

Finnish records of discomycetes: type studies on some Karsten species

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Peziza virella P. Karst. is shown to be conspecific with *Amicodisca brdensis* (Velen.) Svr. and a new combination, *Amicodisca virella* (P.Karst.) Huhtinen, is proposed. *Peziza sordidula* P.Karst. is placed in the genus *Pseudohelotium* Fuckel and is shown to offer an earlier name for *Belonium vernale* Velen. The genus *Aleuriella* (P.Karst.) P.Karst. is considered as distinct from *Mollisia* (Fr.) P.Karst. *Aleuriella personata* (P.Karst.) P. Karst. may offer an earlier name for *Mollisia psilopezoides* Svrček. *Peziza perforata* P. Karst. is shown to be a synonym of *Tarsetia catinus* (Holmsk. : Fr.) Korf & Rogers. Typification for each of the treated taxa is clarified.

Key words: Discomycetes, Karsten, taxonomy, type studies

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Some interesting discomycetous types have been encountered during the ongoing project on P. A. Karsten's herbarium in H.

These are discussed below with detailed illustrations. Karsten's descriptions have been supplemented with microscopic details. As well, the typifications are scrutinized in detail, as Karsten's herbarium is complex in containing not only original but doubtfully original, vaguely cited and split specimens. The following abbreviations are used: CB (cotton blue in lactic acid), CR (ammoniacal Congo red), MLZ (Melzer's reagent), FFE (Karsten, P. A. 1861–1870: *Fungi Fenniae Exsiccati*).

***Amicodisca virella* (P.Karst.) Huhtinen, comb. nov. — Fig. 1.**

Peziza virella P.Karst., *Fungi Fenniae Exsiccati*, fasc. 7: 627. 1867. — *Helotium virellum* (P.Karst.) P.Karst., Not.

Sällsk. Fauna Flora Fennica Förh. 11: 241. 1870. — *Ombrophila virella* (P.Karst.) P.Karst., *Bidr. Kännedom Finlands Natur Folk* 9: 94. 1871. — *Chlorosplenella virella* (P. Karst.) P.Karst., *Acta Soc. Fauna Flora Fennica* 2: 141. 1885. — *Coryne virella* (P. Karst.) Sacc., *Syll. Fung.* 8: 645. 1889. — *Corynella virella* (P.Karst.) Boud., *Hist. classific. discom. Europe*: 99. 1907. — Type: [Finland. Etelä-Häme: Tammela] Mustiala, på alved [on decorticated wood of *Alnus*], juni [VI.] 1867 [P. Karsten] FFE 627 (H, lectotype; selected here).

Dasyscypha brdensis Velen., *Monogr. Discom. Bohem.*: 238. 1934. — *Amicodisca brdensis* (Velen.) Svrček, *Česka Mykol.* 41: 16. 1987. — Type (Svrček 1987a: 17): [Czech Republic.] Bohemia meridionalis, Trebon in pratis uliginosis "Mokre Louky" dictis, ad trunculum *Salicis cinereae*, 18.IX.1982 J. Kubička & M. Svrček (PRM 842732, neotype; not examined).

The species was first described in Karsten's exsiccatum with the following characteristics: small, sessile apothecia with greenish hairs and pallid olivaceous disc, spores elongate-fusoid, 13–

19 x 4–5 µm. The collection date given on the printed exsiccatum label is June 1867. Somewhat later (Karsten 1869) the description was emended and a second collection locality cited. The description in *Mycologia Fennica* (Karsten 1871) was practically identical. Ascal reaction was then given as MLZ-, which, however, is not the case.

In 1885 Karsten placed *P. fennica* P.Karst., *P. stemmata* P.Karst. and *P. virella* in the new genus *Chlorosplenella* P.Karst. Clements and Shear (1931) later lectotypified the genus with *P. fennica*, the first species of the three listed by Karsten. This choice was not discussed in any way and the mechanical method of lectotypification cannot be ruled out. There is, however, no good nomenclatural reason to overturn the choice. More unfortunate is that no material of the lectotype species is left in either H or S. *P. fennica* was treated as a *nomen dubium* by Dixon (1974). The second species, *P. stemmata*, is a *Mollisia* (Dixon 1974).

The genus *Amicodisca* has been briefly treated by Huhtinen (1990) where the delimitation from *Hyaloscypha* Boud. was discussed. Although original material was not studied, the identity with Karsten's material cannot be doubted. Svrček (1987a) illustrated the hairs as aseptate, but the inconspicuous septa could have passed unnoticed. The affinity to *Dematioscypha* Svrček was discussed, but *Dennisiodiscus* Svrček would seem to be a more closely related genus. The differentiating characters can be found in the more dermataceous excipulum and different ecology of *Dennisiodiscus*.

The substrate in the other two specimens in H looks identical with that in FFE 627. Apparently Karsten collected this rare species twice from the same trunk, as these specimens are dated June 1866, i.e. a year earlier than the date given in the protologue in FFE. Excluded by the protologue, they cannot constitute type material, but may be considered as original material, possibly at hand when the protologue was made. So far, the species has been reported only for deciduous wood; this was also the case in the three additional collections in TAA studied earlier (Huhtinen 1990).

Additional specimens examined

Finland. Etelä-Häme: Tammela, Mustiala, 29.VI.1866 *P. Karsten* 3469, 3470 (H).

***Pseudohelotium sordidulum* (P.Karst.) Huhtinen, comb. nov. — Fig. 2.**

Peziza sordidula P.Karst., *Fungi Fenniae Exsiccati*, fasc. 8: 751. 1868. — *Trochila sordidula* (P.Karst.) P.Karst., Not.

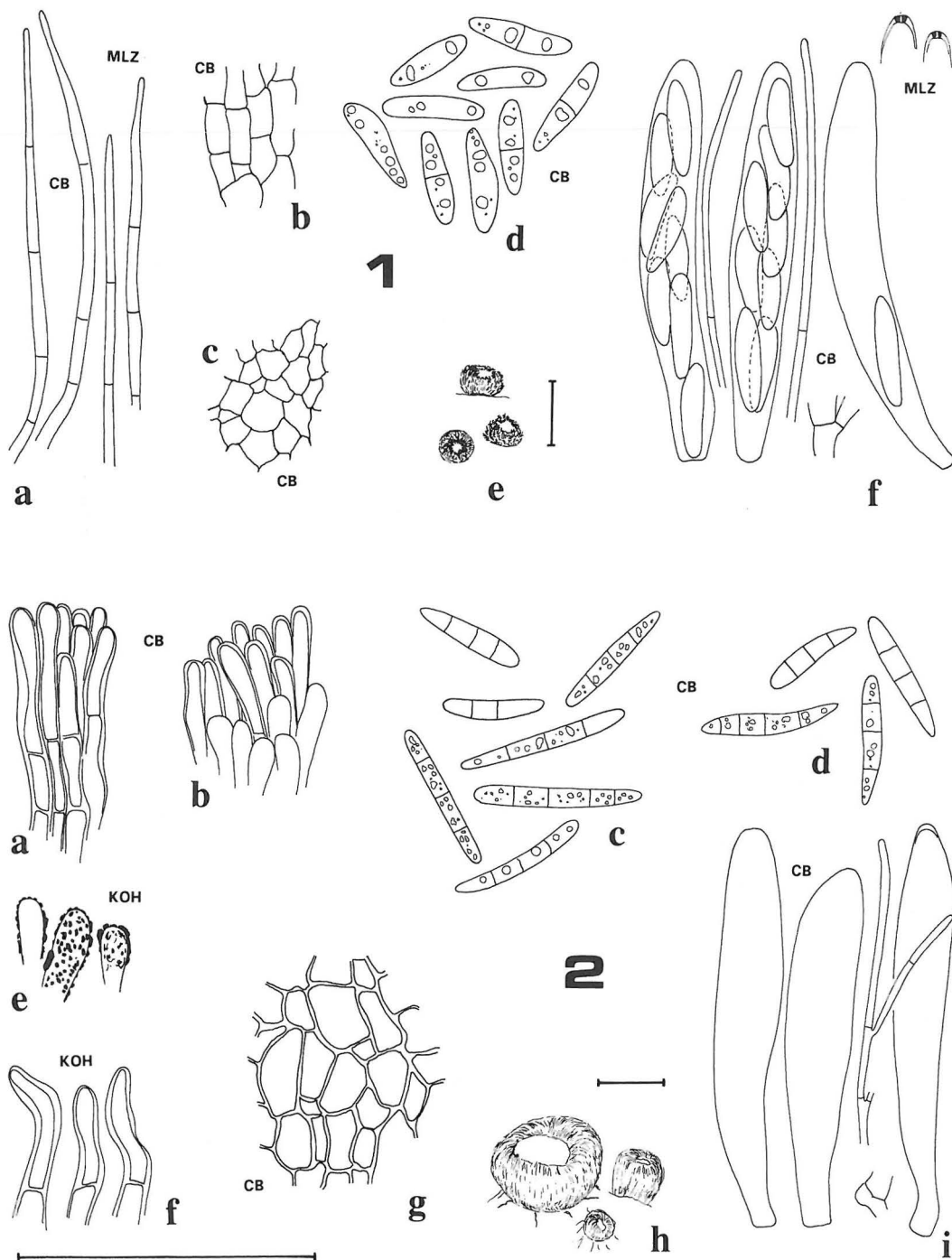
Sällsk. Fauna Flora Fennica Förh. 11: 244. 1870. — *Mollisia sordidula* (P.Karst.) P.Karst., *Bidr. Kännedom Finlands Natur Folk* 9: 193. 1871. — Type: [Finland. Etelä-Häme: Tammela] Mustiala, på tallved [on decorticated wood of *Pinus*] [26] Sept. [1868 *P. Karsten*] FFE 751 (H, lectotype, selected here; 3555 and 3556, isoelectotypes, examined).

Belonium vernale Velen., *Monogr. Discom. Bohem.*: 181. 1934. — *Pseudohelotium vernale* (Velen.) Svrček, *Česka Mykol.* 41: 93. 1987. — Type (Svrček 1987b: 93): [Czech Republic.] Bohemia centralis, Radotín prope Pragam, ad squamam strobilinam *Pini nigrae*, 12.III.1927 *Velenovsky* (PRM 148822b, lectotype; not examined).

The species was described in Karsten's exsiccatum with a rather short diagnosis, and a more detailed description was published the following year (Karsten 1869). Two subsequent treatments in which the species was combined anew, offer no additional information except the statement that the species was found only once. Indeed, the fungi and substrate in the three packets in herb. H are identical suggesting that they are from the same collection site. None of the fragments was solely included by the protologue (Art. 7.3. Note 1.). Hence, the material is best considered syntypic and a lectotype needs to be selected.

Karsten's observations agree well with the material. The spores are mostly 3-septate and have prominent acyanophilous guttulae. The outermost margin is composed of firm-walled, cylindrical hyphal ends. In KOH one can clearly observe the thin-walled, clavate hyphal ends which more or less cover the flanks and almost extend to the margin. In KOH they bear prominent, brown encrustation, whereas in CB they are perfectly smooth-walled. These are the cells about which Svrček (1987b) wrote "similarly encrusted are the elliptical cells of which the marginal hyphae grow out".

Svrček's (1987b) illustration and description of *Pseudohelotium vernale* is in close agreement. The sole difference is that the spores in the Czech material are reported as shorter, reaching only 20 µm in length. Svrček notes, however, that the spores he measured were juvenile. In Karsten's material the average size for 10 spores (in CB) is 23.5 x 3.3 µm. Like Karsten's the Czech material was collected on coniferous substrate, but the vernal fruiting is different. Dennis (1950) illustrated type material of the species, referring it to *Orbiliopsis* Höhn., but without formally proposing a new combination. Later (Dennis 1971), when the taxa in *Orbiliopsis* were transferred to *Phaeohelotium* Kanouse, *P. sordidula* was not included. The new combination proposed above



Figs. 1–2. Types of *Amicodisca virella* and *Pseudohelotium sordidulum*, scale 50 μm , for apothecia 100 μm . — 1: *Amicodisca virella*, lectotype. a) marginal hairs, b) ectal excipulum from medial flank area, c) ectal excipulum from basal area, d) spores, e) dry apothecia, f) asci and paraphyses. — 2: *Pseudohelotium sordidulum*, lectotype (b, d), isolectotype (No. 3555; a, c, e–i). a, b) marginal hyphae, c, d) spores, e) hyphae below the margin, f) marginal hyphae, g) ectal excipulum from medial flank area, h) dry apothecia, i) asci and paraphysis.

follows the generic placement suggested by Svrček (1987b).

Le Gal (1939) described a new forma of *Mollisia sordidula*. The spores were illustrated as one-septate and occasional, two- to three-septate spores were mentioned. The spores were drawn wider than in the present material, but apparently they are illustrated in living condition, which may account for the difference (Baral 1992). The asci, however, are twice as long as those in the present material. The conspecificity with present material remains doubtful.

***Aleuriella personata* (P.Karst.) P.Karst. — Fig. 3.**

Peziza personata P.Karst, Not. Sällsk. Fauna Flora Fennica Förh. 10: 154. 1869. — *Aleuriella personata* (P.Karst.) P.Karst., Not. Sällsk. Fauna Flora Fennica Förh. 11: 243. 1870. — *Mollisia personata* (P.Karst.) Sacc., Syll. Fung. 8: 341. 1889. — *Pyrenopeziza personata* (P. Karst.) Boud., Hist. Classific. Discom. Europe: 133. 1907. — Type: [Finland. Etelä-Häme:] Mustiala, på björkbark [on cortex of *Betula*] [P. Karsten] FFE 749 (UPS, lectotype, selected here; H, isoelectotype, examined).

The protologue (Karsten 1869) does not refer to a specific collection. The ecology was given as “inner cortex of *Betula*”, which excludes specimen 3359 (on twigs) from lectotypification. Specimens 3360 and 3361 were collected in 1869, the same year the protologue was published. As the preface for “Monographia” is dated to summer 1868, these two specimens are unlikely to be original material. Specimens 3362 and 3363 are also excluded from being original material by their later collection dates. Two of the syntypes examined were empty (3358 and FFE 749 in H). The exsiccatum in UPS bears ca. ten apothecia and is suitable for lectotypification. The ample specimen 3363 would be best suited for any restudy of Karsten’s material.

The species was described by Karsten in 1869 as the sole member of his section *Aleuriella* in *Peziza*, the characteristics of which were shortly stipitate, glabrous, waxy and soft apothecia,

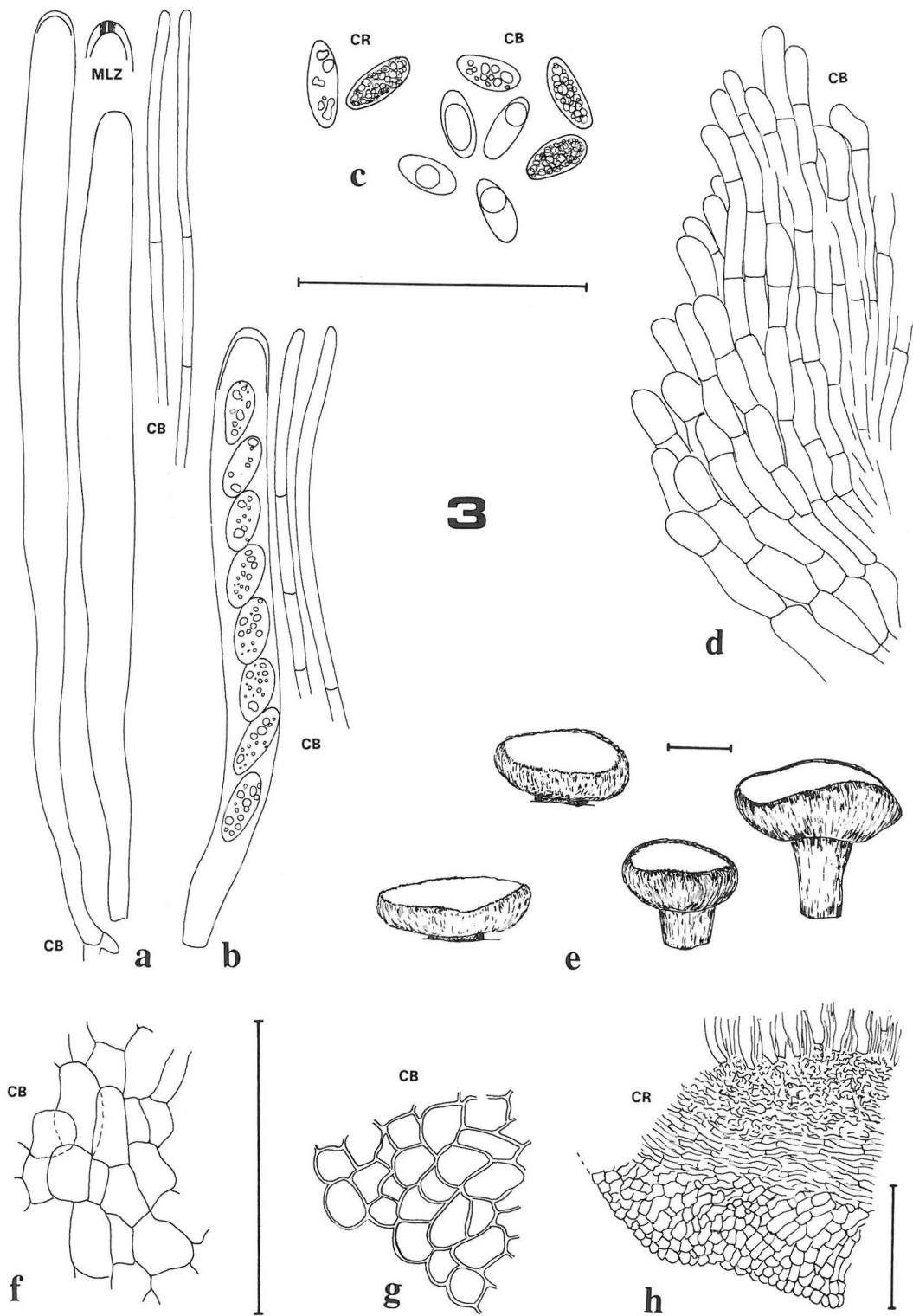
subellipsoid spores with one large guttula, filiform paraphyses, and the corticolous habit. A year later this section was raised to generic rank (Karsten 1870) and a second species, *Tympanis frangulae* Fr., was included. Simultaneously Karsten synonymized his earlier concept (Karsten 1871) of *Peziza lividofusca* Fr. with the present species. Karsten’s material in H, named “*Personataria lividofusca*” is, indeed, conspecific with his later collections of *P. personata*. The description by Fries (1823) is, however, too vague to decide on synonymy. No material of this species exists in Fries’ herbarium in S.

Aleuriella (P.Karst.) P.Karst. appeared again as a separate genus in “Mycologia fennica 1.” (Karsten 1871). Sessile habit, brownish excipulum and a positive reaction of ascal plugs in Melzer’s were added as new characters. *Tympanis frangulae* was now transferred into the genus *Dermatella* P.Karst. Comparison of the generic diagnoses reveals that *Aleuriella* also was delimited (from *Dermatella*) by its non-erumpent habit, 8-spored asci and medium-sized spores. In his later revision, Karsten (1885) abandoned *Aleuriella* and synonymized it with *Mollisia*. Thereafter the genus has been considered as a synonym of *Mollisia*.

The sole species, *Aleuriella personata* (P.Karst.) P.Karst., is best characterized by the ellipsoid-inequilateral spores, which frequently contain spumose material and numerous corpusculi. The contents do not stain in CB, MLZ or CR. Many spores do not stain for cytoplasm and contain just a single regular, large globule. In shape and contents the spores resemble those of *Graddonia coracina* Dennis. To my knowledge, such spores are not found in the genus *Mollisia*.

The excipular structure of *A. personata* is mollisoid with an outer layer of light brown textura angularis. Nor is the structure of the margin, with cylindrical-clavate hyphal ends, widely different from *Mollisia*. However, the stipitate habit and especially the curious spores make *Peziza personata* a quite unusual element in *Mollisia*. Hence, Karsten’s original delimi-

Fig. 3. *Aleuriella personata*, lectotype (d), coll. 3362 (a, f), coll. 3363 (b, c, e, g, h), scale 50 µm, for apothecia 100 µm. a, b) asci and paraphyses, c) spores, d) section from margin, e) dry apothecia, f) ectal excipulum from medial flank area, g) ectal excipulum from lower flank area, h) section close to cup margin.



tation is here supported and the genus *Aleuriella* accepted for stipitate-sessile mollisioid fungi with large, spumose spores.

At first sight, the genus could also be considered to offer an earlier name for *Graddonia*. Except for the margin, the excipular structures are quite similar (Fig. 4). In *Graddonia*, unlike *A. personata*, the paraphyses contain abundant pigment, even in dry material. This pigment is most clearly seen in CR and MLZ mounts, and partially lost in heated CB mounts. Observations based on living, fresh material of *A. personata* are needed to decide on the taxonomic value of this difference. Multiguttulate paraphyses were also mentioned as typical of *Graddonia* by Baral (1985). The apothecia of *Graddonia* are always broadly sessile. The spores show one additional curious feature: they are frequently eccentrically septate.

Collections of *G. coracina* originate from deciduous wood in inundated sites (Lundqvist & Moberg 1978, Dennis 1981, Baral 1985). The exact ecology of Karsten's specimens can not be ascertained. They occur on pieces of inner cortex of *Betula*. A species with similar ecology as *Graddonia* is *Mollisia psilopezoides* Svrček. Material for study of this species unfortunately was not forwarded from PRM. Judging from the description it closely resembles *A. personata* (Svrček 1978). The broad, guttulate spores of the latter measure $9.5\text{--}14.5 \times 4.8\text{--}6.8\ \mu\text{m}$ (average of 25 spores in CB being $11.9 \times 5.4\ \mu\text{m}$), which is a close match to Svrček's description. Even the convex apothecia illustrated in *M. psilopezoides* can be found in the present material. The differences between the two taxa lie in the more roundish excipulum, the occurrence on coniferous wood, and the clavate paraphyse apices of *M. psilopezoides*.

Additional specimens examined

Finland. Etelä-Häme: Tammela, Mustiala, VIII.1866 *P. Karsten* 3358 (H, syntype); 26.V.1869 *P. Karsten* 3359 (H); 23.VII.1869 *P. Karsten* 3361 (H); Mustiala, Haaran-

korpi, 01.IX.1869 *P. Karsten* 3360 (H); Mustiala, Särkijärvi, 05.IX.1870 *P. Karsten* 3362 (H); Mustiala, 05.VIII.1872 *P. Karsten* 3363 (H).

Peziza perforata P.Karst. — Fig. 5.

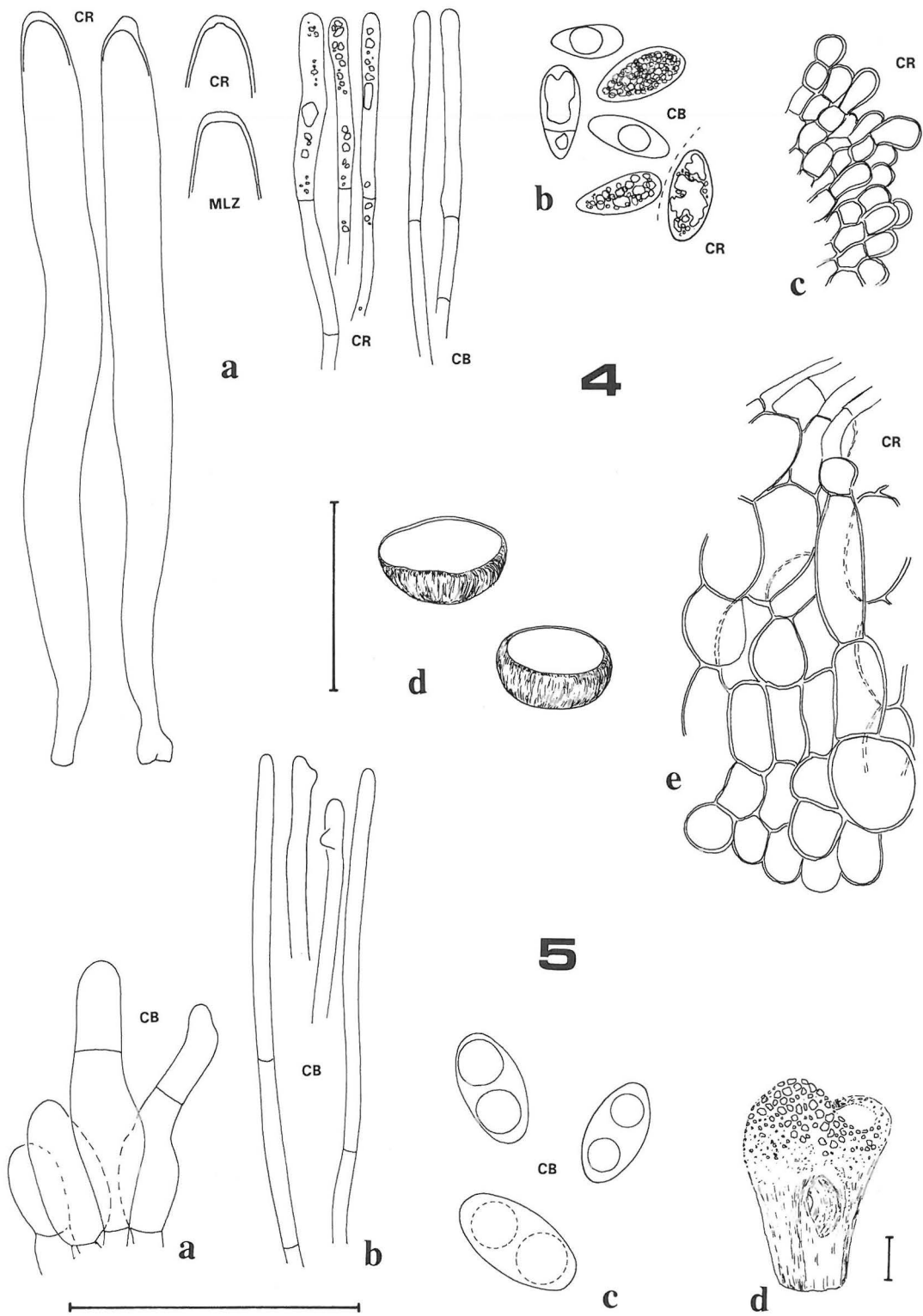
Peziza perforata P. Karst., Fungi Fenniae Exsiccati, fasc. 6: 529. 1866. — *Geopyxis perforata* (P.Karst.) Sacc., Syll. Fung. 8: 73. 1889. — *Galactinia perforata* (P.Karst.) Boud., Hist. Classific. Discom. Europe: 47. 1907. — [Finland. Etelä-Häme:] Tammela, Mustiala, [Nokkamäki.] ad terram arenos., 5.VIII.1866 *P. Karsten* 3408 (H, lectotype; selected here).

The material distributed in Fungi Fenniae Exsiccati consists of a very juvenile fruit body in each set (H, K, UPS checked). The only more mature specimen is that in Karsten's personal herbarium in H (No. 3408). The protologue in FFE 529 is short and few of the descriptive terms are enscribed on the packet of 3408. However, since the collection date, and the ecology, match the protologue, and since the perforated stipe is present, there can be little doubt that 3408 is original, cited material.

Selecting a specimen outside FFE as lectotype may seem somewhat less logical than selecting one of the specimens distributed in FFE (bearing the protologue), but since in this case Karsten evidently kept the only mature specimen in his own herbarium, the exception is taxonomically sound. The typifications in general will be discussed in a forthcoming treatise on Karsten's herbarium.

Karsten collected this curious-looking discomycete from one locality and gave it specific rank mainly because of the perforated receptacle (Karsten 1869). The collection was distributed in his Fungi Fenniae Exsiccati accompanied with a diagnosis. *P. perforata* clearly belongs to *Tarzetta* (Cooke) Lambotte and with its relatively regular paraphyse apices and spores measuring $20\text{--}25.5 \times 11\text{--}13\ \mu\text{m}$, it keys into *T. catinus* (Holmsk. : Fr.) Korf & Rogers (Dissing & Raitviir 1974, Harmaja 1974, Senn-Irlet 1989). The asci arise from simple septa and have

Figs. 4–5. *Graddonia coracina* (Finland. Etelä-Häme: Tampere, Peltolampi, 29.VIII.1983 *Söderholm* 1001, TUR) and lectotype of *Peziza perforata*, scale 50 μm , for apothecia 1 mm. — 4: *Graddonia coracina*. a) asci and paraphyses, b) spores, c) marginal hyphae, d) dry apothecia, e) ectal excipulum in section from middle flank area. — 5: *Peziza perforata*. a) hyphae causing the villose appearance of flanks, b) paraphyses, c) spores, d) dry apothecium.



MLZ- apices, in contrast to what was stated by Karsten (1869).

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