of *N. densilimbus stadleri* (Wd. Eichl.) from *C. c. cannabina* (L.), prep. WEC 3614c, × 240; c — right abdominal pleurite iii of *N. junco* (Gieb.) ♂ from *C. c. coccothraustes* (L.), prep. 4/g/22, × 180; d — male genital app. of *N. limbatus* (Burm.) from *L. c. curvirostra* L., prep. 4/a/18, × 400

I give here Fig. 3a and a table of body dimensions.

Genus *Nigronirmus* gen. novumSpecies typica: *Nirmus limbatus* Burm. from *Loxia c. curvirostra* L.

Appearance as shown in Phot. 7 and 8. The margin of the head and of the base of antennae with greater or smaller darkenings. External slats of abdominal pleurites from i to vii black or dark brown (Fig. 3c), sharply cut off from the internal ones. In central parts of the first five abdominal segments there are rectangular brown spots. On segments vi and vii a common five-sided spot. Male genital apparatus with broad, semicircular endomeres and small, triangular, transparent parameres (Fig. 3d). The whole body is elongated. Head of medium length.

Nigronirmus g. n. resembles in the pattern of pigment spots *Olivinirmus* g. n., but here pleural abdominal spots have well-marked borderlines while those of *Olivinirmus* are obliterated centrawards. Male genital apparatus is similar to that in *Brueelia* from *Turdidae*.

Occurrence: *Fringillidae* (partim) and *Motacillidae*.

Note: Species from *Fringillidae* (see list of species of the genus *Nigronirmus*) are here considered as *Nigronirmus* s. str. and those from *Motacillidae* as *Nigronirmus* s. l. because I know them from literature only and their hosts do differ in taxonomy from *Fringillidae*.

Nigronirmus corydallus (Timmermann, 1950)Typical host: *Anthus pratensis pratensis* (L.).

Extensive description including a drawing of a male with dark lateral spots on the head, thorax and abdomen is found in Timmermann 1950. Timmermann presumed that this species differed markedly from species typica of *Brueelia* and suggested that it should be detached as a subgenus of *Brueelia*. Moreover, this writer tended to regard the species *N. corydallus* as related to *Brueelia*, namely the species from *Alaudidae* and *Brueelia inornata* from *Turdus musicus*.

Nigronirmus densilimbus chrysomytris (Blagoveshchensky, 1940)Typical host: *Carduelis spinus* (L.).

Full description, besides the original one, was given by Balát 1955. Furthermore, Eichler 1954 gave a detailed drawing of a head and characters distinguishing this species from *N. densilimbus stadleri*.

Material examined from *Carduelis spinus* (L.): 1 ♂, Aschersleben (Germany), 12.III.1949, leg. et coll. Wd. Eichler.

Nigronirmus densilimbus densilimbus (Nitzsch, 1866)Typical host: *Carduelis carduelis carduelis* (L.).

Extensive description, unfortunately without any drawings, was given by Giebel 1874. The following characters mentioned there: slightly rounded head, the rest of body slender, black drawing of the sides of preantennal head part, similar bordering of antennal sinus ("Fühlerbucht") and black pleurites of abdominal segments from i to vii, suggest to include this species in the genus *Nigronirmus*.

Nigronirmus densilimbus stadleri (Wd. Eichler, 1954)Typical host: *Carduelis cannabina cannabina* (L.).

In original description there are only dimensions and a drawing of the head of a male and female.

<i>Nigronirmus densilimbus stadleri</i> (W. E., 1954)	♂ WEC 3614c			♀ WEC 3610e		
	long.	lat.	index	long.	lat.	index
Cephalon	0.34	0.30	113	0.37	0.35	105
Prothorax	0.12	0.17		0.14	0.21	
Mesometathorax	0.16	0.28		0.20	0.33	
Abdomen	0.81	0.39		1.08	0.48	
Genitalia	0.10					
Longitudo totalis	1.56			1.71		

Material examined from *Carduelis cannabina cannabina* (L.): 1 ♂, Goslar (Germany), 7.IV.1949, 1 ♀ (no more precise data), coll. Wd. Eichler.

Mean size. Forehead parabolic, dark lined. Prothorax barrel-shaped, mesometathorax pentagonal with rather rounded lateral margins. Male abdomen much shorter than the female one. The last segment in male strongly narrowed, sacciform, with the front margin bent forward. Male genital apparatus as in Fig. 3b.

Nigrornismus ferianci (Balát, 1955)

Typical host: *Anthus trivialis trivialis* (L.).

In original description male and female characters and a diagrammatic drawing of head together with thorax. Some of the details given in Balát's descriptions, like the presence of dark lateral spots on head and abdomen, induced me to assign this species to the genus *Nigrornismus* g. n.

Nigrornismus junco (Giebel, 1874)

Typical host: *Coccothraustes coccothraustes coccothraustes* (L.).

Material examined from *Coccothraustes c. coccothraustes* (L.): 13 ♂♂, 25 ♀♀, 4 larvae, Górki Wschodnie near Gdańsk, 17.IV.1962, leg. Zając.

Head more elongated than in *N. limbatus*, with almost the same proportions in both sexes. All the pigment spots typical for the genus, brownish and not as contrasting as it is in *N. limbatus*. Forehead parabolic with semicircularly ended ocellum. Thorax narrower than in *N. limbatus*. Pleural spots on the abdomen as shown in Fig. 3c. Central abdominal spots barely visible. Male genital apparatus similar to that in *N. limbatus*.

<i>Nigrornismus junco</i> (Giebel, 1874)	♂ 4/g/22			♀ 4/g/13		
	long.	lat.	index	long.	lat.	index
Cephalon	0.36	0.30	120	0.40	0.33	121
Prothorax	0.12	0.18		0.13	0.19	
Mesometathorax	0.17	0.27		0.19	0.32	
Abdomen	0.87	0.36		1.20	0.51	
Genitalia	0.13					
Longitudo totalis	1.44			1.86		

Nigrornismus kratochvili (Balát, 1958)

Typical host: *Motacilla flava feldeggii* Mich.

From the original description (unfortunately without any drawings) it is evident that this species should be placed in *Nigrornismus* g. n. (dark colored abdominal pleurites).

Nigrornismus limbatus (Burmeister, 1838)

Syn.: *Docophorus serena* Rud., 1869 from *Loxia curvirostra japonica* (Ridg.).

Typical host: *Loxia curvirostra curvirostra* L.

Eichler 1954 placed this species near *Corvonirmus*, but I presume that doing so he had in mind the species now singled out into *Olivinirmus* g. n. which, as to my opinion, is close to *Nigrornismus* g. n.

Mean sized species (Phot. 7 and 8). General coloring yellow-brown. Male forehead nearly semicircular, in female slightly parabolic. Antennae relatively long with segments I and II uncolored and segments III to V light-brown.

<i>Nigrornismus limbatus</i> (Burme., 1838)	♂ 4/a/18			♀ 4/a/15		
	long.	lat.	index	long.	lat.	index
Cephalon	0.36	0.34	103	0.38	0.35	109
Prothorax	0.13	0.22		0.13	0.24	
Mesometathorax	0.18	0.34		0.18	0.34	
Abdomen	0.93	0.45		1.19	0.42	
Genitalia	0.13					
Longitudo totalis	1.50			1.79		

Head, except the middle of the occiput and ocellum, with a dark brown margin. Prothorax flat. Mesometathorax broad, bell-shaped, with a slightly sharpened posterior margin and of intermediate shape like in the species of *Brueelia* from *Turdus* and *Passer*. Abdominal spots evident. Male genital apparatus as in Fig. 3d.

Material examined from *Loxia c. curvirostra* L.: Zelistrzewo in Pomorze, 4 ♀♀, 1 ♂, 12.IX.1962, leg. Gromadzki from live birds.

Nigrornismus parae (Ansari, 1958)

Typical host: *Anthus richardi rufulus* Vieill.

Ansari 1958 (Text-fig. 58) described this species as belonging to the genus *Brueelia* [sic!], but I find that in habitus it corresponds to *Nigrornismus* g. n. Unfortunately, in the short original description there is no information on the form and color of abdominal pleurites which are the most important features in defining the genus. Nevertheless, since all species of the subfamily *Brueeliinae* occurring on *Anthus* exhibit the characters of the genus *Nigrornismus*, I include the species *parae* into this genus.

Nigrornismus propinquus (Giebel, 1874)

Typical host: *Loxia pityopsittacus* Borkh.

According to the characters given by Giebel 1874 it differs from other species of the genus *Nirmus* (now *Brueeliinae*) from *Fringillidae*. This author mentioned that *N. propinquus* had the abdomen dark bordered only on the first four segments. It looks as if this species should be placed on borderline of *Nigrornismus* g. n. near *Brueelia* Kéler. Taking into account that the host, *Loxia pityopsittacus*, is closely related to *Loxia curvirostra* in which the species typical for *Nigrornismus* g. n. occurs, I feel confirmed in my opinion that *N. propinquus* belongs to *Nigrornismus* g. n. s. str.

Nigrornismus pyrrhularum (Wd. Eichler, 1954)

Typical host: *Pyrrhula pyrrhula coccinea* (Gm.).

In original description a note is found that this species was already met by Piaget 1880 and described as a varietal of *Nirmus densilimbus*. Since I place *N. densilimbus* in *Nigrornismus* g. n., I regard the similar species *Brueelia pyrrhularum* as belonging to this genus too. The description, in particular the drawing of the head of *B. pyrrhularum* (Eichler 1954, Abb. 6), also calls for such classification. In addition, a full description with drawings of male and female was given by Balát 1955.

Material examined from *Pyrrhula pyrrhula* (L.): 1 ♀, Hann.-Münden (Germany), 28.II.1939, leg. H. Eidmann, coll. Wd. Eichler.

To complete the features already known — the lateral abdominal spots and spots on femora are very dark contrasting with the background.

Genus *Brueelia* Kéler, 1936

Species typica: *Brueelia rossittensis* Kéler, 1936, = *Nirmus brachythorax* Giebel, 1874, = *Brueelia brachythorax* (Giebel, 1874) from *Bombycilla g. garrulus* (L.) — fide Hopkins et Clay, 1952.

Brueelia s. str. includes much elongated but rather small forms with narrow parabolic ended head. Zygoma narrow, simple. Pleurites in a shape of rather simple, elongated slats, similar in color to the rest of abdomen. Male genital apparatus simple, with the parameres not very long, convergent at the end. General coloring light, without any contrasting spots.

The genus *Brueelia* includes species of not uniform structure and I suppose that it needs further revision. In particular the species known from *Turdus* and *Picidae*, which have broader and more semicircularly ended forehead, are divergent from the typical form. These groups of species should probably be separated into subgenera of *Brueelia*.

Occurrence: on a part of *Fringillidae*, on *Alaudidae*, *Prunellidae*, *Sylviidae*, *Turdidae*, *Bombycillidae*, and *Picidae*.

Brueelia alexandrii Wd. Eichler, 1953

Typical host: *Petronia petronia barbara* Erl.

In the original description the drawing of a head and male genital apparatus and list of some differences from *B. obligata* from *Passer domesticus*.

Material examined from *Petronia petronia barbara* Erl.: 1 ♂ WEC 336g (paratype), 1 ♀ WEC 336c, Tunis, IV. 1886, leg. A. Koenig, coll. Wd. Eichler.

<i>Brueelia alexandrii</i> Wd. Eichl., 1953	♂ WEC 336g			♀ WEC 336c		
	long.	lat.	index	long.	lat.	index
Cephalon	0.36	0.29	124	0.36	0.30	120
Prothorax	0.12	0.19		0.12	0.19	
Mesometathorax	0.17	0.30		0.17	0.29	
Abdomen	0.96	0.41		1.00	0.40	
Genitalia	0.14					
Longitudo totalis	.58			1.60		

General coloring light-yellow. Head elongated. Preantennal part longer than the postantennal one. Prothorax barrel-like. Mesometathorax pentagonal, not too broad, with rounded lateral margins. Abdominal pleurites in the form of narrow slats, similar to those in *B. antimarginalis* from *Turdus pilaris*. The last segment in male markedly narrowing backwards. Male genital apparatus with broad basal part and short digitiform parameres.

Brueelia antimarginalis Wd. Eichler, 1951

Syn.: *Nirmus intermedius* Nitzsch, 1866 from *Turdus pilaris* L. (nec *Turdus torquatus alpestris* Brehm).

Typical host: *Turdus pilaris* L.

<i>Brueelia antimarginalis</i> Wd. Eichler 1951	♀ WEC 2068c		
	long.	lat.	index
Cephalon	0.41	0.36	114
Prothorax	0.14	0.24	
Mesometathorax	0.21	0.35	
Abdomen	1.21	0.52	
Longitudo totalis	1.88		

Eichler 1951 reported that the holotype (♀) collected by H. Bischoff in 1917/18 for Zoological Museum in Berlin came from Białowieża, i.e. from Poland. This author, in his brief description including a schematic drawing of a head, stated that this species was very similar to *B. jacobi* from *Turdus merula*.

Material examined from *Turdus pilaris* L.: 1 ♀ WEC 2068c, Runowschina Gouv. Poltawa (Russia), 25.III.1906, leg. V. Fofonoff, coll. Zool. Mus. Berlin.

Female relatively big. Head elongated, moderately broad. Forehead as shown in Fig. 4a. Osculum convex, not notched as it is in the drawing given by Eichler 1951 (Abb. 12). The proper outlines of clypeolus are difficult to see due its transparency. Some deformation may also be caused by preparation. Prothorax normal, mesometathorax rather long, moderately broad. Abdomen elyptic.

Brueelia blagovescenskyi Balât, 1955

Typical host: *Emberiza schoeniclus* (L.).

Original description includes male and female. The writer placed this species near *B. delicata* from *Emberiza c. citrinella*.

Brueelia brachythorax (Giebel, 1874)

Syn.: *Brueelia rossittensis* Kéler, 1936 from *Bombycilla g. garrulus* (L.) (according to Hopkins et Clay 1952, who did not see the types of Giebel and Kéler).

Typical host: *Bombycilla garrulus garrulus* (L.).

Material examined from *Bombycilla g. garrulus* (L.): 1 ♀, Wrocław, 2.I.1950, leg. Zlotorzyczka from a shot bird.

<i>Brueelia brachythorax</i> (Giebel, 1874)	♀ 17/a/2		
	long.	lat.	index
Cephalon	0.35	0.25	140
Prothorax	0.10	0.20	
Mesometathorax	0.16	0.25	
Abdomen	1.11	0.37	
Longitudo totalis	1.64		

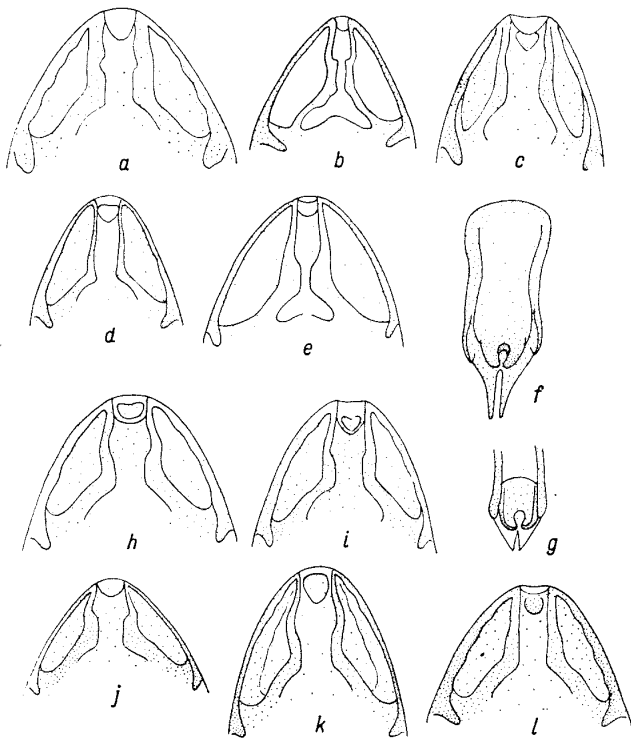


Fig. 4. Forehead and male genital apparatus in *Brueelia* sp.sp.: a — *B. antimarginalis* Wd. Eichl. ♀ from *T. pilaris* L., prep. WEC 2068c; b — *B. brachythorax* (Gieb.) ♀ from *B. g. garrulus* (L.), prep. 17/a/2; c — *B. breueri* Bal. ♀ from *Ch. ch. chloris* (L.), prep. 4/h/3; d — *B. cyclothorax* (Burm.) ♂ from *P. m. montanus* L., prep. 4/t/1—2; e — *B. fixa* sp.n. ♀ (Paratype), and f — ♂ (Holotype) from *D. leucotos* (Bechst.), prep. WEC 2692v; g — *B. iliaci* (Denny) ♂ from *T. m. musicus* L., prep. 14/b/2; h — *B. intermedia* (Nitzsch) ♀ from *T. torquatus* L., prep. WEC 1729c; i — *B. jacobi* Wd. Eichler ♀ from *T. merula* L., prep. WEC 3545 (Paratype); j — *B. nivalis* (Gieb.) ♀ from *P. nivalis* (L.), prep. WEC 3092b; k — *B. obligata* Wd. Eichler ♀ from *P. d. domesticus* (L.), prep. 4/s/3; l — *B. straminea* (Denny) ♀ from *D. major pinetorum* (Brehm), prep. 26/d/9; a — e, h — 1 × 135; f, g × 200

The examined female is slender. Head with higher index value than in the female described by Kéler as *B. rossittensis* (Head ind. 115—119). Therefore it is not certain if *B. rossittensis* is really a synonym of *B. brachythorax*. Female forehead from my collection almost triangular (Fig. 4b). Zygoma very narrow. Postantennal part slightly broader than the preantennal one in the region of the basis of antennae. Occiput slightly concave. Prothorax normal,

mesometathorax narrower than abdomen. Abdominal pleural plates very narrow. Central parts of the abdomen a little darkened. General coloring golden-yellow.

Brueelia breueri Balát, 1955

Typical host: *Chloris chloris chloris* (L.).

Full original description includes male and female morphological features and drawings.

Material examined from *Chloris chloris chloris* (L.): 1 ♀, Wrocław, 14.XI.1953. leg. Zlotorzycska from a shot bird.

Female forehead (Fig. 4c) with more steep lateral margins and more broadly ended clypeolus than it is shown in the drawing given by Balát 1955 (Tab. II, 2). Moreover, the clypeolus is almost straight at the end while, according to Balát, it should be notched. The dimensions of examined female as given by Balát.

Brueelia conocephala (Blagoveshchensky, 1940)

Typical host: *Sitta europaea* L.

Described from *Sitta europaea caucasica* Reich. and *S. e. subiginosa* Tsch. et Zar. (sic!) as belonging to *Degeeriella*. Hopkins et Clay 1952 deformed the specific name into "*conocephalus*" while the generic name was the feminine *Brüelia* but they emended the subspecific name of the second host to "*rubiginosa*". Establishing the type host, I propose to restrict it to the species only, as lice do not, as a rule, differentiate specifically on different subspecies of hosts.

Based on the descriptions of male and female (Blagoveshchensky 1940, Fig. 18) I agree with the author that *B. conocephala* visibly differs from other species of *Brueelia* by the narrow, triangular forehead, similar to that of *Hirundiniella* and by the dark abdominal pleurites similar to those of *Nigrionirmus* g. n. Perhaps a new genus should be created here but I am lacking information and comparative materials sufficient to do so. So I give here the provisional taxonomic position of *B. conocephala* in the genus *Brueelia*.

Brueelia currucae Bechet, 1961

Typical host: *Sylvia curruca curruca* (L.).

In the original description female characters, dimensions and drawing of details. The author placed this species close to *B. rosickyi* from *Sylvia nisoria*.

Blagoveshchenskij 1951 found on *Sylvia c. curruca* larvae of *Degeeriella* sp. (= *Brueelia* sp.) which probably belonged to *B. currucae*.

Brueelia cyclothorax (Burmeister, 1838)

Syn.: *Nirmus subtilis* Nitzsch, 1874 from *Passer montanus* (L.) (nec *Passer domesticus*).

Typical host: *Passer montanus* (L.).

Burmeister 1838 described *Nirmus cyclothorax* from "*Fringilla montana*". Hopkins et Clay 1952 regarded as hosts *Passer montanus* (L.) and *Fringilla montifringilla* L. Balát 1955 described *B. glizi* from *F. montifringilla* and, consequently, established *Passer montanus* (L.) as type host for *Brueelia cyclothorax* (Burm.). Eichler 1954 gave for *P. montanus* the *B. subtilis subtilis* (Nitzsch), and for *P. domesticus* *B. s. obligata* Wd. Eichl.

<i>Brueelia cyclothorax</i> (Burm., 1838)	♂ 4/t/1-1			♀ 4/t/1-4		
	long.	lat.	index	long.	lat.	index
Cephalon	0.32	0.24	133	0.36	0.26	138
Prothorax	0.10	0.14		0.12	0.16	
Mesometathorax	0.13	0.23		0.17	0.27	
Abdomen	0.66	0.32		1.02	0.32	
Genitalia	0.13					
Longitudo totalis	1.14			1.63		

He based this theory on the close relationship of host species but made it clear that he had no material from *Passer montanus* (L.). While comparing the forms of *Brueelia* from *P. montanus* and *P. domesticus* I found significant differences between them and therefore I consider them to be separate species, not mere subspecies of *B. subtilis*.

Material examined from *Passer m. montanus* (L.): 4 ♂♂, 6 ♀♀, 5 larvae, Wrocław, 25.VI.1951, leg. Zlotorzycska from a shot bird.

Forehead as in Fig. 4d. Osculum semicircular at the end. The cephalic pigment spots light and fine. Clypeal signature a little flattened. Mesometathorax bell-shaped, relatively narrow. Abdominal pleurites rather wide with a simple pattern of slats. Male genital apparatus not too long, with broad basal part, and the parameres blunt at their ends.

Brueelia delicata (Nitzsch, 1866)

Typical host: *Emberiza citrinella citrinella* L.

Balát 1955 gave extensive description of male and female characters. This author related this species closely to *B. blagovescenskyi* from *Emberiza schoeniclus*.

Brueelia exigua (Nitzsch, 1866)

Typical host: *Phoenicurus ochruros gibraltariensis* (Gm.).

Hopkins et Clay 1952 wrote erroneously the host's specific name "ochrurus".

Giebel 1874 placed this species near *Nirmus delicatus* noting as differences the black margin of temples and the very narrow margins of abdomen. Balát 1955 assigned *B. exigua*, without any motivation, to *Penenirmus*. Hopkins et Clay had put it in *Brueelia*, but they did not examine the type specimens of this species. If *B. exigua* is similar to *B. delicata*, it is doubtful whether it could be similar to *Penenirmus* which has peculiar features. Perhaps *B. exigua* should be separated into a new subgenus of *Brueelia*.

Brueelia fixa sp. n.

Typical host: *Dryobates leucotos* (Bechst.).

Material examined: 1 ♂ (holotype), 1 ♀ (paratype) WEC 2692v, 10 km NE Demidoff (district Smolensk) Soviet Union, leg. Kelm, coll. Wd. Eichler.

Forehead oval (Fig. 4e), osculum bluntly ended. Limbus zygomaticus dark and very narrow. Clypeal signature semicircular and small. The occiput ended straight. Abdomen oval with its sides parallel. Male genital apparatus as in Fig. 4f.

<i>Brueelia fixa</i> sp. n.	♂ holotypus			♀ paratypus		
	long.	lat.	index	long.	lat.	index
Cephalon	0.38	0.33	115	0.41	0.34	121
Prothorax	0.13	0.20		0.14	0.22	
Mesometathorax	0.17	0.31		0.21	0.35	
Abdomen	0.93	0.46		1.07	0.49	
Genitalia	0.17					
Longitudo totalis	1.56			1.73		

Brueelia glizi Balát, 1955

Typical host: *Fringilla montifringilla* L.

Original description gives male and female characters. Balát regards it as standing close to *B. kluzi* from *Fringilla coelebs*. After comparing my material of *B. cyclothorax* with the description of *B. glizi* I conclude that the latter is bigger and more closely related to *B. obligata* from *Passer domesticus*. It results out of it that *Fringilla coelebs* harbours a different species of *Brueelia* than does *Passer montanus*, and not a common one as it is reported by Hopkins et Clay 1952.

Brueelia iliaci (Denny, 1842)

Typical host: *Turdus musicus musicus* L.

<i>Brueelia iliaci</i> (Denny, 1842)	♂ 14/b/2			♀ 14/b/9		
	long.	lat.	index	long.	lat.	index
Cephalon	0.33	0.27	122	0.38	0.32	
Prothorax	0.12	0.18		0.14	0.21	
Mesometathorax	0.18	0.26		0.19	0.31	
Abdomen	0.83	0.33		1.08	0.43	
Genitalia	0.17					
Longitudo totalis	1.37			1.73		

Material examined from *Turdus m. musicus* L.: 2 ♂♂, 7 ♀♀, 1 larva, Górki Wschodnie near Gdańsk, 17.IV.1962, leg. Zajac.

A little smaller than *B. antimarginalis* from *Turdus pilaris*. Forehead similar. Clypeal signature very fine, semicircular, convex at front. Prothorax barrel-shaped. Mesometathorax with semicircular posterior margin. Pleurites dark-golden with distinct outlines of slats. Male genital apparatus very fine, with triangular, colorless parameres (Fig. 4g).

Brueelia infrequens (Carriker, 1902)

Typical host: *Calcarius calcarius lapponicus* (L.).

A species mentioned several times in recent literature (Eichler 1937, 1945; Hopkins et Clay 1952), unfortunately without any detailed description.

Brueelia intermedia (Nitzsch, 1866)

Typical host: *Turdus torquatus alpestris* Brehm.

<i>Brueelia intermedia</i> (Nitzsch, 1866)	♂ WEC 1729 y			♀ WEC 1729 c		
	long.	lat.	index	long.	lat.	index
Cephalon	0.36	0.32	112	0.39	0.34	115
Prothorax	0.13	0.21		0.14	0.23	
Mesometathorax	0.18	0.30		0.20	0.33	
Abdomen	0.94	0.48		1.18	0.51	
Genitalia	0.19					
Longitudo totalis	1.53			1.82		

Nitzsch 1866 and next Hopkins et Clay 1952 reported two hosts: *Turdus pilaris* and *T. torquatus* (according to Hopkins et Clay with the subspecies *alpestris*). Eichler 1951 described for *T. pilaris* the species *B. antimarginalis* and *T. torquatus alpestris* was henceforth regarded as the type host for *B. intermedia*. As to my opinion, *Brueelia* from *Turdus pilaris* differs considerably from *Brueelia* from *T. torquatus*. Namely, *B. intermedia*, according to Eichler 1951, is distant from *B. iliaci* from *T. musicus* and in accord with my observations — from *B. antimarginalis* from *T. pilaris*.

Material examined from *Turdus torquatus* L.: 1 ♂, 1 ♀, mountains by Sofia, Bulgaria, leg. Buresch, coll. Zool. Mus. Sofia.

Slightly smaller than *B. antimarginalis* from *Turdus pilaris*. Forehead (Fig. 4h) more slender, with finer pattern of spots (see Fig. 4a and 4h). Clypeal signature rather big and broad. Prothorax flattened. Mesometathorax with rounded lateral margins, passing gently into the semicircular back margin. Abdomen elyptic, relatively wide. Pleurites fairly broad. Male genital apparatus with massive basis and thin, sharp parameres.

Brueelia inornata Timmermann, 1950

Typical host: *Turdus musicus coburni* Sharpe.

Timmermann 1950 presumed that this species was so much resembling *B. iliaci* from *Turdus musicus* and *B. intermedia* from *T. pilaris* that all the three could be regarded as three subspecies of one common species. Eichler 1951 added that *B. jacobii* from *T. merula* was very similar to these species. Both writers gave the dimensions of *B. inornata* which were in accord with the dimensions of my specimens of *B. iliaci*. I suppose that *B. inornata* Timm. is either a synonym of *B. iliaci* (Denny), or both these forms are very close to each other.

Brueelia jacobii Wd. Eichler, 1951

Typical host: *Turdus merula* L.

In original description chiefly differences in the structure of head between it and *B. intermedia* from *Turdus torquatus*.

Material examined from *Turdus merula* L.: 1 ♀ from the preparation WEC 3545 (paratype).

Head resembling that of *B. iliaci* from *Turdus musicus*. Forehead relatively narrow, with slightly rounded lateral margins, passing into flat ended clypeolus

<i>Brueelia jacobii</i> Wd. Eichler, 1951	♀ WEC 3545		
	long.	lat.	index
Cephalon	0.39	0.32	122
Prothorax	0.16	0.21	
Mesometathorax	0.18	0.31	
Abdomen	1.02	0.40	
Longitudo totalis	1.69		

(Fig. 4i). According to Eichler 1951 (Abb. 9) clypeolus is deeply notched (damaged by preparation?). Clypeal signature heart-shaped, very small. Abdomen slender. Pleurites broader than in *B. iliaci*.

Brueelia kluzi Balát, 1955

Typical host: *Luscinia megarhynchos megarhynchos* Brehm.

Original description includes male and female morphological features. The author placed this species near *B. glizi* from *Fringilla montifringilla*.

? *Brueelia lais* (Giebel, 1874)

Typical host: *Luscinia megarhynchos megarhynchos* Brehm.

According to Giebel 1874 this species is related to *Nirmus intermedius* (= *B. intermedia*). According to Balát 1955 it is *Brueelia (Allobrueelia) lais*. The writer gave no reasons for considering the genus *Allobrueelia* Wd. Eichl. as a mere subgenus and for assigning the *B. lais* into this subgenus. Since I have no comparative material I place provisionally *B. lais* in the genus *Brueelia*. Eichler 1937 and Séguy 1944 reported *B. lais* also from *Luscinia luscinia* (L.). Balát 1955 presumed that it was *Brueelia (Allobrueelia) lais* (?) (Gieb.) subsp. ?.

Brueelia lullulae Bechet, 1961

Typical host: *Lullula arborea arborea* (L.).

Original description with male and female characters. The author placed this species near *B. parviguttata* from *Alauda arvensis*.

Brueelia modularis (Piaget, 1880)

Typical host: *Prunella modularis* (L.).

In original description *Nirmus brachythorax* var. *modularis*.

Brueelia nivalis (Giebel, 1874)

Typical host: *Plectrophenax nivalis nivalis* (L.).

<i>Brueelia nivalis</i> (Giebel, 1874)	♀ WEC 3092b		
	long.	lat.	index
Cephalon	0.32	0.30	101
Prothorax	0.13	0.18	
Mesometathorax	0.15	0.33	
Abdomen	1.07	0.44	
Longitudo totalis	1.63		

Material examined from: *Plectrophenax n. nivalis* (L.): 1 ♀, sandy shoal by Hidden-see, DDR, 26.II.1953, leg. Baasch, coll. Wd. Eichler.

Forehead (Fig. 4j) broad, almost triangular, with characteristic outlines of zygoma. Head similar in shape to that of *Allobrueelia*, abdomen typical for *Brueelia*. Pleurites narrow.

Brueelia obligata Wd. Eichler, 1954

Typical host: *Passer domesticus domesticus* (L.).

<i>Brueelia obligata</i> Wd. Eichler, 1954	♀ 4/s/3		
	long.	lat.	index
Cephalon	0.39	0.29	138
Prothorax	0.14	0.18	
Mesometathorax	0.18	0.30	
Abdomen	1.13	0.38	
Longitudo totalis	1.75		

In the original description it is named *Brueelia subtilis obligata* and a note is added that the nominal form occurs on *Passer m. montanus*. Though, *B. subtilis* is a synonym of *B. cyclothorax* and, moreover, *Brueelia* from *P. domesticus* differs greatly from *Brueelia* parasitizing *P. montanus*. This led me to consider *B. obligata* and *B. cyclothorax* as two separate species.

Material examined from *Passer d. domesticus* (L.): 1 ♀, Wrocław, 30.V.1953, leg. Zlotorzycska.

Female bigger and more dark pigmented than female *B. cyclothorax*. Head more elongated. Forehead (Fig. 4k) with semicircularly ended ocellum. According to Eichler 1954 (Abb. 6) with a noth (deformation of the specimen?). Clypeal signature elongated. The pattern of pigment spots not as fine as in *B. cyclothorax* and somewhat different (compare Fig. 4d and 4k). Prothorax similar to that of *B. cyclothorax*, mesometathorax much wider. Abdominal pleurites broad with more complicated drawing.

Brueelia parviguttata (Blagoveshchensky, 1940)

Typical host: *Alauda arvensis cantarella* Bonap.

Original description with male and female characters, dimensions and drawing of a female.

Brueelia pelikani Balát, 1958

Typical host: *Emberiza melanocephala* Scop.

Original description with male and female characters, unfortunately with little details and no drawings. The author compared this species with other species of *Brueelia* — from birds of the genus *Emberiza*.

Brueelia rosickyi Balát, 1955

Typical host: *Sylvia nisoria nisoria* (Bechst.).

Original description includes male and female morphological features, dimensions and a drawing of a much elongated head.

Brueelia straminea (Denny, 1842)

Syn.: *Degeeriella subclucida* Blag., 1940 from *Dryobates major polzami* (Bogd.).

Typical host: *Dryobates major anglicus* Hart.

Extensive description of male and female was given by Blagoveshchenskij 1940, including dimensions and a drawing of female.

Material examined from *Dryobates major pinetorum* Brehm: 6 ♀♀, Zawiercie, 19.IV.1956, leg. Dąbrowski; 1 ♀, 1 larva, Hel, 6.IX.1962, leg. Busse.

In addition to known characters I give a drawing of forehead (Fig. 4l) which is similar to that of *Brueelia* — species from *Turdus*.

? *Brueelia superciliosa* (Nitzsch, 1866)

Typical host: *Dryobates medius medius* (L.).

Assignment to the genus *Brueelia* is questionable. Giebel 1874 in his description wrote: "N. candido simillimus subtriangulari brevior, metathorace pentagono, abdominis segmento ultimo longiore angustiore." *N. candidus* belongs now to the genus *Picicola* of the family *Degeeriellidae*. If the species *superciliosa* is similar to *N. candidus* — it has to belong to some genus of the family *Degeeriellidae* (*Picicola*?, some unknown genus?). Hopkins et Clay 1952 assigned species *superciliosa* to *Brueelia*, though they did not see the type specimen.

Brueelia seta Wd. Eichler auct.

Typical host: *Muscicapa striata* (Pall.).

This is the only report (Eichler 1955) that *Brueeliinae* occur on Centraleuropean *Muscicapidae*. Eichler 1937 mentioned the species *seta* from *Muscicapa hypoleuca* (Pall.). Balát 1955 presumed that this was *Brueelia seta* subsp. auct.

Genus *Spironirmus* gen. novum

Species typica: *Nirmus nebulosus* Burm. from *Sturnus vulgaris* L.

Habitus as in Phot. 9 and 10. Size small. Head moderately elongated, brownish, with rounded lateral margins. Abdominal pleurites with a complicated drawing resembling loops around the stigmata (Fig. 5d). Male genital

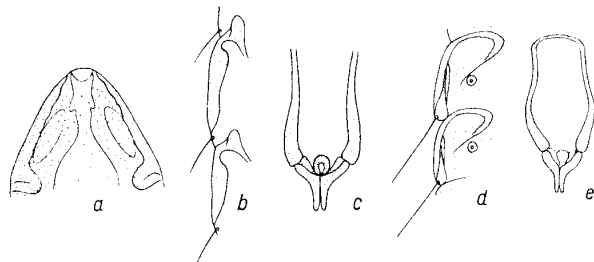


Fig. 5. *Spironirmus* sp.sp.: a — forehead of *S. cruciatus* (Burm.) ♂ from *L. collurio* L., prep. 15/a/23, × 135; b — left abdominal pleurites ii and iii, × 160, and c — genital app. of *S. imponderabilis* (Wd. Eichl.) ♂ from *L. excubitor* L., prep. WEC 378a (Paratype), × 160; d — left abdominal pleurites ii and iii, and e — genital app. of *S. nebulosus* (Burm.) ♂ from *S. v. vulgaris* L., prep. 2/a/97, × 200

apparatus (Fig. 5e) with elongated parameres, adjoining each other or parallel. Specific differences in structure of male genitalia insignificant.

Occurrence: *Sturnidae* and *Laniidae*.

Note: all species were assigned to the genus *Brueelia*.

Spironirmus cruciatus (Burmeister, 1838)

Typical host: *Lanius collurio* L.

<i>Spironirmus cruciatus</i> (Burm., 1838)	♂ 15/a/23			♀ 15/a/27—1		
	long.	lat.	index	long.	lat.	index
Cephalon	0.32	0.25	128	0.32	0.31	103
Prothorax	0.12	0.18		0.12	0.20	
Mesometathorax	0.14	0.26		0.16	0.31	
Abdomen	0.71	0.34		1.06	0.47	
Genitalia	0.18					
Longitudo totalis	1.23			1.54		

Material examined from *Lanius collurio* L.: Górkí Wschodnie near Gdańsk. 1 ♂, 11.VIII.1961, 2 ♀♀, 18.VIII.1961; leg. Zlotorzyccka from live birds.

Head nearly triangular. Forehead parabolic. Temples slightly angular at the back end. Back margin of occiput straight. Outlines of zygoma and forehead-trense as in Fig. 5a. Head mostly brown bordered. Thorax lighter than head and darker than abdomen. Pleural loops and male genital apparatus very similar to those of *S. nebulosus* from *Sturnus vulgaris*.

Spironirmus fuscopleurus (Blagoveshchensky, 1951)

Syn.: *Brueelia* (sic!) *gulabitylyar* Ansari, 1958 from *Sturnus r. roseus* (L.).

Typical host: *Sturnus roseus* (L.).

In the original description *Degeeriella cruciata fuscopleura*. The author gave male and female characters and some differences from the nominal form. No drawings. A description with drawings was given by Ansari 1958 (Text-figs. 25—34), where features characteristic for *Spironirmus* g. n. were presented.

S. fuscopleurus is very similar to *S. cruciatus*, but I consider them to be separate species, and not merely races of one species, as did Blagoveshchenskij, the more so because their hosts belong to different families (*Laniidae* and *Sturnidae*).

Spironirmus imponderabilicus (Wd. Eichler, 1954)

Typical host: *Lanius excubitor* L.

Original description brief, including only female head features.

Material examined from *Lanius excubitor* L.: 1 ♂, 1 ♀ (paratypes), Heidelberg. 5.XII.1937, leg. H. Sick, coll. Wd. Eichler.

Female relatively big, male of medium size. Color golden-brown. Head darkest. Preantennal part parabolic, dark lined. Thorax with dark spots on the margins. Abdomen relatively light. Pleurites (Fig. 5b) almost colorless, with much shorter and straight loops than in *S. nebulosus*, *S. cruciatus* and *S. fuscopleurus*.

Weakly developed pleural loops bring this species closer to *Brueelia*. Still, I place it in *Spironirmus* g. n., chiefly on the basis of male genital apparatus (Fig. 5c) very similar as in *S. nebulosus*.

<i>Spironirmus imponderabilicus</i> (Wd. Eichl., 1954)	♂ WEC 378 a			♀ WEC 378 b		
	long.	lat.	index	long.	lat.	index
Cephalon	0.36	0.29	124	0.41	0.32	128
Prothorax	0.10	0.18		0.11	0.20	
Mesometathorax	0.18	0.28		0.18	0.31	
Abdomen	0.84	0.41		1.16	0.47	
Genitalia	0.19					
Longitudo totalis	1.40			1.85		

Spironirmus nebulosus (Burmeister, 1838)

Syn: *Docophorus ochroleucus* Nitzsch, 1874 from *Sturnus v. vulgaris* L.: *Brueelia* [sic!] *Chitlatlyar* [sic!] Ansari, 1958 from *Sturnus vulgaris humei* Brooks.

Typical host: *Sturnus vulgaris vulgaris* L.

Full description including dimensions and a drawing of head was given by Balát 1955. More detailed illustrations with well visible characters of the genus *Spironirmus* g. n. in the description given by Ansari 1958 (Text-figs. 35—36).

Material examined from *Sturnus v. vulgaris* L. Wrocław, some scores of ♂♂, ♀♀ and larvae, 2—7.IV.1953; Górkí Wschodnie near Gdańsk, 3 ♂♂, 6 ♀♀, 1 larva. 27.V.1959; 17—21.VII.1961; 4 ♂♂, 14 ♀♀; 3 ♂♂, 10 ♀♀, 30.VII—19.VIII.1961, leg. Zlotorzyccka chiefly from live birds; Hel, 1 ♂, 1 ♀, 24.X.1962, leg. Busse from a live bird.

I give Phot. 9 and 10 and also Fig. 5d and 5e in order to emphasize the specific and generic characters.

Genus *Allonirmus* gen. novum

Species typica: *Nirmus tristis* Gieb. from *Erethacus r. rubecula* (L.).

General appearance as in Phot. 11. Head like that of *Allobrueelia* Wd. Eichl. It is similarly broad, zygoma also broken near the ocellum. Clypeal signature of medium size. Outlines of forehead-trense typical (Fig. 6). Female antennae with the first segment longest and slightly thickened. Abdomen elongated, with dark, narrow pleurites like in *Nigrornirmus* g. n.

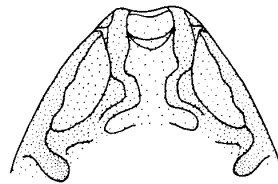


Fig. 6. Forehead of *Allonirmus tristis* (Gieb.) ♀ from *E. rubecula* (L.), prep. WEC 435, × 180

Occurrence: *Turdidae* (so far only *Erithacus rubecula*).

Discussion: *A. tristis* (species typical for *Allonirmus* g. n.) was placed by Hopkins et Clay 1952 in the genus *Brueelia* and by Balát 1955 also in *Brueelia* but in the subgenus *Allobrueelia* which I do after Eichler regard as a genus. *Allonirmus* differs markedly from *Allobrueelia* and I quote the opinion of Balát to show that the distinction of *A. tristis* from other *Brueelia* species has already been noticed by authors. Moreover, the preparation WEC 435 of *B. tristis* which I did examine, Eichler labelled putting the "*Brueelia*" in inverted commas. This way he expressed his doubts as to the proper generic assignment.

Allonirmus tristis (Giebel, 1874)

Typical host: *Erithacus rubecula rubecula* (L.).

Material examined from *Erithacus rubecula* (L.): 1 ♀ from preparation WEC 435, La Saugue (Switzerland), 26.IV.1936, leg. E. Lang.

<i>Allonirmus tristis</i> (Giebel, 1874)	♀ WEC 435		
	long.	lat.	index
Cephalon	0.34	0.33	103
Prothorax	0.12	0.21	
Mesometathorax	0.15	0.30	
Abdomen	1.00	0.41	
Longitudo totalis	1.54		

Female as in Phot. 11. Forehead (Fig. 6) parabolic. Clypeal signature a little concave at front. Zygoma dark pigmented. Temples slightly bent backwards. Occipital margin straight. Prothorax rectangular, flat. Mesometathorax pentagonal, with dark-brown lateral spots. Abdomen long. Pleurites long; those from i to vii almost black. Median abdominal spots feebly visible.

Genus *Allobrueelia* Wd. Eichler, 1952

Species typical: *Allobrueelia amsel* Wd. Eichl. from *Turdus merula merula* L.

Includes stocky, broad-headed species. Differs from *Brueelia* in the pattern of zygoma (Fig. 7a), which is similarly broken as it is in *Allonirmus* g. n. and in the wide pleural slats of the abdomen (Fig. 7b). It resembles *Turdinirmus* in many details of its structure in spite of a different habitus. All the mentioned genera: *Allobrueelia*, *Allonirmus*, *Turdinirmus* and *Brueelia* infest the *Turdidae*, but only *Brueelia* has a wider range over the *Passeriformes*; hence I suppose it to be phylogenetically older than the other mentioned species. I presume that in the course of evolution out of the ancient *Brueelia*, living on ancient *Turdidae*, developed the genera *Brueelia*, *Allobrueelia* and *Turdinirmus* which live parallel on the same hosts of the genus *Turdus*, and the genus *Allonirmus* which lives on *Erithacus*.

Occurrence: *Allobrueelia* known only from *Turdus*.

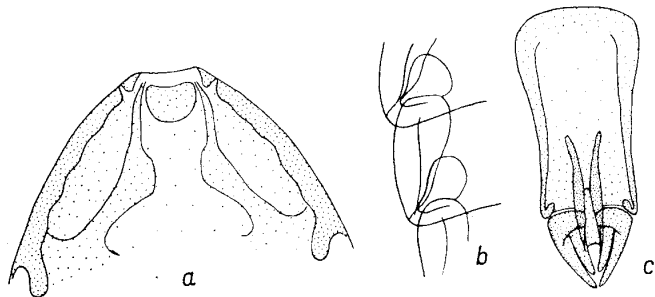


Fig. 7. *Allobrueelia* sp. sp.: a — forehead of *A. abluda* sp. n. ♀ (Holotype) from *T. e. philomelos* Br., prep. 14/a/22, × 180; b — left abdominal pleurite iii of *A. amsel* Wd. Eichler ♂ from *T. m. merula* L., prep. 14/e/10—5, × 180; c — male genital app. of *A. marginata* (Burm.) from *T. pilaris* L., prep. 14/d/37, × 240

Allobrueelia abluda sp. n.

Typical host: *Turdus ericetorum philomelos* Brehm.

Material examined: 1 ♀ (holotype, coll. mea), 14/a/22, 2 ♀♀ (paratypes), 14/a/23 and 24, 1 larva, Hel. 3.V.1963, leg. Busse from live bird.

Balát 1958 found on *Turdus ph. philomelos* 1 ♀ and 4 larvae which he identified as *Brueelia* (*Allobrueelia*) sp. They belonged perhaps to *Allobrueelia abluda* sp. n.

<i>Allobrueelia abluda</i> sp. n.	♀ holotypus			♀ paratypus		
	long.	lat.	index	long.	lat.	index
Cephalon	0.41	0.40	102	0.40	0.39	102
Prothorax	0.10	0.23		0.10	0.23	
Mesometathorax	0.18	0.35		0.17	0.35	
Abdomen	1.03	0.53		1.02	0.52	
Longitudo totalis	1.67			1.64		

Female (Phot. 12) relatively big. Forehead brown. Limbus zygomaticus (Fig. 7a) dark. Clavi colorless. The postantennal part of head as long as the preantennal one. Temples rounded. Abdomen elongated oval, golden. Pleural slats of medium width. The last female segment slightly notched at the end.

Allobrueelia amsel Wd. Eichler, 1951

Typical host: *Turdus merula merula* L.

Description of male and female in Eichler 1951, 1952.

Material examined from *Turdus m. merula* L.: Wrocław some scores of ♂♂, ♀♀, 8 larvae, 29.VI.1952; 1 ♂, 4 ♀♀, 4 larvae, 11.IX.1953; 1 ♂, 3 ♀♀, 20—26.VI.1952; 2 ♂♂, 4 ♀♀, 22.X.1955; 1 ♂, 1 ♀, 19.X.1954; leg. Zlotorzyczna from shot birds. Dzierżążno (Kartuzy), 1 ♀, 26.IX.1957.

<i>Allobrueelia amsel</i> Wd. Eichl., 1951	♂ 14/e/10-5			♀ 14/e/10-12		
	long.	lat.	index	long.	lat.	index
Cephalon	0.37	0.38	97	0.40	0.42	97
Prothorax	0.13	0.24		0.14	0.25	
Mesometathorax	0.16	0.36		0.17	0.36	
Abdomen	0.69	0.48		0.98	0.51	
Genitalia	0.21					
Longitudo totalis	1.23			1.53		

Forehead broad, somewhat parabolic. Zygoma dark, broken in the region of osculum. Clypeal signature broad, light, in the form of a rounded trapezium. Temples semicircular, more broad than the forehead. Prothorax relatively broad. Mesometathorax pentagonal, with lateral margins rounded. Abdominal pleurites broad (Fig. 7b), darker than the center of abdomen. Male genital apparatus with big basal part, antieriad pyriformly widening. Parameres and endomeres short, thin, sword-shaped.

Allobrueelia daumae (Clay, 1936)

Typical host: *Turdus dauma* Lath.

Originally described as *Degeeriella zotherae daumae*. The nominal form was described by Clay from *Zoothera marginata parva* Delac. Because the host genera, *Turdus* and *Zoothera*, are rather distant in taxonomy I decided to consider *A. daumae* as a species and not a subspecies of the species *zotherae*. Hopkins et Clay 1952 transferred *A. daumae* into the genus *Brueelia*. As to my opinion it should be placed in the genus *Allobrueelia*. I base here on the characters given in the original description (Clay 1936, Fig. 5 and 7c). The characters of the genus *Allobrueelia* are: the shape of forehead, zygoma broken near the clypeolus, broad clypeal signature, curved parameres of male genital apparatus.

Allobrueelia marginata (Burmeister, 1838)

Typical host: *Turdus pilaris* L.

Syn.: *Nirmus marginalis* Burm., 1838 from *Turdus pilaris* L.

Material examined from *Turdus pilaris* L.: 2 ♂♂, 2 ♀♀, 1 larva, Wrocław, 21.II.1955, leg. Złotorzycka; 1 ♂♂, 16 ♀♀, 8 larvae, Górkki Wschodnie near Gdańsk, 27.III.1962, leg. Zając.

<i>Allobrueelia marginata</i> (Burm., 1838)	♂ 14/d/37			♀ 14/d/15		
	long.	lat.	index	long.	lat.	index
Cephalon	0.38	0.41	92	0.44	0.47	94
Prothorax	0.13	0.24		0.15	0.28	
Mesometathorax	0.15	0.35		0.20	0.41	
Abdomen	0.78	0.53		1.13	0.63	
Genitalia	0.20					
Longitudo totalis	1.33			1.82		

A little bigger than *A. amsel* from *T. merula* and with broader head. Male abdomen egg-shaped, that of a female more elongated. The pattern of pleural slats of abdomen similar to that of *A. amsel*. Last segment of male abdomen lenticular, light. Male genital apparatus dark brown, shaped as in Fig. 7c.

Allobrueelia viscivori (Denny, 1842)

Typical host: *Turdus viscivorus viscivorus* L.

The description given by Denny 1842 (Pl. VII, Fig. 7) includes characters showing that this species belongs to the genus *Allobrueelia*.

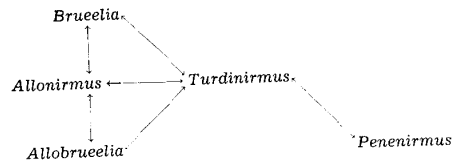
Material examined from *Turdus v. viscivorus* L.: 1 larva, Wrocław, 9.II.1953, leg. Złotorzycka.

The larva is 1.04 mm long. Head broad. Forehead semicircular, with pigmentation characteristic for the genus, similar as in *A. marginata*.

Genus *Turdinirmus* Wd. Eichler, 1952

Species typica: *Nirmus merulensis* Denny 1842 from *Turdus m. merula* L.

The habitus and the enormous size as for *Brueeliinae* size may serve as macroscopic differences from other genera. Structure of many details as in *Allobrueelia*. Eichler 1951 related *Turdinirmus* to the docophoroid forms (*Philopterinae*). I disagree with this theory, because the larvae are of typical nirmoid structure as in all *Brueeliinae* and dissimilar to the larvae of *Philopterinae*. Eichler 1951 did suppose also *Turdinirmus* to be closely related to *Penenirmus* s. l. due to the similarity of shape of their heads. This was reasonable as some other characters occur, common to both genera, e. g. the broken zygoma. Still, much more similarities can be found between the genus in question and *Allobrueelia*, *Allonirmus* and *Brueelia*. The outlines of my concept as to the relations of *Turdinirmus* are plotted below.



Note: Hopkins et Clay 1953 disavowed the genus *Turdinirmus*, because too divergent forms were assigned to it, as for instance *Turdinirmus melodicus* Wd. Eichl. which does in fact belong to *Sturnidoecus*. This species excluded, the genus *Turdinirmus* comprises species of uniform structure, different from that of other *Brueeliinae* and therefore can be regarded as a "good" genus.

Turdinirmus merulensis (Denny, 1842)

Syn.: *Nirmus mandarinus* Giglioli, 1864 from *Turdus merula mandarinus* (Bonap.) (according to Hopkins et Clay, 1952).

Typical host: *Turdus merula merula* L.

More recent descriptions: Eichler 1951, 1952 (Abb. 3), Clay 1951 (Fig. 22, 23, 35).

<i>Turdinirmus merulensis</i> (Denny, 1842)	♂ 14/e/35			♀ 14/e/36		
	long.	lat.	index	long.	lat.	index
Cephalon	0.51	0.54	94	0.53	0.58	91
Prothorax	0.19	0.31		0.20	0.32	
Mesometathorax	0.22	0.44		0.20	0.44	
Abdomen	1.24	0.55		1.49	0.58	
Genitalia	0.33					
Longitudo totalis	2.06			2.32		

Material examined from *Turdus m. merula* L.: Dzierżążno (Kartuzy), 1 ♀, 26.IX.1957; Bukowo, district Sławno (Pomorze), 2 ♂♂, 2 ♀♀; Żelistrzewo (Pomorze), 3 ♂♂, 6 ♀♀, 17—22.IX.1962, leg. Ziłotorzycka; Hel, 4 larvae, 3.V.1963, leg. Busse. Almost all material from live birds.

Colors chestnut brown. Forehead triangular, with its lateral margins straight or even concave. Clypeolus slightly concave at front. Zygoma darker and more massive than in *Allobrueelia*. Clypeal signature elongated. Larval

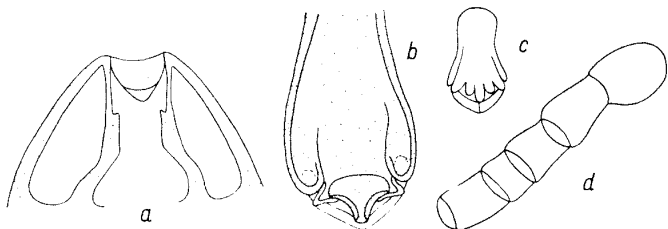


Fig. 8. *Turdinirmus merulensis* (Denny): a — forehead of the second stage from *T. m. merula* L., prep. 14/e/60, $\times 135$, and b — its male genital app., prep. 14/e/31, $\times 250$; c — male genital app. of *Hirundiniella domestica* (Kell. Chapm.) from *H. r. rustica* L., prep. 18/a/4, $\times 185$; d — left palpus of *Panurinirmus visendus* g.n., sp.n. ♀ (Holotype) from *P. biarmicus* (L.), prep. 9/c/1, $\times 57$

forehead parabolic (Fig. 8a). Abdominal pleurites wide, very dark, similar in pattern to those of *Allobrueelia*. Male genital apparatus as in Fig. 8b. The last segment of a male is broad, lenticular and light colored, that of a female notched at the end.

Genus *Hirundiniella* Carriker, 1963

Syn.: *Acronirmus* Kéler, 1939, nomen nudum.

Species typica: *Hirundiniella cruscula* Carriker, 1963 from *Tachineta albilinea* (Lawr.).

Habitus as in Phot. 13 and 14. Forehead triangular, much elongated. Zygoma broken by a wider groove and farther from the top of head than it is the case in *Allobrueelia*, *Allonirmus* and *Turdinirmus*. Clypeal signature elongated and rather big. Prothorax barrel-shaped, mesometathorax trape-

ziform, legs thin and small. Abdomen tapeformly elongated. Pleurites with narrow slats of simple pattern. Male genital apparatus (Fig. 8c) of the shape of the figure 8. Parameres and endomeres very small.

Occurrence: *Hirundinidae*.

According to Hopkins et Clay 1952 *Acronirmus* (now *Hirundiniella*) is undistinguishable from *Brueelia*. Eichler 1953 described *Acronirmus boettikeri* from *Hirundo rupestris*, thus recognizing the genus *Acronirmus*. In my opinion *Hirundiniella* is more related to *Penenirmus* than to *Brueelia*. Besides, it lives on *Hirundinidae* which have only specific genera of lice.

Hirundiniella domestica (Kellogg et Chapman, 1899)

Typical host: *Hirundo rustica erythrogastra* Bodd.

Material examined from *Hirundo rustica rustica* L.: 1 ♂, 1 ♀, Nowa Pasłęka, district Braniewo (Pomorze), 29.VIII.1961, leg. Busse; 1 ♀, Skowronki near Gdańsk, 12.IX.1962, leg. Ziłotorzycka. Material from live birds.

<i>Hirundiniella domestica</i> (Kellogg et Chapm., 1899)	♂ 18/a/4			♀ 18/a/5		
	long.	lat.	index	long.	lat.	index
Cephalon	0.35	0.25	140	0.41	0.29	141
Prothorax	0.10	0.16		0.12	0.19	
Mesometathorax	0.13	0.23		0.15	0.26	
Abdomen	0.98	0.25		1.30	0.32	
Genitalia	0.12					
Longitudo totalis	1.51			1.89		

General coloring yellow-brownish. Lateral margins of forehead steep and slightly concave. Clypeolus gently flexed inwards. Clypeal signature concave at front, and sacciform elongated at the end. Clavi of medium size, narrow and pointed. Mesometathorax trapeziform with the fore angles blunt and the hind margin slightly convex. Abdomen somewhat darker than the rest of body, the light intersegmental regions excepted. The last male segment narrow, semicircular, that of a female short and as a rule twofold. Male genital apparatus as in Fig. 8c.

Hirundiniella gracilis (Burmeister, 1838)

Syn.: *Nirmus elongatus* Denny, 1842 (nec *N. elongatus* Olfers, 1916) from *Delichon u. urbica* (L.).

Typical host: *Delichon urbica urbica* (L.).

The description of *N. elongatus* (Denny 1842, P. 140, Pl. VII, Fig. 4) from *D. urbica* included features characteristic for the genus. Denny (P. 116, Pl. XI, Fig. 7) described *Nirmus gracilis* (nec *N. gracilis* Burm.) which, judging from the description, seems to be similar to *Picicola*, and hence does not belong to *Hirundiniella*. This species was not mentioned in the catalogue of Hopkins et Clay 1952 and was perhaps erroneously reported from *Delichon urbica*. Giebel 1874 (S. 143, Taf. VII, Fig. 11 and 12) gave a description of *Nirmus gracilis* Burm. From this text it can be seen that the writer dealt with a species of the genus *Hirundiniella* though the male and female shown in illustrations resemble in appearance the *Picicola*! Giebel mentioned also that in 1814 Nitzsch found on *D. urbica*

lice with rounded head (probably similar to *Picicola*) which he identified as *Nirmus gracilis*. This implies that probably Giebel describing *N. gracilis* Burm. used illustrations of *N. gracilis* Nitzsch, with which *N. gracilis* Denny is synonymous.

Hirundiniella tenuis (Burmeister, 1838)

Typical host: *Riparia riparia* (L.).

According to Denny 1842 (Pl. XI, Fig. 9) the head is long, forehead broadly ended at front. These characters have little value as to the generic appurtenance, but remaining features of the habitus enable to assign this species to *Hirundiniella*.

Genus *Panurinirmus* gen. novum

Species typica: *Panurinirmus visendus* sp. n. from *Panurus biarmicus* (L.).

Habitus as in Phot. 15. Head wide, triangular (without pointed end). The clypeal structures as in *Alaudinirmus* g. n., forehead shorter. Clavi small, colorless. Thorax as in *Penenirmus* Clay et Meinertz. Female abdomen with transverse spots, two of them on each segment, except the genital one. Pleurites from segment ii to vii with narrow, dark marginal slats.

Occurrence: Up to now only on *Panurus biarmicus*.

Panurinirmus visendus g. n., sp. n.

Typical host: *Panurus biarmicus* (L.).

Material examined: 1 ♀ (holotype, coll. mea) from the preparation 9/c/1, Górci Wschodnie near Gdańsk, 9.X.1961, leg. Zając from live bird.

<i>Panurinirmus visendus</i> g.n., sp.n.	♀ holotypus		
	long.	lat.	index
Cephalon	0.45	0.44	102
Prothorax	0.12	0.24	
Mesometathorax	0.20	0.42	
Abdomen	1.25		
Longitudo totalis	1.95		

The trapeziform forehead ended at front by the mandibles darker. Clypeal signature wide, light-colored. Temples semicircular, slightly bent posteriorly with two long setae on each side. Antennae (Fig. 8d) rather long. Prothorax with two dark chitinous bars. Mesometathorax broad, triangularly inserting into the abdomen. Pleural slats of the abdomen very narrow. Hairs on the abdomen scarce and fine.

Genus *Penenirmus* Clay et Meinertzhagen, 1938, incl. *Picophilopterus* Ansari, 1947

Species typica: *Pediculus albiventris* Scop. from *Troglodytes t. troglodytes* (L.).

Penenirmus s. str. (*Alaudinirmus* g. n., *Pleurinirmus* g. n. and *Paranirmus* g. n. excluded) is of medium size, with the head alike the docophoroid type, but, as in all *Brueeliinae*, the trabeculae are lacking, and only the clavi are

present. Forehead elongated, almost triangular with slightly concave lateral margins. Clypeal signature of docophoroid type but with the process at the level of maxillae reduced. Male genital apparatus similar as in *Brueelia* but more complicated.

Penenirmus accuratus sp. n.

Typical host: *Dryocopus martius martius* (L.).

Material examined: 1 ♀ (holotype, coll. mea) 26/H/3, "Balg nr 2387, Guschwitz, Falkenberg, Schlesien, 15.X.1913, Coll. Kollibay", leg. Zlotorzycza 1962.

<i>Penenirmus accuratus</i> sp. n.	♀ holotypus		
	long.	lat.	index
Cephalon	0.49	0.44	111
Prothorax	0.12	0.28	
Mesometathorax	0.23	0.46	
Abdomen	0.98	0.56	
Longitudo totalis	1.74		

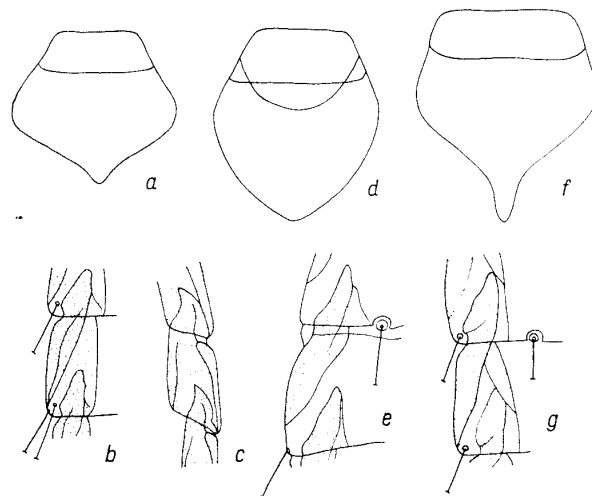


Fig. 9. *Penenirmus* sp.sp.: a — clypeal signature, $\times 225$, and b — left abdominal pleurite iv of *P. accuratus* sp.n. ♀ (Holotype) from *D. m. martius* (L.), prep. 26/H/3, $\times 113$; c — right abdominal pleurite iv of *P. albiventris* (Scop.) ♀ from *T. t. troglodytes* (L.), prep. 12/a/1, $\times 135$; d — clypeal signature, $\times 225$, and e — left abdominal pleurite iii of *P. auritus* (Scop.) ♀ from *D. major pinetorum* (Brehm), prep. 26/d/7, $\times 113$; f — clypeal signature, $\times 225$, and g — left abdominal pleurite iv of *P. silestacus* sp.n. ♀ (Holotype) from *D. medius* (L.), prep. 26/e/1, $\times 113$

Female as in Phot. 16. The shape of head as in *P. auritus* (Scop.) and *P. silesiacus* sp. n. Clypeal signature as in Fig. 9a. Mesometathorax deeply inserting into the abdomen. Abdominal pleurites a little darker than the rest of body with a characteristic pattern of slats (Fig. 9b).

Note: Till now *P. heteroscelis* Nitzsch from *Dryocopus martius* was included into *Penenirmus*. Now I transferred this species to *Paranirmus* so that the only *Penenirmus* living on *Dryocopus martius* is *P. accuratus* sp. n.

Penenirmus albiventris (Scopoli, 1763)

Syn.: *Pediculus motacillae* J. C. Fabricius, 1776; *Docophorus troglodytis* Waterston, 1915, from *Troglodytes troglodytes zetlandicus* Hart.

Typical host: *Troglodytes troglodytes troglodytes* (L.).

Timmermann 1950 gave a brief description of the species living on *Troglodytes troglodytes islandicus*.

Material examined from *Troglodytes t. troglodytes* (L.): Górki Wschodnie near Gdańsk, 1 ♀, 22.VII.1961, leg. Złotorzycka; Zelistrzewo (Pomorze), 1 larva, 8.IX.1962, leg. Gromadzki. The whole material from live birds.

Female with the abdomen slender, slightly widened in the middle, colored light-yellow. Pleurites a little darker. Pattern of pleural slats as in Fig. 9c. Abdominal setae long, most numerous in the middle regions of segments.

Penenirmus auritus (Scopoli, 1763)

Syn.: *Docophorus superciliosus* Burm., 1838 from *Dryobates major pinetorum* Brehm.

Typical host: *Dryobates major pinetorum* Brehm.

This species is often mentioned in the literature. New, extensive descriptions in Eichler 1953, Clay et Hopkins 1951 and Emerson 1961.

Material examined from *Dryobates major pinetorum* Brehm: Zawiercie, 4 ♀♀, 19.IV.1956, leg. Dąbrowski; Nowa Pasłęka, district Braniewo (Pomorze), 1 ♂, 1 ♀, 1 larva, 9.X.1961, leg. Busse; Skowronki (Mierzeja Wiślana), 1 ♂, 1 ♀, 11.IX. 1962, leg. Złotorzycka; Hel, 1 ♀, 11.IX.1962; 4 ♀♀ and 2 larvae, 15.IV.1963; 4 ♂♂, 7 ♀♀, 10 larvae, 1—4.V.1963; 2 ♀♀, 3 larvae, 29.IV.1963; leg. Busse from live birds.

Related to *P. accuratus* sp. n. and *P. silesiacus* sp. n., abdominal pleurites as in Fig. 9e.

Penenirmus gulosus (Nitzsch, 1866)

Typical host: *Certhia familiaris macrodactyla* Brehm.

No new descriptions. Hopkins et Clay 1952 placed it in the genus *Penenirmus*.

Penenirmus irritans (Ansari, 1958)

Typical host: *Saxicola torquata indica* Blyth.

Ansari 1958 (Text-figs. 105—109) located *P. irritans* in the genus *Sturridococcus*. From his description I conclude, though, that it is a *Penenirmus*. This is indicated by the structure of body, in particular of head and of the abdominal spots. It may occur on the Centraleuropean *Saxicola torquata rubicola* (L.).

Penenirmus nirmoideus (Nitzsch, 1874)

Typical host: *Saxicola rubetra* (L.).

Giebel 1874 noted that in 1861 Nitzsch found one specimen of *P. nirmoideus* (Nitzsch) which was similar to *P. gulosus* (Nitzsch) and had light-colored, narrow pleural spots. These features are characteristic for *Penenirmus*.

Penenirmus pici (J. C. Fabricius, 1798)

Syn.: *Docophorus scalaris* Burm., 1838 from *Picus viridis* L.

Typical host: *Picus viridis* L.

More up-to-date descriptions are given by Eichler 1953 and Clay et Hopkins 1960.

Material examined from *Picus viridis* L.: Opatowice near Wrocław, 4 ♂♂, 17.III.1954; 2 ♀♀, 24.III.1958; leg. Złotorzycka from shot birds.

It differs markedly from other species of *Penenirmus* by a more elongated forehead which is narrowing anteriorly and is flexed backwards at the very end.

Penenirmus serrilimbus (Burmeister, 1838)

Typical host: *Jynx torquilla torquilla* L.

Emerson 1961 gave a concise description including dimensions.

Material examined from *Jynx torquilla japonica* Bp.: 1 larva from a skin "305. Japan, 1902, Coll. Kollibay", collection of Zoological Museum, Wrocław, leg. Złotorzycka 1962.

Larva about 1 mm long is similar to *P. auritus*. Clypeal signature somewhat elongated.

Penenirmus silesiacus sp. n.

Typical host: *Dryobates medius* (L.).

Material examined: 1 ♀ (holotype, coll. mea) 26/e/1, 1 larva 26/e/2, Ruda Sulońska near Milicz, 15.XII.1951, leg. Złotorzycka.

<i>Penenirmus silesiacus</i> sp. n.	♀ holotypus		
	long.	lat.	index
Cephalon	0.55	0.50	110
Prothorax	0.14	0.28	
Mesometathorax	0.22	0.44	
Abdomen	1.20		
Longitudo totalis	1.96		

Similar (Phot. 17) to *P. accuratus* sp. n. but much bigger (see the tables of dimensions). Coloration yellow-brown. Clypeal signature broad, with a narrow process extending backwards (Fig. 9f). Mesometathorax relatively not too big, with rounded lateral margins. Abdomen with a characteristic, rather complicated pattern of pleural slats (Fig. 9g).

Penenirmus sp. from *Dryobates leucotos* (Bechst.)

1 larva WEC 2692v, 10 km NE Demidoff (Palatinate Smoleńsk), 9 and 10.IV.1943. leg. Kelm, coll. Wd. Eichler.

Up to now no *Penenirmus* was described from *Dryobates leucotos*. Perhaps the examined larva belongs to a new species, which will be possible to identify after getting imagines.

Genus *Alaudinirmus* gen. novum

Species typica: *Penenirmus pavlovskiyi* Blag., 1951 from *Galerida cristata ivanovi* Zar.

Habitus as in Phot. 18 and 19. The shape of head characteristic. Preantennal part of head much longer than the postantennal one. Clypeal signature big. Zygoma divided by a very wide groove. Clavi short. The outlines of

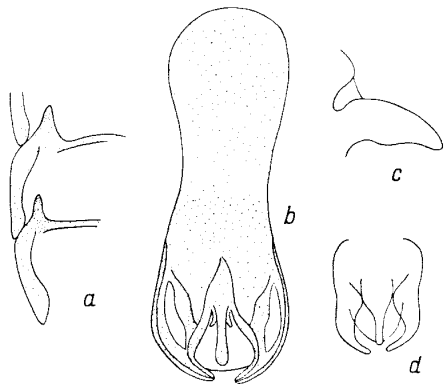


Fig. 10. *Alaudinirmus* and *Pleurinirmus* sp.sp.: a — left abdominal pleurites iv and v, $\times 125$; b — genital app. of *A. pavlovskyi* (Blag.) σ^7 from *G. cristata ivanovi* Zar., prep. WEC 3057c, $\times 270$; c — clavus, $\times 400$, and d — genital app. of *P. pari* (Denny) σ^7 from *A. c. caudatus* (L.), prep. 9/e/2 $\times 200$

abdomen similar as in *Penenirmus*, but the pleurites from ii to vii shaped as in Fig. 10a. Male genital apparatus (Fig. 10b) alike that of *Penenirmus* Clay et Meinertzhagen.

Occurrence: *Alaudidae* and maybe *Motacillidae*.

Alaudinirmus hibari (Uchida, 1949)

Syn.: (probably) *Penenirmus impunctus* Blag., 1951 from *Alauda arvensis cantarella* Bonap.

Typical host: *Alauda arvensis sala* Swinh.

Originally described as *Philoaterus*, but the features given are characteristic of *Alaudinirmus* g. n. Blagoveshchenskiy's 1951 description of *P. impunctus* implied that it was synonymous with *A. hibari* (Uchida). Unfortunately, this description included no illustrations. Hopkins et Clay 1952, 1953, regarded *A. hibari* (Uchida) and "*P. impunctus* Blag." as separate species of the genus *Penenirmus* Clay et Meinertzhagen, but they did not examine type specimens of these species.

Alaudinirmus pavlovskyi (Blagoveshchensky, 1951)

Typical host: *Galerida cristata ivanovi* Zar.

Material examined from *Galerida cristata ivanovi* Zar.: 2 σ^7 , 3 f , Tadzhikistan, 27.XII.1939, coll. Wd. Eichler.

To complete the data already known I give Photos 18, 19 and Figs. 10a, 10b.

Alaudinirmus (?) *patevi* (Balát, 1958)

Typical host: *Anthus campestris campestris* (L.).

Originally described as *Penenirmus pavlovskyi patevi*. When I do designate *A. pavlovskyi* (Blag.) from *Galerida cristata* as the species typica of *Alaudinirmus* g. n. it seems obvious that *A. (?) patevi* (Balát) which I regard as a separate species, not subspecies only, should belong to the same genus. It results from the description that in *A. (?) patevi* (Balát) the genital apparatus is of different structure than in *A. pavlovskyi*. Hence it is probable that *Anthus* (*Motacillidae*) harbours a genus of lice which is different from, though related to, *Alaudinirmus* g. n.

Genus *Paranirmus* gen. novum

Species typica: *Nirmus heteroscelis* Nitzsch, 1866 from *Dryocopus m. martius* (L.).

Habitus as in Phot. 20. Head broad and big in comparison with the rest of body. The preantennal part similar in shape to that of *Corvonirmus*, but the zygoma broken similarly as in *Penenirmus* Clay et Meinertzhagen. Clypeal signature pentagonal. Forehead-trense similar to that of *Corvonirmus* and *Olivinirmus*. Clavi small and narrow. Temples semicircular. Prothorax short, rectangular, mesometathorax wide, pentagonal. Abdomen oval with the male genital segment saciform, elongated. Pleurite broad, rectangular, with narrow lateral chitinous slats. Male genital apparatus as in Phot. 20.

Occurrence: *Picidae*, till now only *Dryocopus martius*.

I isolate *Paranirmus* g. n. from *Penenirmus* s. l. and ascertain that this genus diverges in many characters from the whole group of genera known as *Penenirmus* s. l. The only species, *P. heteroscelis* (Nitzsch), is discernible to the naked eye from the representatives of other genera, first of all from *Penenirmus accuratus* sp. n. which lives also on *Dryocopus martius*.

Paranirmus heteroscelis (Nitzsch, 1866)

Syn.: *Pediculus pici* Schrank, 1803 (nec Fabricius, 1798) (according to Hopkins et Clay 1952 who did not see the type specimens); *Philoaterus kumagera* Uchida, 1949 from *Dryocopus m. martius* (L.).

Typical host: *Dryocopus martius martius* (L.).

Material examined from *Dryocopus m. martius* (L.): 1 σ^7 , 1 larva, Białowieża (Poland), 1917/18, leg. H. Bischoff, coll. Zool. Mus. Berlin.

More recently described by Eichler 1953 as *Penenirmus* and by Uchida 1949 as "*Philoaterus kumagera*".

To complete the characters already known I put in the Phot. 20.

Genus *Pleurinirmus* gen. novum

Species typica: *Docophorus pari* Denny, 1842 from *Aegithalos caudatus* (L.).

Habitus as in Phot. 21. Head broad, triangular, resembling a little the docophoroid type. Zygoma broken similarly as in *Penenirmus*. Clypeal signature big, rather alike that of *Docophorus* (*Philoaterinae*). Clavi deep set, narrowing at their bases. Male abdomen fusiform, of medium-width. Pleurites i to viii of the form of straight, blackish slats, regularly overlapping one another. In the central parts of first five segments there are transverse pigment bands, sharply narrowing at the median line.

On the segment vi the bands are broken so as to form two triangles. Last segments lighter with indistinct spots. Male genital segment sacciform and genital apparatus (Fig. 10d) with the basal part short and wide and the parameres similar to those of *Penenirmus* Clay et Meinertz.

Occurrence: *Paridae*.

Pleurinirmus pari (Denny, 1842)

Typical host: *Aegithalos caudatus rosaceus* Math.

<i>Pleurinirmus pari</i> (Denny, 1842)	♂ 9/e/2		
	long.	lat.	index
Cephalon	0.42	0.41	102
Prothorax	0.14	0.22	
Mesometathorax	0.18	0.34	
Abdomen	0.76	0.47	
Genitalia	0.09		
Longitudo totalis	1.36		

Till now no typical host was fixed. Hopkins et Clay 1952 mention the species *pari* Denny as *Penenirmus* occurring on three hosts, *Aegithalos caudatus rosaceus* Math., *Parus ater britannicus* Shar. et Dress. and *Parus coeruleus* L. I do therefore designate *Aegithalos caudatus rosaceus* Math. as the type host of *Pleurinirmus pari* (Denny). I suppose that on *Parus ater britannicus* and on *Parus coeruleus* were found other, not yet identified, species of *Pleurinirmus* g. n.

Descriptions of this species given by Denny (1842, Pl. VI, Fig. 6) and Balát 1950 comprise features characteristic of *Pleurinirmus* g. n.

Material examined from *Aegithalos caudatus caudatus* (L.): Hel, 1 ♂, 4 larvae, 9/e/1, 14.IV.1963, leg. Busse from live birds.

Male golden-brownish with contrasting spots. Clypeal signature light colored. Antennae brown. Clavi (Fig. 10c) light-yellow. Abdomen with dark tergopleural spots, the last segments with the hair getting longer posteriorly. Genital segment with an indistinct spot of the shape of a flat letter "T". Male genital apparatus as in Fig. 10d.

Genus *Rostrinirmus* gen. novum

Species typica: *Rostrinirmus refractariolus* sp. n. from *Passer domesticus domesticus* (L.).

Habitus as in Phot. 22. Head triangular, with the forehead sharply narrowing. Limbus zygomaticus broken similarly as in *Penenirmus* Clay et Meinertz. and *Sturnidoecus* Eichler. Lateral margins of forehead concave. Clypeal signature (Fig. 11b) wide, with the hind margin semicircular, without tongue-shaped process. Thorax short and wide. Abdomen oval, with dark, narrow pleural slats and triangular tergopleural spots on the first seven segments, similar to the spots of *Sturnidoecus*, and with transversal spots in the center of abdomen, as in *Penenirmus*. Male genital apparatus as in Fig. 11a. Female abdomen notched at the end.

Occurrence: *Fringillidae* (presumably some of them).

Note: The taxonomic position between *Penenirmus* and *Sturnidoecus*.

Rostrinirmus (?) *buresi* (Balát, 1958)

Typical host: *Emberiza melanocephala* Scop.

In the original description two hosts, *Emberiza melanocephala* Scop. and *E. hortulana* L., were given. So, I designate *E. melanocephala* as typical host. I presume that on *E. hortulana* lives a subspecies of *R. (?) buresi* which was not yet identified. The original description is short and lacks illustrations. The author wrote that it was similar to "*Penenirmus ruficeps* (Nitzsch)".

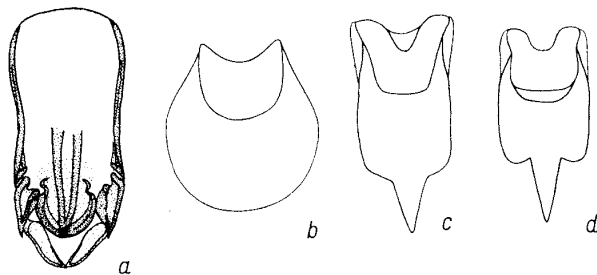


Fig. 11. a — *Rostrinirmus refractariolus* g.n., sp.n. ♂ (Holotype) from *P. d. domesticus* (L), prep. 4/s/9, male gen. app., × 300. Clypeal sign. of: b — *R. refractariolus* sp.n. ♀ (Paratype) from *P. d. domesticus* (L), prep. 4/s/2—1, × 240; c — *Sturnidoecus blandus* sp.n. ♀ (Holotype) from *C. c. carduelis* (L), prep. 4/o/1, × 135; d — *Sturnidoecus sturni* (Schr.) ♂ from *S. v. vulgaris* L., prep. 2/a/130—4, × 135

The latter species belongs probably to *Sturnidoecus*. However, *R. (?) buresi* (Balát) does not belong to *Sturnidoecus* as its clypeal signature has the hind margin rounded and a few other traits are characteristic of *Rostrinirmus* g. n. Male genital apparatus of *buresi* has a peculiar structure, divergent from that of *Sturnidoecus* and *Penenirmus*.

Rostrinirmus refractariolus g. n., sp. n.

Typical host: *Passer domesticus domesticus* (L.).

Material examined: 1 ♂ (holotype, coll. mea) prep. 4/s/9, Wrocław, 10.III.1964; paratypes: 1 ♀, 1 larva, prep. 4/s/2—1 and 2, Wrocław, 30.V.1953; leg. Złotorzycka.

<i>Rostrinirmus refractariolus</i> g.n., sp.n	♂ holotypus			♀ paratypus		
	long.	lat.	index	long.	lat.	index
Cephalon	0.42	0.44	93	0.42	0.42	100
Prothorax	0.11	0.11		0.11	0.23	
Mesometathorax		0.38		0.14	0.37	
Abdomen	0.69	0.58		0.69	0.46	
Genitalia	0.31					
Longitudo totalis	1.29			1.26		

Female and male golden-brownish. Clavi rather long, almost colorless. Antennae filiform, with long second segment. Clypeal signature as in Fig. 11a.

Prothorax flat with the lateral margins slightly narrowing at front. Mesometathorax pentagonal, broad. Abdomen oval, elongated. Tergopleural spots light-brown.

Genus *Sturnidoecus* Wd. Eichler, 1944

Species typica: *Docophorus leontodon* Nitzsch, sensu Piaget, 1880 (= *Pediculus sturni* Schr.) from *Sturnus vulgaris* L.

General outlines resemble *Philopteridae* but, as in all *Brueeliinae*, there are no trabeculae but only clavi. Clypeal signature ended by a long, tongue-shaped process (Fig. 11c, d). Male genital apparatus with long sabre-like parameres, entirely unlike that of other *Brueeliinae*. Female genital plate triangular. Abdomen with triangular tergo-pleural plates.

Occurrence: Central Europe, on *Sturnidae*, *Fringillidae*, *Motacillidae*, *Paridae* and *Turdidae*.

Sturnidoecus aeneas (Piaget, 1885)

Typical host: *Motacilla alba* L.

Hopkins et Clay 1952 after examining the type specimen assigned this species to *Sturnidoecus* Eichler. It is the only representative from Central-European *Motacillidae*.

Sturnidoecus blandus sp. n.

Typical host: *Carduelis carduelis carduelis* (L.).

Material examined: 1 ♀ (holotype, coll. mea) 4/0/1, Górkí Wschodnie near Gdańsk, 25.VII.1961, leg. Złotorzycka from a live bird.

<i>Sturnidoecus blandus</i> sp.n.	♀ holotypus		
	long.	lat.	index
Cephalon	0.55	0.56	98
Prothorax	0.21	0.30	
Mesometathorax	0.21	0.49	
Abdomen	1.00	0.73	
Longitudo totalis	1.81		

Female as in Phot. 23. Forehead much narrowed at front, ended flat by a short hyaline pellicle. Clypeal signature (Fig. 11c) similar as in *S. sturni* but markedly more elongated. Clavi small, pointed. Prothorax with its lateral margins straight, slightly convergent anteriorly. Mesometathorax pentagonal, much wider than the segment i of the abdomen. Tergopleural spots of the abdomen regularly overlapping one another, their stigmata of medium size.

Sturnidoecus melodicus (Wd. Eichler, 1951)

Typical host: *Turdus ericetorum philomelos* Brehm.

Eichler 1951 (Abb. 13, 14) described this species on the basis of one female and assigned it to the genus *Turdinirmus* Wd. Eichler. Hopkins et Clay 1953 found it to belong to *Sturnidoecus* Wd. Eichler. I conclude from the description given by Eichler that *S. melodicus* undoubtedly

belongs to *Sturnidoecus*. This can be concluded from the habitus, the concave margins of forehead, and the characteristic structure of the clypeal signature. Eichler mentioned that *S. melodicus* was similar to *Philopterus migratorii* Peters (now held for a synonym of *Sturnidoecus simplex* (Kell.).

Sturnidoecus pastoris (Denny, 1842)

Typical host: *Sturnus roseus* (L.).

Description (Denny 1842, P. 77, Pl. IV, Fig. 3) based on one female. The features given there (highly narrowed forehead and very dark tergo-pleural plates) are characteristic of the genus *Sturnidoecus*.

Sturnidoecus quadrilineatus (Nitzsch, 1866)

Typical host: *Aegithalos caudatus* (L.).

Giebel 1874 mentioned several characters which imply the appurtenance of this species to *Sturnidoecus*. Unfortunately he did not publish there any illustrations.

? *Sturnidoecus ruficeps* (Nitzsch, 1866)

Syn.: *Philopterus suzume* Uchida, 1949 from *Passer montanus saturatus* Stejn. and *Emberiza cioides ciopsis* Bonap. (probably; fide Hopkins et Clay 1952).

Typical host: *Passer montanus* (L.).

The description by Uchida 1949 (P. 548, Fig. 16) makes the impression that he had dealt with a species of the present genus *Rostrinirmus* (habitus, and the small clypeal signature with its hind margin rounded, which can be seen on the drawing). Hopkins et Clay 1952 believe it to belong to *Sturnidoecus* but they did not examine the type specimens either of *P. ruficeps* and of *P. suzume*.

Sturnidoecus simplex (Kellogg, 1896)

Syn.: *Philopterus migratorii* Peters, 1935 from *Turdus m. migratorius* L.

Typical host: *Turdus migratorius migratorius* L.

Kellogg 1896 (Pl. LXVII, Fig. 2) described a female. Both male and female characters were given by Peters 1935 (Fig. 1 and 2) in the description of "*P. migratorii* Peters". The features mentioned there (highly narrowed forehead, characteristic clypeal signature and male genital apparatus with elongated parameres) imply its appurtenance to the genus *Sturnidoecus*.

Sturnidoecus sturni (Schrank, 1776)

Syn.: *Philopterus leontodon* Nitzsch, 1818.

Typical host: *Sturnus vulgaris* L.

More recent description published by Hopkins et Clay 1954.

Material examined from *Sturnus v. vulgaris* L.: About 300 adults and larvae from various regions of Poland, 1951–1962. As a complement to the features already known a drawing of the clypeal signature is given here (Fig. 11d).

Summary

Basing on the material from Poland and other countries, mainly from Central Europe, the present writer describes the following new genera of the family *Brueeliinae*:

Subfam. *Brueeliinae* Wd. Eichler: *Alaudinirmus* g. n. pro *Penenirmus pavlovskiyi* Blag., *Allonirmus* g. n. pro *Nirmus tristis* Gieb., *Maculinirmus* g. n. pro *Nirmus mundus* Nitzsch, *Nigronirmus* g. n. pro *Nirmus limbatus* Burm., *Olivinirmus* g. n. pro *Nirmus glandarii* Denny, *Panurinirmus* g. n. pro *P. visendus* sp.n., *Paranirmus* g. n. pro *Nirmus heteroscelis* Nitzsch, *Pleurinirmus* g. n. pro *Nirmus pari* Denny, *Rostrinirmus* g. n. pro *R. refractariolus* sp.n., *Spironirmus* g. n. pro *Nirmus nebulosus* Burm.

and the following new species:

Allobrueelia abluda sp.n. from *Turdus ericetorum philomelos* Brehm, *Brueelia fixa* sp.n. from *Dryobates leucotos* (Bechst.), *Corvonirmus perforatus* sp.n. from *Corvus f. frugilegus* L., *Panurinirmus visendus* sp.n. from *Panurus biarmicus* (L.), *Penenirmus accuratus* sp.n. from *Dryocopus m. martius* (L.), *Penenirmus silesiacus* sp.n. from *Dryobates medius* (L.), *Rostrinirmus refractariolus* sp.n. from *Passer d. domesticus* (L.), *Sturnidoecus blandus* sp.n. from *Carduelis c. carduelis* (L.).

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STRESZCZENIE

Na podstawie materiałów z Polski i innych krajów, głównie środkowo-europejskich, autorka opisuje następujące nowe rodzaje i gatunki z podrodziny *Brueeliinae*:

Alludinirmus g.n. pro *Penenirmus pavlovskiyi* Blag.,
Allonirmus g.n. pro *Nirmus tristis* Gieb.,
Maculinirmus g.n. pro *Nirmus mundus* Nitzsch,
Nigronirmus g.n. pro *Nirmus limbatus* Burm.,
Olivinirmus g.n. pro *Nirmus glandarii* Denny,
Panurinirmus g.n. pro *Panurinirmus visendus* sp.n.,

- Paranirmus* g.n. pro *Nirmus heteroscelis* Nitzsch,
Pleurinirmus g.n. pro *Nirmus pari* Denny,
Rostrinirmus g.n. pro *Rostrinirmus refractariolus* sp.n.,
Spironirmus g.n. pro *Nirmus nebulosus* Burm.
Allobrueelia abluda sp.n. z *Turdus ericetorum philomelos* Br.,
Brueelia fixa sp.n. z *Dryobates leucotos* (Bechst.),
Corvonirmus perforatus sp.n. z *Corvus f. frugilegus* L.,
Panurinirmus visendus sp.n. z *Panurus biarmicus* (L.),
Penenirmus accuratus sp.n. z *Dryocopus m. martius* (L.),
Penenirmus silesiacus sp.n. z *Dryobates medius* (L.),
Rostrinirmus refractariolus sp.n. z *Passer d. domesticus* (L.),
Sturnidoecus blandus sp.n. z *Carduelis c. carduelis* (L.).

EXPLANATION OF PLATES I—IV

- Phot. 1. *Corvonirmus perforatus* sp.n. ♂ (Holotype) from *C. f. frugilegus* L., prep. 1/c/26—1, × 43
 Phot. 2. *Corvonirmus perforatus* sp.n. ♀ (Paratype) from *C. f. frugilegus* L., prep. 1/c/70, × 36
 Phot. 3. *Olivinirmus glandarii* (Denny) ♂ from *G. g. glandarius* (L.), prep. 1/f/19—4, × 52.5
 Phot. 4. *Olivinirmus glandarii* (Denny) ♀ from *G. g. glandarius* (L.), prep. 1/f/19—15, × 50
 Phot. 5. *Maculinirmus mundus* (Nitzsch) ♂ from *O. o. oriolus* (L.), prep. 3/a/2—4, × 55.5
 Phot. 6. *Maculinirmus mundus* (Nitzsch) ♀ from *O. o. oriolus* (L.), prep. 3/a/2—11, × 52
 Phot. 7. *Nigronirmus limbatus* (Burm.) ♂ from *L. c. curvirostra* L., prep. 4/a/18, × 55.5
 Phot. 8. *Nigronirmus limbatus* (Burm.) ♀ from *L. c. curvirostra* L., prep. 4/a/15, × 43
 Phot. 9. *Spironirmus nebulosus* (Burm.) ♂ from *S. v. vulgaris* L., prep. 2/a/97, × 64
 Phot. 10. *Spironirmus nebulosus* (Burm.) ♀ from *S. v. vulgaris* L., prep. 2/a/98, × 50
 Phot. 11. *Allonirmus tristis* (Gieb.) ♀ from *E. rubecula* (L.), prep. WEC 435, × 52.5
 Phot. 12. *Allobrueelia abluda* sp.n. ♀ (Holotype) from *T. ericetorum philomelos* Brehm, prep. 14/a/22, × 45
 Phot. 13. *Hirundiniella domestica* (Kell. et Chapm.) ♂ from *H. r. rustica* L., prep. 18/a/4, × 52.5
 Phot. 14. *Hirundiniella domestica* (Kell. et Chapm.) ♀ from *H. r. rustica* L., prep. 18/a/5, × 45
 Phot. 15. *Panurinirmus visendus* g.n., sp.n. ♀ (Holotype) from *P. biarmicus* (L.), prep. 9/c/1, × 43
 Phot. 16. *Penenirmus accuratus* sp.n. ♀ (Holotype) from *D. m. martius* (L.), prep. 26/H/3, × 45
 Phot. 17. *Penenirmus silesiacus* sp.n. ♀ (Holotype) from *D. medius* (L.), prep. 26/e/1, × 43
 Phot. 18. *Alaudinirmus pavlovskyi* (Blag.) ♂ from *G. cristata ivanovi* Zar., prep. WEC 3057c, × 49
 Phot. 19. *Alaudinirmus pavlovskyi* (Blag.) ♀ from *G. cristata ivanovi* Zar., prep. WEC 3057, × 45
 Phot. 20. *Paranirmus heteroscelis* (Nitzsch) ♂ from *D. m. martius* (L.), prep. WEC 2681k, × 48
 Phot. 21. *Pleurinirmus pari* (Denny) ♂ from *Ae. c. caudatus* (L.), prep. 9/e/2, × 55
 Phot. 22. *Rostrinirmus refractariolus* g.n., sp.n. ♀ (Holotype) from *P. d. domesticus* (L.), prep. 4/s/2—1, × 62
 Phot. 23. *Sturnidoecus blandus* sp.n. ♀ (Holotype) from *C. c. carduelis* (L.), prep. 4/o/1, × 43