

Floristic notes on Palearctic Laboulbeniales (Ascomycetes)

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Floristic notes are presented on 53 taxa of Laboulbeniales from various parts of the Palearctic Region and one taxon from Taiwan. New species records are given for 33 countries or islands. Special attention is paid to the U.S.S.R., for which there are only scattered records in the literature. The northernmost records of Laboulbeniales are reported from Tit-Ary (*Rickia hyperborea* Balazuc) and Bulun (*Laboulbenia vulgaris* Peyritsch), by the Lena River, north of 70°N in Yakutia.

Laboulbenia egens Spegazzini, occurring on the carabidicolous genus *Tachys* (s.lat.), is recognized as a species separate from *L. pedicellata* Thaxter, occurring on the genera *Bembidion* (s.lat.) and *Dyschirius*. The variability of *L. pedicellata* is discussed.

Five new taxa are described: *Laboulbenia broscosomae* n.sp. on *Broscosoma baldense* Rosenh. from Italy, *L. eubradycelli* n.sp. on *Bradycellus* spp. from many European countries, *L. kobilae* n.sp. on *Neotrechus suturalis* ssp. *suturalis* Schr. from Yugoslavia, *L. marvintii* n.sp. on *Bembidion dentellum* (Thunb.) and *B. starki* Schaum from Austria, the Federal Republic of Germany and France, and *L. luxurians* subsp. *immaculata* n.subsp. on *Bembidion semipunctatum* (Donovan) from Austria and the Leningrad Region in the U.S.S.R.

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Introduction

The fungus material in the present study is primarily based on the Palearctic insect collection in the Zoological Museum of Helsinki (MZH). Additional material has been obtained from the insect collections of the Zoological Museum of Turku, Finland (cave insects from Sweden), the Zoological Museum of Bergen, Norway (Coleoptera from the Faeroes), the Institute of Zoology and Botany, Academy of Sciences of the Estonian S.S.R. in Tartu, U.S.S.R. (Coleoptera from Estonia), Mr. Björn Erling Waage and Dr. Dagfinn Refseth (Carabidae from Norway) and Prof. Alois Kofler (Coleoptera from Austria). Some specimens collected by myself in Estonia during the Second Estonian—Finnish Entomological Symposium in 1982 are also included. About 25 000 specimens of selected material of Coleoptera (Carabidae, Gyrinidae, Staphylinidae), Diptera (Ephydriidae, Nycteribidae) and Hymenoptera (Formicidae) were studied.

The preparation of the fungus material was done as described in Huldén (1983). The fungus material, including types, and the infected insects, except the borrowed specimens, are kept in a separate collection in MZH.

Twenty taxa, including the new ones, are illustrated in this paper, most of the others in Huldén (1983). For *Arthrorhynchus* see Blackwell (1980a, 1980b), and for *Rhachomyces* see Lapesme (1942), Balazuc (1970) and Rossi (1978).

Remarks on the distributional data

As far as possible the locality information is given in accordance with modern atlases, because the labels on the old insect material may be rather cryptic unless supplemented with information from old diaries, etc. in the Zoological Museum of Helsinki. In the few cases in which the exact locality is not known, the smallest known modern geographical unit is given. In some exceptional cases, like 'Germania', the text is given as such, because the area extends over many countries nowadays. Old records from the present Israel with its immediate surroundings are given under Palestine.

The Laboulbeniales of the U.S.S.R. have previously been poorly studied. In this paper distributional data are given for 24 taxa from numerous localities. Due to the large area of the country, this means a significant extension of the known distribution of many species. As many of the locality names are poorly known and probably difficult to find, a map containing all the collecting sites in the U.S.S.R. (and one in Iran) is given in Fig. 1. Most of the localities on the labels could be interpreted with good accuracy except those in the Southern Urals in which G.A. Duske collected insects (shown as an open circle on the map).

The rest of the localities are presumably easy to identify. The Faeroes (belonging to Denmark), Azores and Madeira (Portugal) and the Canary Islands (Spain) are treated as separate units in the material lists.

Review of the species

Floristic notes are presented for 54 taxa of the Laboulbeniales from 37 countries or islands. New species records are given for 33 countries and islands (marked with an asterisk *). The genera and species are in alphabetical order. The numbers in the country-species index refer to the species.

Albania *35
 Algeria 35
 Austria *4, 12, 14, *22, *23, 24, *26, 28, 30, 32, *34, 35, *36, 39, 41, *46, *49.
 Azores *35, *52.
 Belgium *11.
 Bulgaria 14, *31, 35.
 Canary Islands *9, 14, *35, *36, *38, *53.
 Czechoslovakia *7, *9, 15, *21, 35, *37, *39.
 Denmark *12, *36.
 Egypt *9, *27.
 Faeroes *14, *30, *35.
 Federal Republic of Germany 14, 15, 21, *23, 27, 35.
 Finland *11, *16.
 France 14, *23, 27, 31, 35, 36, 39, 40, 47.
 German Democratic Republic *5, *35, 39, *41, *49.
 Greece *15, 27, *35, *36.
 Hungary *41.
 Iran *36.
 Ireland *4, *14, *27, *35, *36, *39.
 Italy *6, *11, 35, *36, *43, 44, *45.
 Lebanon *29.
 Madeira *11, *35.
 Morocco *35.
 Netherlands *15, 27, 35.
 Norway *4, *5, *7, *11, *12, *14, *24, *25, *35, *37, 50.
 Palestine *9, *14, *35, *36.
 Poland 12, 35.
 Romania 35, 39.
 Spain 7, *9, 35, 36,
 Sweden 2, *3, *4, *5, *7, *8, *10, *12, *15, *27, *31, *35, *37, *39, *41, *49, *54.
 Switzerland *3, 4, 14, *15, 30, 35.
 Syria *35.
 Taiwan *1.
 Turkey *27, 35.
 United Kingdom *11, 12, 15, 24, 35, 39.
 U.S.S.R. 3, 4, 7, *10, *11, 12, *13, 14, 15, *16, *17, *18, *21, *22, *24, 27, 30, 31, *34, 35, 36, 38, 39, 50.
 Yugoslavia *19, 33, 35, 41, 42, *51.

1. *Arthrorhynchus nycteribiae*

Laboulbenia nycteribiae Peyritsch 1871:451. — *Helminthophana nycteribiae* (Peyritsch) Peyritsch 1873:250. — *Arthrorhynchus nycteribiae* (Peyritsch) Thaxter 1901:408.

Material examined

*Taiwan. Tainan. On *Penicillidia jenynsii* (Westw.) (Diptera, Nycteribiidae). No data on the host species of the bat fly.

General distribution

Compiled from Ryberg (1947), Balazuc (1971) and Blackwell (1980a): Austria, Burma, Czechoslovakia, Denmark, France, Hungary, Italy, Kenya, Netherlands, Poland ('East Prussia'), Romania, Spain, Sri Lanka, Sweden, Yugoslavia and Zambia.

Host

Batflies of the genera *Eucampsipoda*, *Nycteribia*, *Penicillidia* and *Phthiridium* (Diptera, Nycteribiidae).

2. *Asaphomyces tubanticus*

Barbariella tubantica Middelhoek & Boelens in Middelhoek 1949:260. *Asaphomyces tubanticus*

(Middelhoek & Boelens) Scheloske 1969:92.

Material examined

Sweden. Skåne: Tykarpsgrötan, on *Catops fuliginosus* Erichson. Balsberggrötan, on *Catops fuliginosus* and *C. nigricans* (Spence). The hosts were found in caves in both localities.

General distribution

Czechoslovakia, Federal Republic of Germany, Finland, France, Italy, Netherlands, Poland, Sweden and U.S.S.R. (Huldén 1983).

Host

Catops spp., *Catopoides* spp. and *Sciodrepoides* spp. (Coleoptera, Carabidae).

3. *Cantharomyces orientalis*

— Figs. 4a—d

Cantharomyces orientalis Spegazzini 1915b:43.

Variable in size, 130—240 μm in length. Larger specimens have the basal cells of the perithecium more elongated than small specimens. The compound antheridium variable, situated on the second appendage cell (Figs. 4 b and d). The differences in size and habitus do not seem to be correlated with the host species.

Material examined

*Sweden. Uppland: Stockholm, on *Carpelimus corticinus* (Gravenhorst). *Switzerland. Ticino: Chiasso, on *C. opacus* Baudi. U.S.S.R. *Yakut A.S.S.R.: Nikolsk and Ytyk-Haja, on *C. corticinus*.

General distribution

Algeria, Federal Republic of Germany, Finland, Italy, Netherlands, Poland and U.S.S.R. (Huldén 1983).

Host

Carpelimus spp. (Coleoptera, Staphylinidae).

4. *Laboulbenia argutoris*

Laboulbenia argutoris Cépède & Picard 1909:260.

Material examined

*Austria. Hohe Tauern (*Pterostichus diligens* (Sturm)). *Ireland. Kerry: Killarney (*P. diligens*, *P. strenuus* (Panzer)). *Norway. Hordaland: Linga (*P. strenuus*). *Sweden. Skåne: Ringsjön (*P. diligens*). — Uppland (*P. strenuus*). Switzerland. Graubünden: Engadin (*P. diligens*). U.S.S.R. *Estonian S.S.R.: Harju r., Nõmmeveski (*P. strenuus*).

General distribution

Federal Republic of Germany, Finland, France, Hungary, Italy, Poland, Romania, Switzerland and U.S.S.R. (Huldén 1983).

Host

Pterostichus spp. (Coleoptera, Carabidae).

5. *Laboulbenia bradycelli*

Laboulbenia bradycelli Balazuc 1974, in Balazuc 1973—74, vol. 43:15.

Material examined

*German Democratic Republic. Eberswalde: Chorin (*Trichocellus placidus* (Gyllenhal)). *Norway. Hordaland: Skogsøy (*Bradycellus ruficollis* (Stephens)). *Sweden. Uppland: Stockholm (*Trichocellus placidus*).

General distribution

Finland, France, Poland and U.S.S.R. (Huldén 1983).

Host

Trichocellus placidus and *Bradycellus* spp. (Coleoptera, Carabidae).

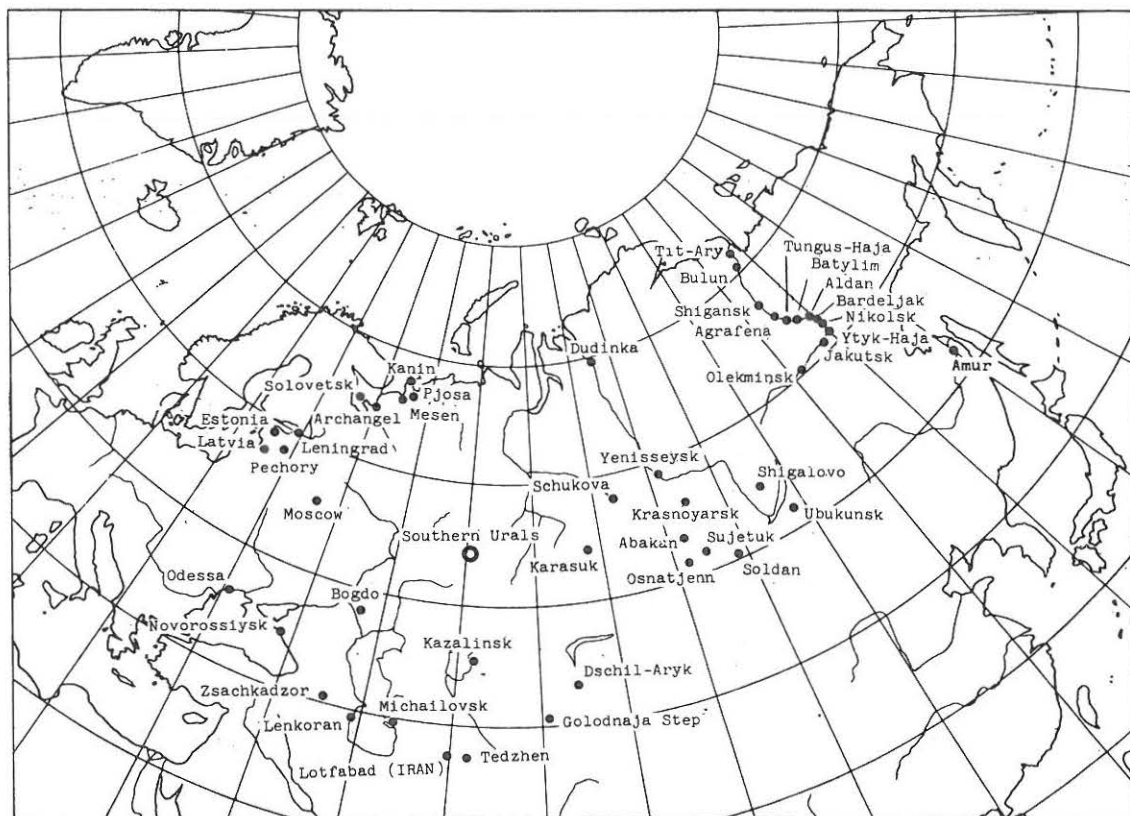


Fig. 1. Localities of Laboulbeniales records in the U.S.S.R.

6. *Laboulbenia broscosomae* Huldén n.sp. — Fig. 16

Crassulus. Matrix: *Broskosoma baldense* Rosenhauer.

Receptacle. Pale yellowish, slightly darkened along the margin of the appendical side. Cells I—II forming a stalk about 110 μm in length, 25—35 μm in width. Cell I distinctly shorter than cell II. Cells III—IV about 60 μm in length, cell III longer than cell IV. Cell V small, oblique, not connected with cell III. Cell IV nearly isodiametric, about 25 μm in width.

Appendages. Insertion cell externally broadly black, situated slightly below middle of the perithecium. Outer appendage consisting of a simple row of at least seven cells, which are equal in size, 25 μm in length and 15 μm in width. Inner appendage consisting of two simple rows of cells similar to that of the outer appendage, except for the basal cell which is about 13 μm in width. One antheridium visible on the second cell of the inner appendage. The appendages 125—150 μm in length.

Perithecium. Brown, paler near the sutures of the cells, blackish around the tip. Habitus robust, rounded and stout, tip nearly straight, size about 60 x 120 μm . Spores not observed.

Total length from base of foot to tip of perithecium about 250 μm .

Host. *Broskosoma baldense* Rosenh. (Coleoptera,

Carabidae).

Holotype. Slide L. Huldén 26, in MZH. Collecting data of the host: Italy. Mte. Baldo.

Spezzazzini (1914) reported another species, *L. rigida* Thaxter, from the same host and locality. His microphotograph (Fig. 54) shows that his material represents *L. broscosomae*. *L. broscosomae* differs from *L. rigida* in its more rounded and clumsy habitus and different host genus (*L. rigida* was described from *Pterostichus*).

Material examined. See the type.

7. *Laboulbenia clivinalis*

Laboulbenia clivinalis Thaxter 1899:165.

Material examined

*Czechoslovakia. Paskau (near Ostrava), on *Clivina collaris* (Herbst). *Norway. Hordaland: Linga (*Clivina fossor* (Linnaeus)). Spain. Guipuzcoa: Irun (*C. fossor*). *Sweden. Öland: Vickelby (*C. fossor*): U.S.S.R. *Archangel Region: Solovetsk Islands (*C. fossor*). — *Caucasus (*C. fossor*).

General distribution

Algeria, Federal Republic of Germany, Finland, France, Hungary, Italy, Philippines, Poland, Spain, United Kingdom and U.S.S.R. (Huldén 1983).

Host

Clivina spp. (Coleoptera, Carabidae).

8. *Laboulbenia curtipes*

Laboulbenia curtipes Thaxter 1892:40.

Material examined

*Sweden. Skåne: Bökeberg. On *Bembidion obliquum* Sturm.

General distribution

Finland, U.S.A. and U.S.S.R. (Huldén 1983).

Host

Bembidion: subgen. *Notaphus* and *B. dentellum* (Thunberg) (Coleoptera, Carabidae).

9. *Laboulbenia egens*

— Figs. 22a—b

Laboulbenia pauperula Spegazzini 1915b:59, auct. non Thaxter 1891:269. — *Laboulbenia egens* Spegazzini 1918:323.

This species has been confused with *L. pedicellata*. It grows on *Tachys* species (Coleoptera, Carabidae), while *L. pedicellata* occurs mainly on the genera *Dyschirius* and *Bembidion* (s.lat.). *L. egens* is distinctly separable from *L. pedicellata* by its smaller lip cells (more pointed perithecium), more or less distinct humps on outer side on perithecium, usually vertical and slightly shorter septum IV-V (in *L. pedicellata* it is normally slightly oblique, but this character is not constant) and strongly protruding first cell of outer appendage (see Fig. 22b). The last-mentioned character is typical of *L. picardii* Maire and *L. tachys* Thaxter, also occurring on *Tachys* spp, but these species, do not have septum IV-V connected with septum III-IV.

L. tachys has been reported from Japan on *Tachys laetificus* Bates (Sugiyama 1973), from Hungary on *Tachyta nana* (Gyllenhal) (Banhegyi 1949) and from Taiwan on *Tachys klugii* Nietner (Sugiyama 1978). The illustration in Sugiyama (1973), however, represents *L. egens*. The two latter references lack illustrations, but the reports probably also represent *L. egens*. Balazuc's (1973—74, 1978, 1982) reports of *L. pedicellata* from France, Madagascar and Guadeloupe on *Tachys* (s.lat.) also seem to represent *L. egens*, cf. illustration in Balazuc (1982).

Material examined

*Canary Islands. (Spain), Gran Canaria: Arucas (*Tachys haemorrhoidalis* (Ponza)). — Tenerife (*T. haemorrhoidalis*). *Czechoslovakia. Paskau (*T. quadrisignatus* (Duftschmid)). *Egypt. Cairo. (*T. lucasi* Duval, *T. fumigatus* ssp. *socius* Schaum). — Luxor (*T. lucasi*). *Palestine. Jericho (*T. lucasi*). *Spain. Cordoba (*T. lucasi*).

General distribution

Compiled from the literature and my own records (see comments above): Canary Islands, Czechoslovakia, Egypt, France, Guadeloupe, Hungary, Japan, Madagascar, Palestine, Spain and Taiwan.

Host

Tachys (s.lat.) spp. (Coleoptera, Carabidae).

10. *Laboulbenia elaphri*

Laboulbenia elaphri Spegazzini 1915a:464.

Material examined

*Sweden. Uppland: Stockholm, on *Elaphrus cupreus* Duftschmid. *U.S.S.R. Estonian S.S.R.: Seadjärv, on *E. cupreus*.

General distribution

Belgium, Denmark, Federal Republic of Germany, Finland, France, Hungary and Poland (Huldén 1983).

Host

Elaphrus cupreus and *E. riparius* (Coleoptera, Carabidae).

11. *Laboulbenia eubradycelli* Huldén n.sp.

— Figs. 2 (map), 12a—c

Ut *Laboulbenia bradycelli* sed *sporibus majoribus*. Matrix: *Bradycellus* spp.

Receptacle. Pale yellowish, cell I usually brownish in distal part, cells III—IV to variable degree brownish, darkening upwards. Cells I—II forming a rather elongated stalk, 120—200 μm in length, the width increasing from about 20 μm at the base to 25—50 μm in the upper part. Cell I usually distinctly shorter than cell II. Cells III—IV 55—70 μm in length, cell III being slightly longer than cell IV. Cell V rather small, not connected with cell III. Cell VI almost isodiametric or slightly elongated, about 20—35 μm in width.

Appendages. Insertion cell externally sharply or diffusely blackish brown, situated below middle of perithecium. Outer appendage consisting of a single row of 5—10 cells about equal in length distally slightly narrowing. Inner appendage consisting of a small brush of about 5—10 branchlets, each terminating in an antheridium. Width of basal cell of inner appendage 1/2 to 3/4 of that of basal cell of outer appendage. Length of outer appendage about 100—150 μm , inner appendage shorter and not usually reaching tip of perithecium.

Perithecium. Brown, the sutures of the cells darker. Black spots on lip cells. Perithecium straight but tip slightly oblique. Size 40—70 X 85—125 μm . Spores about 3 X 45 μm .

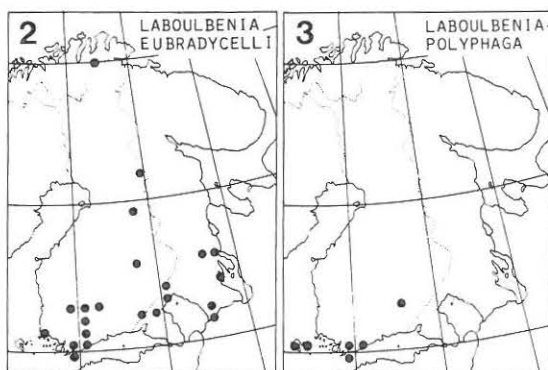
Total length from base of foot to tip of perithecium 230—370 μm .

Host. *Bradycellus harpalinus* (Audinet-Serville), *B. caucasicus* Chaudoir, *B. ruficollis* (Stephens) (Coleoptera, Carabidae). Probably also many other *Bradycellus* species. The parasite occurs on various parts of the host.

Holotype. Slide L. Huldén 1, in MZH. On *Bradycellus caucasicus*. Collecting data of the host: Finland. Ab: Lohja, 7.V.1893 Luther.

In Huldén (1983) this species occurring on *Bradycellus* spp. was wrongly interpreted as *Laboulbenia polyphaga* Thaxter. *Laboulbenia eubradycelli* differs from that species in its larger size, larger lip cells, angular habitus of the perithecium and more strongly pigmented thallus. It is closely related to *L. bradycelli*, described by Balazuc (1974, in 1973—74). *L. bradycelli* seems to be much more common on *Trichocellus placidus* Gyllenhal) than on *Bradycellus* spp. It is possible that some material of *L. bradycelli* studied by Balazuc in fact belongs to the new species. *L. bradycelli* is differentiated by its smaller size (130—200 μm against 230—370 μm for *L. eubradycelli*), cells I and II about equal in length, the somewhat greenish tinge of the dark pigmentation, simpler inner appendage, longer cells of outer appendage, basal cell of outer appendage more than twice the size of basal cell of inner appendage, flatter cell VI, more oblique tip of perithecium and slightly smaller spores (about 38 μm against about 45 μm for *L. eubradycelli*).

The new species varies somewhat in the shape of the perithecium, which usually has an angular



Figs. 2—3. — Distribution of 2) *Laboulbenia eubradycecelli* and 3) *L. polyphaga* in Eastern Fennoscandia.

appearance, but may also be more rounded (filled with spores) or rather narrow. The spores are usually about 45 μm in length, but in one case they were 42 μm and in another about 48 μm . These probably represent different strains within the species.

The distribution of *Laboulbenia eubradycecelli* and *L. polyphaga* in Eastern Fennoscandia are given in Figs. 2 and 3 because of the previous confusions in Huldén (1983).

Material examined

*Belgium. Brabant: Tervuren (*Bradycellus harpalinus*).
 *Finland. Ab: Uusikaupunki (*B. ruficollis*, *B. caucasicus*). Lohja (*B. caucasicus*). Vihti (*B. caucasicus*). Turku (*B. caucasicus*). N: Hangö, Tvärminne (*B. ruficollis*, *B. caucasicus*). Helsinki (*B. caucasicus*). Espoo (*B. caucasicus*). Tuusula (*B. caucasicus*). Sjundeå (*B. caucasicus*). — Ta: Hartola (*B. caucasicus*). Ylöjärvi (*B. caucasicus*). Pälkäne (*B. caucasicus*). Hattula (*B. caucasicus*). — Sa: Joutseno (*B. caucasicus*). — Sb: Vehmersalmi (*B. caucasicus*). — Kb: Kitee (*B. caucasicus*). — Ok: Ristijärvi (*B. caucasicus*). — Ks: Kuusamo (*B. caucasicus*). — Li: Utsjoki (*B. caucasicus*).
 *Italy. 'Parco Abruzzo' (*B. caucasicus*). *Madeira. (Portugal). On *B. harpalinus*. *Norway. Hordaland: Skogsøy (*B. harpalinus*). Sör-Trøndelag: Agdenes (*B. caucasicus*).
 *United Kingdom. Scotland: Moray, Forres (*B. caucasicus*).
 *U.S.S.R. Leningrad Region: Kamennogorsk (Antrea). Segeza. Uslanka. — Karelian A.S.S.R.: Sortavala, Pirknitsa, Ahvenjärvi. Kendjärvi. Semsjärvi. All records on *B. caucasicus*.

12. *Laboulbenia fasciculata*

Laboulbenia fasciculata Peyritsch 1873:248.

In Finland this species occurs only in the south (Huldén 1983). It is interesting to note that on the Norwegian coast it reaches as far north as the Troms region, thus very exactly following the distribution of *Patrobis atrorufus* (Ström).

Material examined

Austria. Kärnten: Koralpe (*Patrobis styriacus* Chaudoir). — Tirol (*P. septentrionis* Dejean). — Steiermark: Turnau (*P. styriacus*). *Denmark. Sjælland: Dyrehaven (*P. atrorufus* (Ström)). *Norway. Hordaland: Askøy, Gjerstad. Hjeltnes. Ullensvang. Nordheimsund. Linga (*P. atrorufus*). Ystanes (*Synuchus vivalis* (Illiger)). — Møre og Romsdal: Molde (*P. atrorufus*). Sjøholt (*P. atrorufus*, *P. assimilis*). — Sör-Trøndelag: Trondheim. Melhus. Rognes. (*P. atrorufus*). — Troms: Finsnes (*P. septentrionis*). Poland: Katowice: Cieszyn

(*P. atrorufus*). *Sweden. Uppland: Lidingö (*P. atrorufus*). — Gotland: Klinte. (*P. atrorufus*). United Kingdom. Scotland. Moray, Forres (*P. assimilis* Chaudoir). U.S.S.R. Estonian S.S.R.: Paldiski, Väike-Pakri s. (*P. atrorufus*). — *Pskov Region: Pechory (*P. atrorufus*).

General distribution

Holarctic, in Europe known from Austria, Federal Republic of Germany, Finland, France, Greece, Hungary, Italy, Poland, Romania, Spain, Switzerland, United Kingdom, U.S.S.R. (Leningrad Region, Karelian A.S.S.R., Estonian S.S.R., Latvian S.S.R.) (Balazuc et al. 1983, Huldén 1983).

Host

Patrobis atrorufus is presumably the main host, but *L. fasciculata* also occurs on many other species of *Patrobis* and related genera (Coleoptera, Carabidae).

13. *Laboulbenia fennica*

Laboulbenia fennica Huldén 1983:54.

Material examined

*U.S.S.R. Estonian S.S.R.: Vastse-Kuuste, Lootvina (*Gyrinus marinus* Gyllenhal).

General distribution

Previously reported only from Finland (Huldén 1983).

Host

Gyrinus spp. *G. aeratus* Stephens being the main host in Finland (Coleoptera, Gyrinidae).

14. *Laboulbenia flagellata*

Laboulbenia flagellata Peyritsch 1873:247.

Material examined

Austria. Tirol. (*Agonum moestum* (Duftschmid)). — Burgenland: Neusiedler See (*A. thoreyi* Dejean). Bulgaria. Rila Mountains. (*Agonum antennarium* (Duftschmid). Canary Islands (Spain). Gomera (*A. marginatum* (Linnaeus)). *Faeroes (Denmark). Vagar: Sörvagur (*Patrobis septentrionis* Dejean). — Suduroy: Ven (*P. septentrionis*). Federal Republic of Germany. Hamburg (*A. micans* (Nicolai)). France. Allier: Vichy (*A. moestum* (Duftschmid)). *Ireland. Kerry: Killarney (*A. muelleri* (Herbst)). *Norway. Troms: Finsnes (*Patrobis septentrionis*). — Sör-Trøndelag: Melhus (*A. micans*). *Palestine. Kafr Kanna (*A. nigrum* Dejean). Switzerland. Solothurn: Dornach (*A. viduum* (Panzer), *A. muelleri*). U.S.S.R. Moscow (*A. thoreyi*). — Krasnoyarsk (*A. bicolor* Dejean). — Novorossiysk (*A. nigrum*). — Tuva A.S.S.R.: Soldan (*A. thoreyi*).

General distribution

Nearly cosmopolitan (Huldén 1983).

Host

Mainly *Agonum* spp. (Coleoptera, Carabidae).

15. *Laboulbenia giardii*

Laboulbenia giardii Cépède & Picard 1909:258.

Material examined

Federal Republic of Germany. Niedersachsen: Helmstedt. (*Dicheirotrichus gustavi* Crotch). *Greece. Attika: Elevis (*D. obsoletus* (Dejean)). *Netherlands. Texel: De Koog (*D. gustavi*). *Sweden. Bohuslän: Koster (*D. gustavi*). *Switzerland. Valais: Saxon (*D. gustavi*). United Kingdom. Scotland: Moray, Forres (*D. gustavi*). U.S.S.R. *Novosibirsk Region: Karasuk steppe (*D. obsoletus*). — *Archangel Region: Solovetski Islands (*D. gustavi*). — Ural Mts., no locality (*Dicheirotrichus* sp.).

General distribution

Finland, France, 'Germania', Hungary, Italy, United Kingdom and U.S.S.R. (Karelian A.S.S.R., Tomsk Region), (Huldén 1983).

Host

Dicheirotichus spp. (Coleoptera, Carabidae).

16. Laboulbenia gyrinicola

Laboulbenia gyrinicola Spegazzini 1914:34.

Material examined

*Finland. Al: Jomala (*Gyrinus natator* (Linnaeus)). *U.S.S.R. Estonian S.S.R.: Tartu r., Vahi (*G. substriatus* Stephens). — Põlva r., Taevaskoja (*G. natator*, *G. marinus* Gyllenhal).

General distribution

Algeria, Belgium, Czechoslovakia, France, Hungary, Italy, Poland, Romania, Sweden, Switzerland, Yugoslavia (Huldén 1983). Records from the United Kingdom and Spain possibly concern *L. fennica*.

Host

Gyrinus spp. and *Aulonogyrus* spp. (Coleoptera, Gyrinidae).

17. Laboulbenia hastiana

Laboulbenia hastiana Huldén 1983: 55.

This species is closely related to *L. vulgaris* and can be regarded as one extreme in the *vulgaris* complex. I still prefer to treat it as a separate species, as it seems to be confined to *Bembidion hasti*.

Material examined

*U.S.S.R. Archangel Region: Kanin (*Bembidion hasti* Sahlberg).

General distribution

Finland (Huldén 1983)

Host

Bembidion hasti (Coleoptera, Carabidae).

18. Laboulbenia ishikawai

— Fig. 11

Laboulbenia ishikawai Sugiyama 1973:52.

Material examined

*U.S.S.R. Khabarovsk Region, Amur River (*Diplous depressus* (Gebler)).

General distribution

Japan (Sugiyama 1973).

Host

Diplous spp. (Coleoptera, Carabidae).

19. Laboulbenia kobilaie Huldén n.sp.

— Figs. 15a—b

Piceocoloratus. Matrix: *Neotrechus suturalis* Schaufuss.

Receptacle. Yellowish, with strong blackish brown pigmentation from the upper part of cell I upwards. Cells I—II forming a stalk 180—200 μm in length, evenly broadening from 20 μm to 40 μm in the upper part. Cells III and IV equal in size, 20 \times 60 μm . Cell V small, triangular, about 15 μm in height. Cell VI triangular-isodiametric, 25—30 μm in width.

Appendages. Insertion cell externally black, appendage cells yellow. Basal cell of outer appendage rather robust, 25—30 μm in length, width at base about 18 μm and in upper part about 10 μm , size of the second cell about 10 \times 15 μm , third cell broken near the base. Basal cell of inner appendage almost isodiametric, 10 μm in width. Inner appendage branching dichotomously twice, just reaching tip of perithecium.

Perithecium. Blackish brown, black spot on inner side near the yellow tip. Size 40—45 \times 135—140 μm . Only upper fourth of perithecium free, abruptly narrowing towards the slightly outwards bent tip. Spores about 5 \times 55 μm in size.

Total length from base of foot to tip of perithecium 330—350 μm .

Host. *Neotrechus suturalis* ssp. *suturalis* Schaufuss (Coleoptera, Carabidae). The parasite was found on the pronotum of the host.

Holotype. Slide L. Huldén 27, in MZH. Collecting data of the host: Yugoslavia. Bosnia-Herzegovina: Kobila Glava.

Relationship with other species unclear. *L. shanorii* Banhegyi, described from the same host, is quite different (see Fig. 14). The exact structure of the appendages is not certain; the illustration in Fig. 15 is only schematic.

Material examined.

See the type.

20. Laboulbenia lecoareri (Balazuc) Huldén stat. nov. *Laboulbenia subterranea* subsp. *lecoareri* Balazuc 1974, in Balazuc 1973—74, vol. 43:306.

This taxon is well delimited and it is quite safe to treat it as a separate species. It is apparently monophagous on *Trechus micros* (Herbst). The Norwegian specimens were smaller (330—470 μm in length) than the French material (525 μm in length according to Balazuc 1973—74) but otherwise they are similar.

Material examined

*Norway. Sør-Trøndelag: Kvål (*Trechus micros*).

General distribution

Federal Republic of Germany, France, Hungary, Poland, United Kingdom (Balazuc 1973—74).

Host

Trechus micros (Herbst) (Coleoptera, Carabidae).

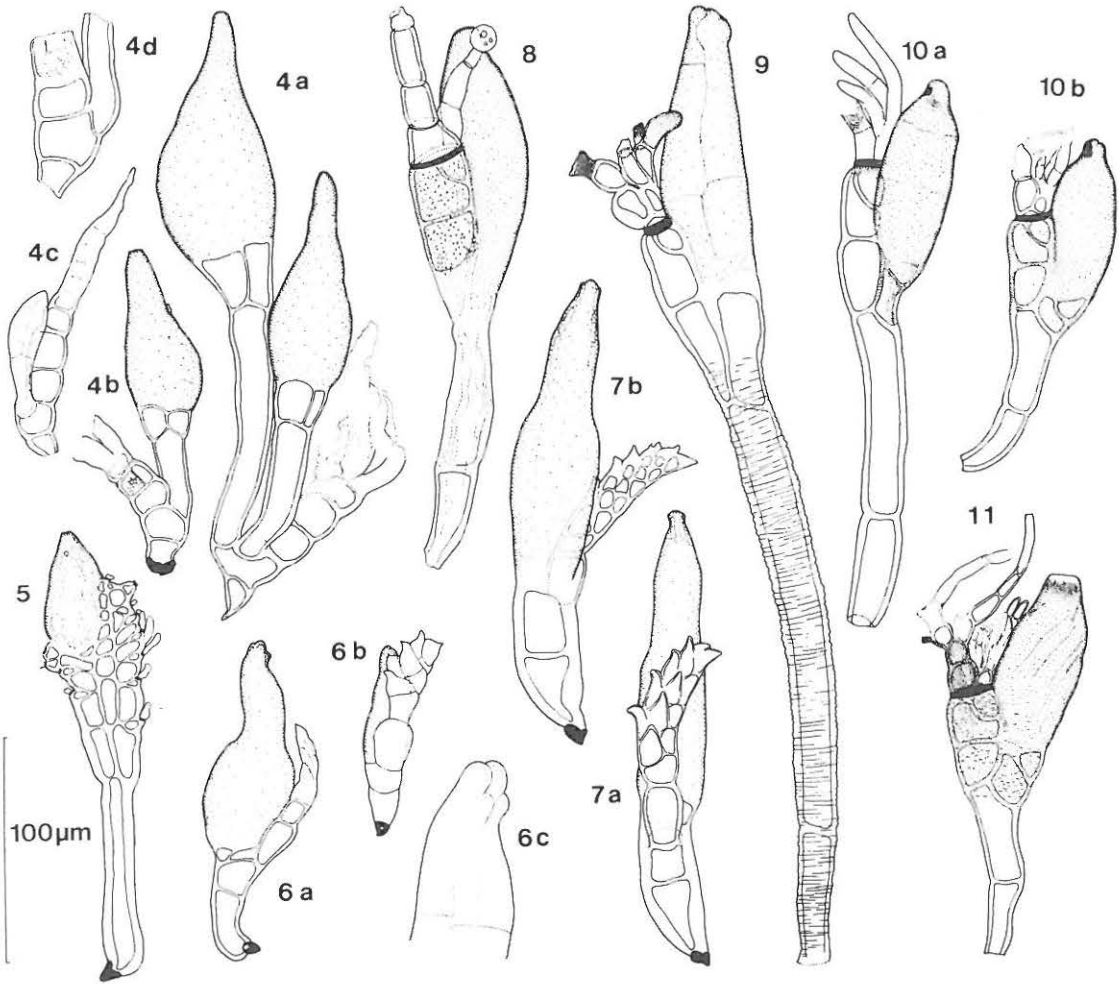
21. Laboulbenia luxurians

— Fig. 17

Laboulbenia luxurians Peyritsch 1873:248.

This species was originally described from Austria on *Bembidion varium* (Oliver) (Coleoptera, Carabidae). Later authors have reported it from many regions and numerous host species (Thaxter 1896, Baumgartner 1923, Siemaszko & Siemaszko 1928, Briedis 1932, Colla 1934, Banhegyi 1949, Maire 1920). My material of *Laboulbenia* from *B. dentellum* (Thunberg), a species reported as host for *L. luxurians*, is different from that found on *B. varium* and it is described as *L. marvinii* n.sp. in this paper. Since it is probable that these two *Laboulbenia* species have been mixed under the name *L. luxurians*, I think it is best to give an improved description of *L. luxurians* according to material from *B. varium*.

Receptacle. Pale brown, cell I nearly hyaline in basal part and with a black spot in upper part on appendage side (not mentioned by previous authors!). Small, dark and rounded-elongated dots on cells I—VI and base of perithecium. Cells I—II forming a stalk 80—90 μm in length, broadening upwards from 15 μm to about 35 μm in width. Cells I and II about equal in length or cell II slightly shorter than cell I. Cells



Figs. 4—11. — 4: *Cantharomyces orientalis*, a)—c) on *Carpelimus corticinus*, d) on *C. opacus*. Mature specimens from a) Ytyk-Haja (Yakut A.S.S.R.), b) Nikolsk (Yakut A.S.S.R.), c) immature specimen from Ytyk-Haja, d) base of thallus showing position of compound antheridium (Switzerland). — 5: *Rickia wasmannii* on *Myrmica sabuleti* (Yugoslavia). — 6: *Stigmatomyces ptilomyiae* on *Atissa pygmaea* (Azores), a) mature specimen, b) immature specimen, c) apex of perithecium. — 7: *Stigmatomyces trianguliapicalis* on *Parydra coarctata* (Canary Islands), a)—b) two mature specimens in different views. — 8: *Laboulbenia thaxteri* on *Asaphidion flavipes* (Latvian S.S.R.). — 9: *Laboulbenia picardii* on *Tachys bisulcatus* (Lebanon). — 10: *Laboulbenia nebriae* on *Nebria rufescens* from a) Krasnoyarsk Region, b) United Kingdom. — 11: *Laboulbenia ishikawai* on *Diplous depressus* (Khabarovsk Region).

III—V forming a compact group of cells, 40—45 µm in length, 35 µm in width. Cell III rather flat and obliquely placed against base of perithecium, narrowly connected with cell V. Cell V nearly spherical, about 20 µm in width. Cell VI rather flat. Septa II—III and II—VI about equal in length.

Appendages. Insertion cell externally very weakly pigmented with brown, darkest at lower margin and near perithecium. Basal cell of outer appendage rather robust, pale brown, more strongly pigmented along outer margin; second cell nearly black along outer margin. Outer appendage seems to be strongly branched from second cell upwards. Basal cell of inner

appendage irregularly triangular; branches (2—4 together) arising from several isodiametric cells on the basal cell. Branches of inner appendage directed inwards on each side of perithecium, probably terminating in antheridia.

Perithecium. Pale brown-olivaceous brown, not or only slightly darker than receptacle. A slightly darker shade around the perithecium below the blunt tip. Perithecium slightly inwards curved. Size 30—40 × 80—100 µm. Spores at least 30 µm in length, but not yet ripe; according to Thaxter (1896), they are about 50 µm in length.

Total length from base of foot to tip of perithecium

about 200—210 μm .

Host. Bembidion varium (Olivier) (Coleoptera, Carabidae). The parasite grows on the pronotum and elytra of the host.

It is possible that *L. luxurians* is more restricted in its choice of host species than has previously been realized. For the separation of *L. luxurians* from *L. marvinii*, see under the latter species. Some forms of *L. pedicellata* may resemble *L. luxurians* but differ distinctly in the arrangement of cells III—V (see Figs. 23a—g).

The specimens illustrated by Spegazzini (1914, Figs. 18a—b) are not *L. luxurians* although occurring on *B. varium*; they possibly represent young *L. vulgaris*.

Material examined

*Czechoslovakia. Slovakia: Cenke (*B. varium*). Federal Republic of Germany. Lüneburg (*B. varium*). *U.S.S.R. Kazakhstan: Kazalinsk by Syr Darya (*B. varium*).

General distribution

According to records of occurrences on *Bembidion varium*, found at least in Algeria (Maire 1920), Austria (Peyritsch 1873), Hungary (Banhegyi 1949) and Italy (Colla 1934). Reports from other host species must be rechecked.

22. *Laboulbenia luxurians* subsp. *immaculata* Huldén n. subsp. — Fig. 18

Sine maculis. Matrix: *Bembidion semipunctatum* (Donovan).

Resembles *Laboulbenia luxurians* but lacks the distinct black spot in upper part of cell I. The thallus is also slightly smaller, about 135—190 μm in length. Spores 37—40 μm in length.

Host. Bembidion semipunctatum (Donovan) (Coleoptera, Carabidae).

Holotype. Slide L. Huldén 28, in MZH. Collecting data of the host: U.S.S.R. Leningrad Region: Molodežnoe (Vammeljoki), leg. W. Hellén.

Although this morph is very similar to *L. luxurians*, I think it is quite safe to regard it as a separate subspecies, because the difference seems to be constant. Specimens of *L. luxurians* from three remote localities were also very uniform in habitus (see under that taxon).

Material examined

*Austria. Vienna. On *Bembidion semipunctatum*. *U.S.S.R. Leningrad Region: Molodežnoe (Vammeljoki). On *B. semipunctatum*.

23. *Laboulbenia marvinii* Huldén n. sp.

— Figs. 19a—d

Ut Laboulbenia luxurians sed major. Matrix: *Bembidion* spp.

Receptacle. Pale brown-olivaceous brown, lighter near the base. Small round or transversely elongated dark dots on cells II—VI. Cells I—II forming a stalk 100—130 μm in length, broadening upwards from 20 μm to 45—50 μm . Cells III—V about equal in size. Cell V nearly spherical. Cells III and V narrowly connected. Septum II—III distinctly shorter than septum II—VI.

Appendage. The appendages (unfortunately more or less damaged) resemble those of *L. luxurians*, but seem to be less branched; when young the branches are directed inwards towards the perithecium.

Insertion cell externally narrowly darkened.

Perithecium. Olivaceous brown, darker than receptacle, the septa of the wall cells darker brown, brown-black spot below the tip on outer side. Perithecium straight, fairly symmetrical, tip narrow. Size about 60 \times 120 μm . Spores 55—60 μm in length.

Total length from base of foot to tip of perithecium 260—290 μm .

Host. Bembidion starki Schaum and *B. dentellum* (Thunberg) (= *B. flammulatum* Clairville) (Coleoptera, Carabidae). The parasite grows on the elytra of the host.

Holotype. Slide L. Huldén 29, in MZH. Collecting data of the host (*Bembidion dentellum*): Federal Republic of Germany. Hamburg, 5.VII.1949.

I have named this species in honour of my friendly guinea-pig, Marvin, who likes to gnaw my illustrations.

The new species differs from *L. luxurians* in its larger size, the difference in size between septa II—III and II—VI, more pointed perithecium, slightly larger spores and possibly less branched appendages. It is probably closely related to the Holarctic *L. fumosa* Thaxter, occurring on *Platynus* spp. and *Agonum* spp. (Coleoptera, Carabidae). The latter species is more strongly pigmented, and has more upright appendage branches and quite different host genera.

L. fumosa was reported from Switzerland on *Bembidion dentellum* and *B. conforme* Dejean by Baumgartner (1923). These records probably concern *L. marvinii*. Many European records of *L. luxurians* from various *Bembidion* species may refer to either *L. luxurians* or *L. marvinii*.

Material examined

*Austria. Wildshut. (*B. starki*). *Federal Republic of Germany. Hamburg (*B. dentellum*). *France. Seine & Oise: Cerney (*B. dentellum*).

24. *Laboulbenia nebriae*

Laboulbenia nebriae Peyritsch 1871:455. — *L. alpestris* Picard 1913:552. — Figs. 10a—b

Material examined

Austria. Hohe Tauern: Gr. Glockner Pass, Hochtort, altitude 2500 m (*Nebria atrata* Dejean). *Norway. Sør-Trøndelag: Melhus (*Nebria rufescens* (Ström)). United Kingdom. Shetland. (*N. rufescens*). *U.S.S.R. Krasnoyarsk Region: Abakan (*N. rufescens*).

General distribution

Alaska (Aleutian Islands), Algeria, Austria, Canada, France, Hungary, Italy, Morocco, Poland, Romania, Switzerland, United, U.S.A., Yugoslavia (Hincks 1960, Stadelmann & Poelt 1962, Balazuc 1973, 1973—74).

Host

Nebria spp. (Coleoptera, Carabidae).

25. *Laboulbenia notiophili*

Laboulbenia notiophili Cépède & Picard 1909:259.

Material examined

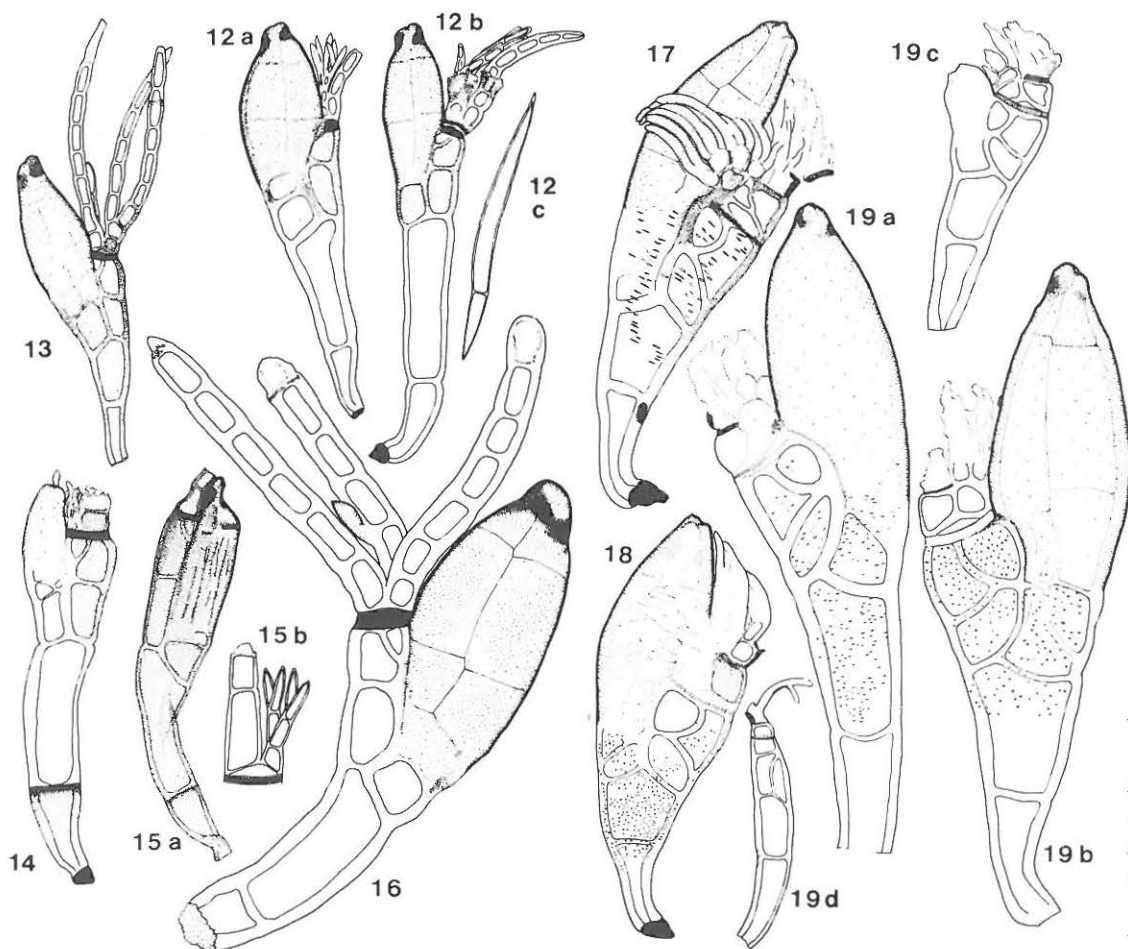
*Norway. Hordaland: Askøy (*Notiophilus biguttatus* (Fabricius)).

General distribution

Federal Republic of Germany, Finland, France, Hungary, Poland, Spain, Switzerland (Huldén 1983).

Host

Notiophilus spp. (Coleoptera, Carabidae).



Figs. 12—19. — 12: *Laboulbenia eubradycelli* n.sp. a) on *Bradycellus ruficollis* (Finland), b) holotype on *Bradycellus caucasicus* (Finland), c) spore (from holotype). — 13: *Laboulbenia rougetii* on *Brachinus crepitans* (Austria). — 14: *Laboulbenia shanorii*, immature specimen on *Neotrechus suturalis* ssp. *otiosus* (Yugoslavia). — 15: *Laboulbenia kobilae* n.sp. on *Neotrechus suturalis* ssp. *suturalis* (Yugoslavia), a) holotype, b) schematic illustration of the appendages. — 16: *Laboulbenia broscosomae* n.sp. on *Brosocosoma baldense* (Italy), holotype. — 17: *Laboulbenia luxurians* on *Bembidion varium* (Czechoslovakia). — 18: *Laboulbenia luxurians* subsp. *immaculata* n. subsp. on *Bembidion semipunctatum* (Leningrad Region), holotype. — 19: *Laboulbenia marvinii*, a) and d) on *Bembidion starki* (Austria), b) and d) young specimens. — Scale: 40 μm (Fig. 12c), 100 μm (Figs. 16—19) and 200 μm (Figs. 12a—b, 13—15).

26. *Laboulbenia paradoxa* — Figs. 20a—b
Laboulbenia paradoxa Spegazzini 1915b:58.

My material of this species is slightly overmature and the tip of the perithecium is somewhat damaged. The size of the spores is $5 \times 62 \mu\text{m}$. The habitus of the appendages is very characteristic. The species was described from *Bembidion nitidulum* (Marsham).

Material examined

*Austria. Kärnten, on *Bembidion modestum* (Fabricius).

General distribution

Italy (Spegazzini 1915b).

Host

Bembidion modestum and *B. nitidulum* (Coleoptera, Carabidae).

27. *Laboulbenia pedicellata* — Figs. 23a—g
Laboulbenia pedicellata Thaxter 1892:44.

The parasite occurring on the genus *Tachys* s.lat. and previously interpreted by several authors as *L. pedicellata* actually belongs to *L. egens* Spegazzini (see under that species). The remaining material on *Bembidion* s.lat. and *Dyschirius* spp. is still very heterogeneous. In some cases the general morphological characters seem to be very similar, but considerable variation occurs in spore size. In others distinctly different morphs can be found on the same host individual. In certain cases, however, parasites on a particular host collected from very remote localities may be nearly identical. This has convinced me that *L. pedicellata* s.lat. consists of many taxa.

Although the separate morphs are not yet safely separable, I here present characters for some diffuse morph-groups that may help future studies on this problem. In the list of material *L. pedicellata* is still interpreted in a broad sense.

Morph-group 1. Cells I—II forming a slender, evenly broad stalk with little pigmentation, perithecium rather small and narrow. Spore size 35 μm (on *Bembidion quadrimaculatum*) 40 μm (*B. doris*) and 45—50 μm (*B. gilvipes*). In typical cases the total length of the thallus is about 300 μm , but on *B. gilvipes* I also found short specimens, which may look like members of the next morph-group, but differing in the evenly broad stalk. The typical *L. pedicellata*, as described by Thaxter (1892), belongs to this group. (Fig. 23f, see also Fig. 77d in Huldén 1983).

Morph-group 2. Cells I—II forming an only slightly pigmented stalk, which broadens strongly upwards, perithecium short and broad appearing swollen, septum II—III distinctly shorter than septum II—VI, spores about 35—40 μm in length, total length of thallus at most about 170 μm . Specimens from *Bembidion quadrimaculatum* (Finland and Siberia) were 150—170 μm in length, and from *B. azurescens* (France) about 115 μm in length. The specimens from *B. quadrimaculatum* greatly resemble the American *L. bembidio-palpi* Benjamin (in Benjamin & Shanor 1952), and are possibly conspecific (Fig. 23g, see also Figs. 77a—b in Huldén 1983).

Morph-group 3. Cell II with a distinct pale constriction, which contrasts with the adjoining rather strongly pigmented areas above and below, perithecium rather narrow, pigmentation in general fairly strong, spore length varying from 30 μm to about 45 μm . Total length 160—250 μm . A large number of host species: at least *B. aeneum*, *B. biguttatum*, *B. harpaloides*, *B. iricolor*, *B. octomaculatum*, *B. pygmaeum*, *B. lunulatum* and *Dyschirius* spp. *L. tapirina* Benjamin (in Benjamin & Shanor 1952) and possibly *L. gracilipes* Cépède & Picard (1908) belong to this group. (Figs. 23a—c, see also Fig. 77e in Huldén 1983).

Morph-group 4. Like the preceding group, but perithecium broader and more robust. Spore length from 40—55 μm . The largest spores found on specimens from *B. ruficolle*. Cell VI isodiametric or slightly elongated, except in specimens from *B. ruficolle*, where it was flat. Total length 190—230 μm . A specimen from *B. articulatum* was illustrated in Huldén (1983, Fig. 77c), but pigmentation was not indicated, for pigmentation, see Fig. 23b (belonging to the preceding group) in this paper. Found on the following hosts: *B. articulatum*, *B. varium* and *B. ruficolle*.

Morph-group 5. Stalk without pale constriction on cell II and only a little pigmentation near septum I—II, broadening upwards to a variable degree, the stalk being either slender or robust, perithecium rather big and clumsy, insertion cell strongly constricted. Cell VI variable, rather flat — elongated. Total length (130—) 200—250 μm . Specimens referable to this group found on *B. lunulatum* (Turkey), *B. aeneum* (Netherlands, Sweden), *B. semipunctatum* (Leningrad Region, Austria) *B. inoptatum* and *B. guttula*. The

specimen from *B. inoptatum* represents a very short form. (Figs. 23d—e).

Within the groups occur morphs which are very uniform on certain host taxa collected from localities in different regions. These possible represent separate species. The morphs in group 3 seem to be more uniform on *Dyschirius* species than on *Bembidion* species, a fact which makes it seem possible that this material could be separated from the rest of *L. pedicellata*. More investigations are needed before definite conclusions can be made.

Material examined

Austria. Hofgastein (*Dyschirius angustatus* (Ahrens)). — Vienna (*Bembidion octomaculatum* (Goetze), *B. semipunctatum* (Donovan)). — Donau-Au (*B. inoptatum* Schaum). **Egypt.** Luxor (*D. lafertei* Putzeys). **Federal Republic of Germany.** Hamburg (*B. guttula* (Fabricius), *D. thoracicus* (Rossi), *D. obscurus* (Gyllenhal)). — Einbech (*B. biguttatum* (Fabricius)). — Sylt (*B. aeneum* Germar). — Ellwangen (*B. lunulatum* (Fourcroy)). — Zeltberg bei Lüneburg (*B. varium* (Olivier)). **France.** Gascogne (*B. articulatum* (Panzer)). — Allier: Vichy (*B. articulatum*). — 'La Chapelle' (*B. azurescens* (Dalla Torre)). **Greece.** Elevisis (*B. iricolor* (Bedel)). — Crete: Canea (*B. lunulatum*). ***Ireland.** Kerry: Killarney (*B. harpaloides* Audinet-Serville). **Netherlands.** Amsterdam (*B. aeneum*). ***Sweden.** Skåne: Arlöv (*B. aeneum*). Lomma (*B. aeneum*, *D. globosus* (Herbst)). — Öland: Vickleby (*B. aeneum*). Kalla (*B. aeneum*). — Gotland (*D. globosus*). ***Turkey.** Smyrna (*B. lunulatum*). U.S.S.R. Leningrad (*D. globosus*). — *Pskov Region: Pechory (*D. globosus*). — Latvian S.S.R.: Riga (*D. thoracicus*). Sigulda (*D. thoracicus*). — *Azerbaijan: near Lenkoran (*D. globosus*). — *Uzbekistan: Syr Darya Region, Golodnaja Step (*D. syriacus* Putzeys). — *Krasnoyarsk Region: Yeniseysk (*B. quadrimaculatum* (Linnaeus)). — *Irkutsk Region: Suetuk (*B. quadrimaculatum*). — *Yakut A.S.S.R.: Lena River (mouth of Aldan River) (*D. septentrionum* Munster).

General distribution

Apparently cosmopolitan, in Europe known from Austria, Belgium, the Federal Republic of Germany, Finland, France, Greece, Hungary, Italy, the Netherlands, Poland, Romania, Spain, the United Kingdom, the U.S.S.R. (Leningrad Region, Karelian A.S.S.R., Archangel Region, Latvian S.S.R.) (Huldén 1983).

Host

Dyschirius, *Bembidion* and some other genera (Coleoptera, Carabidae).

28. *Laboulbenia philonthi*

Laboulbenia philonthi Thaxter 1893:174.

Material examined

***Austria.** Ober-Österreich: Linz (*Philonthus* cf. *micans* (Gravenhorst)). Tirol: Schlegeis (*P. quisquiliarius* (Gyllenhal)).

General distribution

Argentina (Spegazzini 1912), Federal Republic of Germany (Scheloske 1969), France (Balazuc 1973—74), Italy (Rossi 1975), Poland (Majewski 1973) and U.S.A. (Thaxter 1893).

Host

Philonthus (s.lat.) (Coleoptera, Staphylinidae).

29. *Laboulbenia picardii*

— Fig. 9

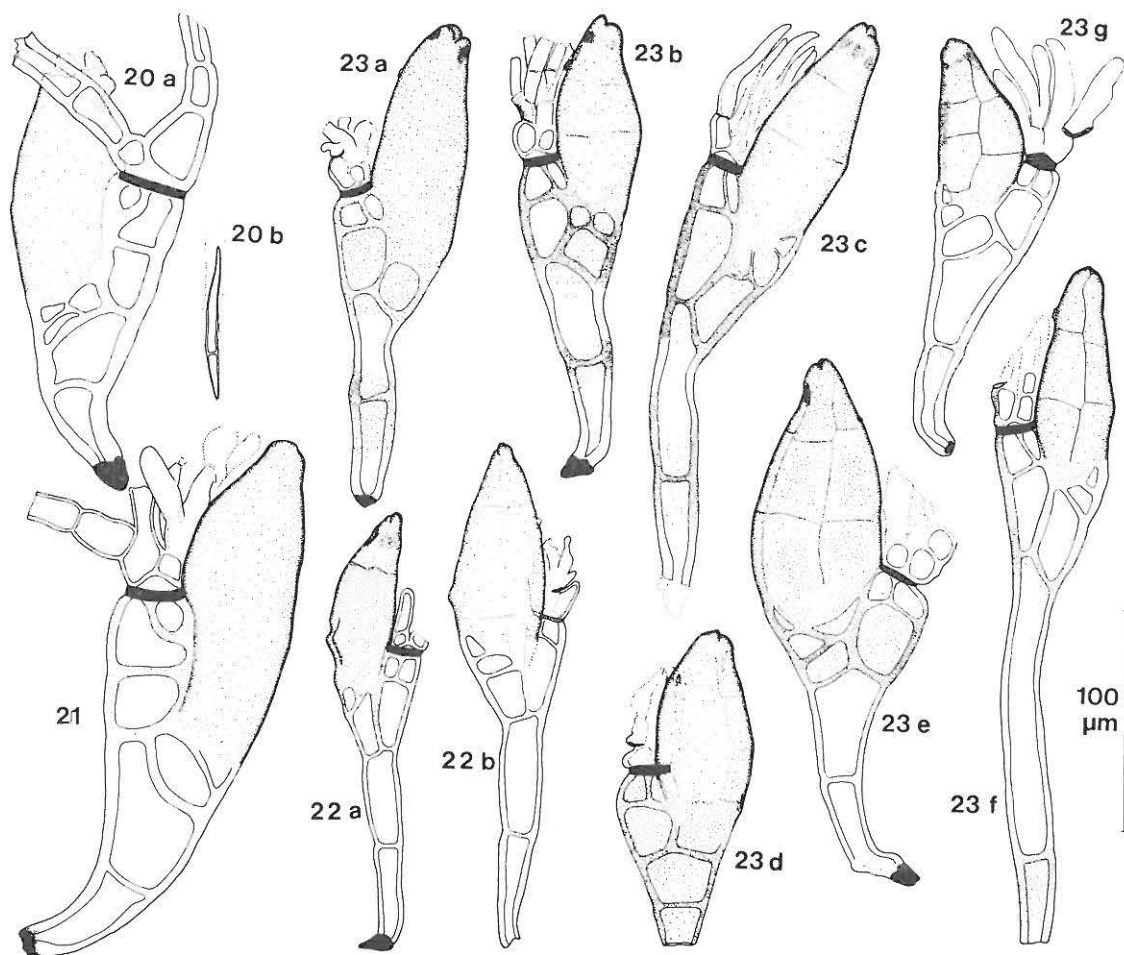
Laboulbenia picardi Maire 1916:28.

Material examined

***Lebanon.** Mont Baruk (*Tachys bisulcatus* (Nicolai)).

General distribution

Algeria, Greece, Italy (Rossi 1975).



Figs. 20—23. — 20: *Laboulbenia paradoxa*, a) mature specimen with slightly broken perithecium, b) spore. — 21: *Laboulbenia vulgaris* on *Pelophila borealis* (Krasnoyarsk Region). — 22: *Laboulbenia egens*, a) on *Tachys haemorrhoidalis* (Canary Islands), b) on *Tachys fumigatus* spp. *socius* (Egypt). — 23: *Laboulbenia pedicellata* s.lat. on a) *Bembidion aeneum* (Sweden), b) *B. aeneum* (Federal Republic of Germany), c) *B. iricolor* (Greece), d) *B. inoptatum* (Austria), e) *B. guttula* (Federal Republic of Germany), f) and g) *B. quadrimaculatum* (Irkutsk Region).

Host
Tachys bisulcatus (Coleoptera, Carabidae).

30. *Laboulbenia polyphaga* — Fig. 3 (map)
Laboulbenia polyphaga Thaxter 1893:165.

Material examined
Austria. Obertilliach (*Calathus melanocephalus* (Linnaeus)).
***Faeroes** (Denmark). Vagur: Sörvagur (*C. fuscipes* (Goeze)).
***Norway.** Möre og Romsdal: Molde (*C. micropterus* Duftschmid). **Switzerland.** Munstertal, Santa Maria (*C. melanocephalus*). **U.S.S.R.** *Archangel Region: Mesen (*C. melanocephalus*). — *Caucasus (*C. melanocephalus*).

General distribution
Cosmopolitan, in Europe Known from Austria, Belgium, the Federal Republic of Germany, Finland, France, Hungary, Italy, the Netherlands, Poland, Portugal, Switzerland, the U.S.S.R. (Leningrad Region, Latvian S.S.R.) (Huldén 1983).

Host
Calathus, *Acupalpus* and some other genera (Coleoptera, Carabidae).

31. *Laboulbenia pseudomasei*
Laboulbenia pseudomasei Thaxter 1899:196

Material examined
***Bulgaria.** Rila (*Pterostichus strenuus* (Panzer)). **France.** Pyrenees: Porté Puymorens (*P. strenuus*). ***Sweden.** Skåne: Ängelholm (*P. strenuus*). — Gotland: Klinte (*P. strenuus*). **U.S.S.R.** *Archangel Region: Mesen (*P. brevicornis* (Kirby)). — *Caucasus (*P. strenuus*). — *Yakut A.S.S.R.: Bardeljak (*P. ochoticus* Sahlberg). Agrafena (*P. ochoticus*). Shigansk (*P. ochoticus* var. *mutator* Poppius). Tungus-Haja (*P. brevicornis*). — 'Sibir. or.' (*P. empetricola* Dejean).

General distribution
Federal Republic of Germany, Finland, France, Hungary, Italy, Mongolia, Poland, Switzerland, U.S.S.R. (Karelian A.S.S.R.) (Huldén 1983).

Host

Pterostichus spp. and *Anisodactylus* spp. (Coleoptera, Carabidae).

32. *Laboulbenia rougetii* — Fig. 13
Laboulbenia rougetii Montagne & Robin in Robin 1853:622.

Material examined

Austria. Neusiedler See (*Brachinus crepitans* (Linnaeus)).

General distribution

Holarctic, Hong Kong (Stadelmann & Poelt 1962, Sugiyama 1973, Balazuc 1973—74).

Host

Brachinus, *Chlaenius* and some other related genera (Coleoptera, Carabidae).

33. *Laboulbenia shanorii*
Laboulbenia shanorii Banhegyi 1960:54.
— Fig. 14 (immature specimen)

Material examined

Yugoslavia. Montenegro: Krivosije (*Neotrechus suturalis* ssp. *otiosus* Obenb.).

General distribution

Albania, Yugoslavia (Banhegyi 1960).

Host

Neotrechus spp. (Coleoptera, Carabidae).

34. *Laboulbenia thaxteri* — Fig. 8
Laboulbenia thaxteri Cépède & Picard 1908:260.

Material examined

***Austria.** Graz (*A. flavipes*). ***U.S.S.R.** Latvian S.S.R.: Sigulda (*Asaphidion flavipes* (Linnaeus)).

General distribution

Algeria (Maire 1920), France (Cépède & Picard 1908), Greece (Balazuc 1973—74), Italy (Colla 1934), Poland (Siemaszko & Siemaszko 1928), Switzerland (Baumgartner 1951).

Host

Asaphidion spp. (Coleoptera, Carabidae).

35. *Laboulbenia vulgaris* — Fig. 21
Laboulbenia vulgaris Peyritsch 1873:248.

The illustrated specimen from *Pelophila borealis* is a morph with exceptional appendages. It very probably belongs to the *L. vulgaris* complex.

Material examined

***Albania.** Korab (*Bembidion balcanicum* Apfelbeck). **Algeria.** Constantine (*B. quadripustulatum* Audinet-Serville). **Austria.** Salzburg: Bad Gastein (*B. stomoides* Dejean). Schafberg (*Trechus wagneri* Ganglbauer). — Tirol: Reutte (*B. longipes* Daniel). Lienz (*B. longipes*). Without locality (*B. tricolor* (Fabricius)). — Kärnten: Eisenkappel (*B. millerianum* Heyden). Vorarlberg: Riezlern (*B. ruficornis* Sturm). — Ober-Österreich: Wildshut (*B. starki* Schaum). Ostermiething (*T. discus* (Fabricius)). — Nieder-Österreich: Raxalpe (*T. ovatus* Putzeys). — Vienna (*B. seminipunctatum* (Donovan), *B. lunatum* (Duftschmid)). — Steiermark: Admont (*B. conforme* Dejean, *B. testaceum* ssp. *testaceum* (Duftschmid), *B. tricolor* (Fabricius)). Schneetal (*T. ovatus*). Graz (*B. schuëppeli* Dejean). Dackstein, Gutenberghaus (*T. glacialis* Heer). Gesäuse (*B. ruficornis*, *T. ovatus*). — Hohe Tauern: Hallbrunn (*T. hampei* Ganglbauer). Salesenwald (*T. glacialis*). ***Azores.** Flores (*B. harpaloides* Audinet-Serville). **Bulgaria.** Rila

mountains (*B. tibiale* (Duftschmid), *B. millerianum*, *B. eques* ssp. *combustum* Ménétries). **Canary Islands** (Spain). Gran Canaria (*B. subcallosum* Wollaston). — Gomera (*B. atlanticum* ssp. *phobon* Netolitzky). — Tenerife (*B. fortunatum* Wollaston, *B. atlanticum* ssp. *phobon*). **Czechoslovakia.** Bohemia: Pardubice (*B. fluviatile* Dejean). Without locality (*B. ascendens* Daniel, *B. nitidulum* (Marsham)). — Moravia: Paskau (*B. tricolor*). — Slovakia: Tatra, Banská Bystrica (*B. difficile* ssp. *haeneli* Netolitzky). Fatra, Kriváň (*Duvalius microphthalmus* ssp. *microphthalmus* (Miller)). Silica (*D. microphthalmus* ssp. *hungaricus* Csiki). Zádiel dol. (*B. subcostatum* ssp. *javurcovae* Fassati). ***Faeroes** (Denmark). Suduroy: Nes (*T. obtusus* Erichson). **Federal Republic of Germany.** Hamburg (*B. tetracolum* ssp. *tetracolum* Say, *B. punctulatum* ssp. *punctulatum* Drapiez, *B. bipunctatum* (Linnaeus)). Hanau, Main (*B. tetracolum* ssp. *tetracolum*). Marburg (*B. fluviatile* Dejean). Einbech (*B. biguttatum* (Fabricius)). Baden-Württemberg, Ulm (*B. schuëppeli* Dejean). Bonn (*B. tetracolum* ssp. *tetracolum*). Bayrischen Alpen (*B. conforme* Dejean). **France.** Corsica (*B. kuësteri* Schaum). Corsica, Vizzarona, 1200 m (*B. geniculatum* ssp. *dilutipes* Deville). Corsica, Ajaccio (*B. obtusus* ssp. *tethys* Netolitzky). Allier, Abrest (*B. punctulatum* ssp. *punctulatum*). Allier, Vichy (*B. coeruleum* Audinet-Serville, *B. azureus* H. Wagner). Paris (*B. coeruleum*). Strasbourg (*B. prasinum* (Duftschmid)). Beaugency (*B. punctulatum* ssp. *punctulatum*). Polminhac (*B. punctulatum* ssp. *punctulatum*). Gennevilliers, Seine (*B. tetracolum* ssp. *tetracolum*). 'Gallia' (*B. genei* ssp. *illigeri* Netolitzky). ***German Democratic Republic.** Leipzig (*B. biguttatum*). ***Greece.** Corfu (*B. nigropiceum* (Marsham)). Lesbos (*B. punctulatum* ssp. *punctulatum*). Nauplia (*B. tetracolum* ssp. *tetracolum*). ***Ireland.** Kerry: Killarney (*B. tetracolum* ssp. *tetracolum*, *B. harpaloides*). — Cork: Mallow (*B. tetracolum* ssp. *tetracolum*). **Italy.** Sardinia (*T. rufulus* Dejean). Sardinia, Tempio (*B. elongatum* ssp. *elongatum* Dejean). Mte Baldo (*T. longobardus*, *T. sinuatus* ssp. *sinuatus* Schaum). Bergamo, Pellegino (*B. ascendens*). Val Giudica (*T. longulus* ssp. *danieli* Holdhaus). Bolzano, Tires (*B. tricolor*). Mte Maggiore (*Anophthalmus schmidti* ssp. *flachi* Winkler). Val Camonica, Edolo (*B. geniculatum* Heer). Val Camonica, Oglià (*B. tricolor*). Cuneo, Crissolo (*B. longipes*). Genova, Ronco Scrivia (*B. ascendens*). ***Madeira** (Portugal). Paul da Serra (*B. obtusus* ssp. *tethys*). Porto Santo (*B. atlanticum* ssp. *atlanticum*). ***Morocco.** Haute Atlas: Arround (*B. atrocoeruleum* Stephens, *B. siculum* ssp. *siculum* Dejean, *B. coeruleum*, *B. dalmatinum* ssp. *dudichi* Csiki). Amizmit (*B. coeruleum*). Reraia (*B. coeruleum*). **Netherlands.** Rotterdam (*B. tetracolum* ssp. *tetracolum*). ***Norway.** Hordaland: Gjerstad (*B. bruxellense*). ***Palestine.** Galilee (*B. tetracolum* ssp. *tetracolum*). **Poland.** Koszalin (*B. biguttatum*). Krościenko (*B. lomnickii* Netolitzky). **Romania.** Transylvania (*Duvalius procerus* Putzeys). **Spain.** Madrid (*B. paulinoi* Heyden). Sierra Nevada (*B. atrocoeruleum*). ***Sweden.** Skåne: Arlöv (*B. tetracolum* ssp. *tetracolum*). Ven (*B. stephensi* Crotch). — Västergötland: Alingsås (*B. mannerheimi* Sahlberg). **Switzerland.** Münstertal (*B. tricolor*, *B. conforme*, *B. complanatum* Heer, *B. ruficornis* Sturm, *B. andrea* ssp. *bualei* Duval). Unter-Engadin, Zernez (*B. andreae* ssp. *bualei*, *B. geniculatum*). Chiasso, Tessin (*B. coeruleum*). Solothurn, Dornach (*B. ascendens*, *B. andreae* ssp. *bualei*, *B. decorum* ssp. *decorum*, *B. punctulatum* ssp. *punctulatum*). Wallis, Gletsch Furka (*B. ruficornis*). Uri, Schächen-Tal (*B. millerianum* Heyden). Uri, Oberalppass (*B. incognitum* Müller). Wallis, Bivuntal (*B. complanatum*). No locality (*B. complanatum*). ***Syria.** Sanamein (*B. quadripustulatum* Audinet-Serville, *B. tetracolum* ssp. *tetracolum*). **Turkey.** Ephesos (*B. praestium*). Hermos River (*B. tetracolum* ssp. *tetracolum*, *B. moschatum*). Smyrna (*B. dalmatinum* ssp. *dalmatinum*). Tschakit-Thal (*B. andreae* ssp. *caucasicola* Netolitzky). Baba Dagh (*B. cordicollis* Duval, *B. praestium*). **United Kingdom.** Scotland, Dumfriesshire (*B. decorum* ssp.

decorum). Shetland (*T. obtusus*). Orkney (*B. tibiale* (Duftschmid), *B. tetracolum* ssp. *tetracolum*). U.S.S.R. *Archangel Region: Mesen (*B. guttula*). Pjosa (*B. andreae* ssp. *polonicum* Müller, *B. semipunctatum* (Donovan)). — *Armenia: Zsachkadzor (*B. testaceum* ssp. *parallelipenne* Chaudoir, *B. keilbachi* Müller, *B. tibiale*, *B. geniculatum* Heer). — *Azerbaijan: Lenkoran (*B. andreae* ssp. *quadriflammeum* Reitter). — *Turkmenistan: Ashkhabad (*B. tetracolum* ssp. *tetracolum*). — *Kirgizia: Dschil-Aryk (*B. giganteum* Sahlberg, *B. insidiosum* Solsky). — *Toms Region: Schukova (*B. tetracolum* ssp. *tetracolum*). — *Krasnoyarsk Region: Dudinka (*Pelophila borealis* Paykull). Osnatschennaja (*B. petrosom* ssp. *petrosom* Gebler). — *Yakut A.S.S.R.: Olekminsk (*B. hirmocaelum* Chaudoir). Yakutsk (*B. bruxellense* Wesmael). Ytyk-Haja (*B. poppii* Netolitzky). Shigalovo (*B. hirmocaelum*). Shigansk (*B. bruxellense*, *B. obscurellum* (Motschulsky)). Batylim (*Trichocellus mannerheimi* ssp. *mannerheimi* (F. Sahlberg)). Bulun (*B. difforme* Motschulsky). Yugoslavia. Carniola (*B. elongatum* ssp. *tarsicum* Peyron). Carniola, Cerna prst (*Anophthalmus bohimiensis* Ganglbauer). Dalmatia (*B. dalmatinum* ssp. *dalmatinum* Dejean). Montenegro, Uruja (*B. tricolor*). Bosnia-Herzegovina (*B. ruficornis*). Bosnia-Herzegovina, Vran Planina (*B. reiseri* ssp. *reiseri* Apfelbeck, *B. reiseri* ssp. *vranense* Apfelbeck).

General distribution
Cosmopolitan (Huldén 1983).

Host
Hemibidion (s.lat.) and some related genera (Coleoptera, Carabidae).

36. *Misgomyces dyschirii*

Misgomyces dyschirii Thaxter 1900:443.

Material examined

*Austria. Neusiedler See (*Dyschirius extensus* Putzeys, *D. pusillus* (Dejean)). *Canary Islands (Spain). Gran Canaria: Pt. Maspalomas (*D. pusillus*). *Denmark. Sjælland: Saltholmen (*D. salinus* Schaum). France. Allier: Vichy (*D. nitidus* (Dejean)). *Germania. No locality, on *D. intermedius* Putzeys. *Greece. Corfu (*D. salinus*). *Iran. Lotfabad (*D. politus* (Dejean)). *Ireland. Kerry: Killarney (*D. globosus* (Herbst)). Italy. Ancona reg.: Ancona (*D. digitatus* (Dejean)). — Basilicata reg.: San Basilio (*D. laeviusculus* Putzeys). — Lago Trasimeno (*D. alpicola* Ganglbauer). *Palestine. Kison, near Haifa (*D. rufoaeneus* Chaudoir). — Jordan, near Jericho (*D. rufoaeneus*). Spain. Algeciras (*D. numidicus* Putzeys). U.S.S.R. Leningrad (*D. globosus*). — *Estonian S.S.R.: Haapsalu r., 'Nuckö' (*D. globosus*). Tartu r., Tartu (*D. globosus*). — *Latvian S.S.R.: Sigulda (*D. globosus*). Jugla (*D. globosus*). — *Ukraine: Odessa (*D. substriatus* ssp. *priscus* Müller). Bogdo (*D. nitidus*). — *Turkmenistan: Michailovsk (*D. salinus*). Tedzhen (*D. nitidus*). — *Buryatian A.S.S.R.: Ubukunsk (*D. globosus*).

General distribution

Algeria, Federal Republic of Germany, Finland, France, Hungary, Italy, Japan, Netherlands, Poland, Romania, Spain, Switzerland, United Kingdom, U.S.A., U.S.S.R. (Leningrad Region) (Bechet & Bechet 1960, Balazuc et al. 1983, Huldén 1983).

Host
Dyschirius spp. (Coleoptera, Carabidae).

37. *Monoicomyces furcatus*

Monoicomyces furcatus Thaxter 1931:41.

Material examined

*Czechoslovakia. Bohemia (*Oxytelus laqueatus* (Marsham)). *Norway. Dovre: Fokstua (*O. laqueatus*). *Sweden. Öland: Vickleby (*O. laqueatus*).

General distribution

Finland, Haiti, Jamaica, Poland, U.S.S.R. (Leningrad Region, Karelian A.S.S.R., Murmansk Region) (Huldén 1983).

Host

Oxytelus laqueatus (Coleoptera, Staphylinidae) in Europe (Huldén 1983).

38. *Monoicomyces sanctae-helenae*

Monoicomyces sanctae-helenae Thaxter 1900:413.

The present material represents the typical morph (cf. Huldén 1983).

Material examined

U.S.S.R. Southern Urals, locality unknown (*Oxytelus piceus* (Linnaeus)). — *Yakut A.S.S.R.: Olekminsk (*O. piceus*).

General distribution

Algeria, Cameroon, Finland, 'Germany', Italy, Malaysia (Sarawak), Poland, St. Helena, Taiwan, U.S.S.R. (Leningrad Region, Novosibirsk Region) (Huldén 1983).

Host

Oxytelus spp. (Coleoptera, Staphylinidae).

39. *Peyritsiella protea*

Peyritsiella protea Thaxter 1900:427.

All records on *Anotylus rugosus* (Fabricius).

Material examined

*Austria. Marburg. *Czechoslovakia. Paskau. France. Seine & Oise: Cerny. German Democratic Republic. Lübars. *Ireland. Kerry: Killarney. Romania. Transylvania. *Sweden. Skåne: Lomma. Kungsmarken. Bjäred. — Halland: Särö. — Västergötland: Örby. Skövde. United Kingdom. Surrey. — NW Wales. — Shetland. U.S.S.R. *Archangel Region: Archangel.

General distribution

Algeria, Federal Republic of Germany, Finland, France, German Democratic Republic, Hungary, Netherlands, Poland, Romania, United Kingdom, U.S.A., U.S.S.R. (Leningrad Region, Karelian A.S.S.R.) (Balazuc 1973, Huldén 1983).

Host

Anotylus spp., *Oxytelus* spp., and some related genera (Coleoptera, Staphylinidae).

40. *Rhachomyces aphaenopsis*

Rhachomyces aphaenopsis Thaxter 1905:314.

Material examined

France. Ariège: Grotte Daubert (*Aphaenops cerberus* (Dieck)).

General distribution

France (Balazuc 1970), Spain (Balazuc et al. 1983).

Host

Aphaenops spp. (Coleoptera, Carabidae).

41. *Rhachomyces furcatus*

Acanthomyces furcatus Thaxter 1893:177. —

Rhachomyces furcatus (Thaxter) Thaxter 1895:468.

Material examined

Austria. Nieder-Österreich: Alps (*Othius brevipennis* Kraatz). — Steiermark: Graz (*O. brevipennis*). *German Democratic Republic. Freienwalde (*O. angustus* Stephens). *Hungary. No locality indicated (*O. crassus* Motschulsky). *Sweden. Skåne: Balsbergsgrottan (*O. punctulatus* (Goeze)). Yugoslavia. Bosnia & Herzegovina: Mostar (*O. lapidicola* Kiesenwetter).

General distribution

Algeria, Austria, 'Equatorial Africa', Federal Republic of Germany, Finland, France, Poland, United Kingdom, U.S.S.R. (Karelian A.S.S.R.), ?Yugoslavia (Frank 1982, Huldén 1983).

Host

Othius spp. (Coleoptera, Staphylinidae).

42. *Rhachomyces hypogaeus*

Acanthomyces hypogaeus Thaxter 1893:177. — *Rhachomyces hypogaeus* (Thaxter) Thaxter 1895:467.

Material examined

Yugoslavia. 'Gradah Höhle' (*Typhlotrechus bilimeki* ssp. *bilimeki* (Sturm)). — Croatia. Without locality information, on *T. bilimeki* ssp. *likanensis* Schauf. 'Silna Radino peč' (*T. bilimeki* ssp. *kiesenwetteri* Schmidt).

General distribution

Austria, Yugoslavia (Thaxter 1896, Banhegyi 1960).

Host

Typhlotrechus bilimeki ssp. (Coleoptera, Carabidae).

43. *Rhachomyces hypogaeus* subsp. *richardii*

Rhachomyces hypogaeus subsp. *richardii* Balazuc 1973(42):256 in Balazuc 1973—74. Illustrated in Balazu 1970.

Described on *Speotrechus mayeti* (Ab.) (+ ssp.) from France.

Material examined

*Italy. Trento: 'Monte Pasi', on *Speotrechus knauthi* Ganglbauer.

General distribution

France (Balazuc 1970).

Host

Speotrechus spp. (Coleoptera, Carabidae).

44. *Rhachomyces maublancii*

Rhachomyces maublancii Lapesme 1942:73 (nomen nudum). — *Rhachomyces maublancii* Lapesme ex W. Rossi 1978:329.

Material examined

Italy. Cima Tombea (*Duvalius baldensis* ssp. *tombeanus* Ganglbauer). Bergamo: Monte Alben (*Duvalius winkleri* Jeannel).

General distribution

Italy (Rossi 1978), Hungary (Banhegyi 1949).

Host

Duvalius spp. (Coleoptera, Carabidae).

45. *Rhachomyces peyerimhoffii*

Rhachomyces peyerimhoffii Maire 1912:197.

Described from Algeria on *Duvalius lapiei* (Peyerimhoff). Balazuc (1970) questioned the European records from Hungary and Yugoslavia (cf. Banhegyi 1960). My material consists of only one specimen, which lacks the perithecium. It resembles the illustration of *R. peyerimhoffii* presented by Lapesme (1942, Fig. IV:1). Total length of the receptacle 255 µm.

Material examined

*Italy. Brescia: Val Camonica, Monte Glisento (*Duvalius longhii* Comolli).

General distribution

Algeria, ?Hungary, ?Yugoslavia (Balazuc 1970).

Host

Duvalius spp. (Coleoptera, Carabidae).

46. *Rhachomyces philonthinus*

Rhachomyces philonthinus Thaxter 1900:435.

Material examined

*Austria. Ost-Tirol: in the vicinity of Lienz, altitude 1800m and 2100m (*Philonthus varians* (Paykull)).

General distribution

Largely distributed in Europe, Africa, Asia and North America (Balazuc, 1973—74). In Europe recorded from Belgium, the Federal Republic of Germany, France, Hungary, Italy, the Netherlands, Poland, Switzerland and the United Kingdom (Collart 1945, Hincks 1960, Stadelmann & Poelt 1962, Balazuc 1973—74, Rossi 1975).

Host

Philonthus spp. (Coleoptera, Staphylinidae).

47. *Rhachomyces stipitatus*

Rhachomyces stipitatus Thaxter 1900:438. — *Rhachomyces stipitatus* var. *pallidus* Maire 1912:196. — *Rhachomyces capucinus* Thaxter 1931:276. Synonymy according to Rossi (1978).

Material examined

France. Tarn-et-Garonne: Grotte de Capucin (*Duvalius lespesi* Fairmaire).

General distribution

Algeria, France, Greece, Italy (Balazuc 1970, Rossi 1978).

Host

Duvalius spp. (Coleoptera, Carabidae).

48. *Rhachomyces tenenbaumii*

Rhachomyces tenenbaumii Siemaszko & Siemaszko 1928:205.

The species was described on *Thalassophilus longicornis* (Sturm) from Poland. Both *T. longicornis* and *T. whilei* Wollaston are free-living beetles occurring in moist habitats. The former is largely distributed in Europe and the latter restricted to the Canary Islands. A third species, *T. breuili* (Jeannel), is confined to caves in Spain. The identity of possible parasites on this species would be of great interest; so far none has been found.

Material examined

*Canary Islands (Spain). La Palma: Caldera (*Thalassophilus whilei* Wollaston). — Gomera: El Cedro (*T. whilei*).

General distribution

Austria, France, Poland (Banhegyi 1964).

Host

Thalassophilus spp. (Coleoptera, Carabidae).

49. *Rhachomyces vayssierei*

Rhachomyces vayssierei Lapesme 1942:65.

Material examined

*Austria. Tirol: Hohe Tauern, Gasteiner Tal (*Trechus quadristriatus* (Schränk)). *German Democratic Republic. Leipzig (*Trechus obtusus* Erichson). *Sweden. Öland: Högby (*T. quadristriatus*).

General distribution

Bulgaria, France, Hungary (Banhegyi 1960).

Host
Trechus spp. (Coleoptera, Carabidae).

50. *Rickia hyperborea*

Rickia hyperborea Balazuc 1980:216.

The find of *Rickia hyperborea* in Tit-Ary in Yakutia is the northernmost record of Laboulbeniales presently known. The species probably occurs all over the range of *Micralymma marinum* and its closest relatives.

Material examined

Norway. Troms: Kvesmenes (*Micralymma marinum* Ström). Maalselv (*M. marinum*). Hillesöya (*M. marinum*). U.S.S.R. *Yakut A.S.S.R.: Tit-Ary, Lena River, about 72°N (*M. brevilingue* ssp. *dicksoni* Mäklin).

General distribution

France, Norway, U.S.S.R. (Murmansk Region, Magadan Region) (Huldén 1983).

Host

Micralymma spp. (Coleoptera, Staphylinidae).

51. *Rickia wasmannii*

— Fig. 5

Rickia wasmannii Cavara 1899:173.

Material examined

*Yugoslavia. Slovenia: Podčetrtek (*Myrmica sabuleti* Meinert).

General distribution

Austria, Federal Republic of Germany, France, Italy, Luxemburg, Spain, Switzerland, United Kingdom (Scotland) (Balazuc 1973—74, Balazuc et al. 1982).

Host

Myrmica spp. (Hymenoptera, Formicidae).

52. *Stigmatomyces ptilomyiae* — Figs. 6a—c

Stigmatomyces ptilomyiae Thaxter 1931:154.

Material examined

*Azores (Portugal). Fayal: Horta (*Atissa pygmaea* Haliday). — Terceira: Angra do Heroísmo (*A. pygmaea*).

General distribution

Grenada, Italy, Jamaica (Thaxter 1931, Rossi & Cesari Rossi 1979).

Host

Atissa (*Ptilomyia*) spp. (Diptera, Ephydriidae).

53. *Stigmatomyces trianguliapicalis* — Figs. 7a—b

Stigmatomyces trianguliapicalis Majewski 1972:234.

Material examined

*Canary Islands (Spain). Gran Canaria: Los Lagunetas (*Parydra coarctata* (Haliday)).

General distribution

Italy, Poland (Majewski 1972, Rossi & Cesari Rossi 1979).

Host

Parydra spp. (Diptera, Ephydriidae).

54. *Symplectomyces vulgaris*

Teratomyces vulgaris Thaxter 1900:431. —

Symplectomyces vulgaris (Thaxter) Thaxter 1908:315.

Material examined

*Sweden. Skåne: Balsbergsgrottan (*Quedius mesomelinus* (Marsham)). Tykarpsgrottan (*Q. mesomelinus*).

General distribution

Belgium, Bengal, Canada, Federal Republic of Germany,

Finland, Hungary, Italy, Netherlands, Portugal, Spain, United Kingdom, U.S.A., U.S.S.R. (Leningrad Region, Murmansk Region), Yugoslavia (Huldén 1983).

Host

Quedius spp. (Coleoptera, Staphylinidae).

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Errata

In 'Laboulbeniales (Ascomycetes) of Finland and adjacent parts of the U.S.S.R.', Karstenia 21: 31—136, there were some disturbing errors and misprints, which should be corrected: page 48 left column line 49: for Figs. 30 read Figs. 40 page 55 left column line 26: for Agonum viduum (Panzer) read Agonum moestum Duftschmid. The same change should be made for Figs. 101 a—d page 109. This correction does not affect the statistics for A. viduum (pp. 123 and 131), but A. moestum should be added to the host-parasite list on p. 131 and to the parasite-host list on p. 135. page 56 right column line 24: for Fig. 88b read 98b page 59 left column line 62: for Fig. 81b read 91b page 59 right column line 1: for Fig. 81a read 91a page 61 and elsewhere: for Monoicomyces oxytelis read Monoicomyces oxyteli page 67 right column line 40: for Ylörjärvi read Ylörjärvi page 80 line 3: for italicus read halipili page 103 line 1: for b) immature read c) immature page 121: Thaxter 1899—1912 are misplaced under Wize 1929 page 124 right column line 3: for fungus read fuscus page 130 line 24 (Elaphrus cupreus): add Laboulbenia elaphri page 132 line 65 (P. debilis): add (1) Dichomyces hybridus page 133 line 28: for clongatus read elongatulus page 135 column line 19: for Agonum septentrionis read Patrobus septentrionis pages 46, 111, 124, 132, 135: Choleva septentrionis Jeannel should be interpreted as Choleva lederiana Reitter