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NOTES ON HYPHOMYCETES. XIX. *CLADOSPORIUM LEPROSUM* SP. NOV. AND *CLADOSPORIUM NIGRELLUM*.

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ABSTRACT

Cladosporium leprosum Morgan-Jones is described, illustrated and compared with *Cladosporium nigrellum* Ell. and Everh., which is similarly treated.

INTRODUCTION

An unusual species of *Cladosporium* Link ex Fries, possessing aggregations of scurfy stromatic cells and partly scurfy semi-macronematous conidiophores, has been encountered growing on painted veneer in Alabama. Of species of *Cladosporium* known to occur on dead wood and bark it most closely resembles *C. nigrellum* Ellis and Everhart described from inner bark of *Robinia* used for railroad ties. It cannot however be considered conspecific with it. The fungus is described herein as a new species. It is compared with *C. nigrellum* which is described from its type collection.

TAXONOMIC PART

Cladosporium leprosum sp. nov. (Fig. 1).

Coloniae effusae, atrobrunneae vel fuscae, interdum olivaceo-brunneae, densae vel sparsae, crustaceae vel pulveraceae, plerumque orbiculares. Mycelium immersum vel superficiale, ex hyphis ramosis, septatis, pallide brunneis, 2.5 - 3.5µ crassis compositum. Hyphae ex cellulis inflatis saepe compositae. Stromata frequenter adsunt vel rudimentale, ex cellulis brunneis, farinacea, isodiametricis, usque ad 10µ crassa composita. Conidiophora macronemata vel semimacronemata, mononemata, ex hyphis superficialibus oriunda, simplicia vel ramosa, recta vel flexuosa, septata, plerumque inflatis, ad septa

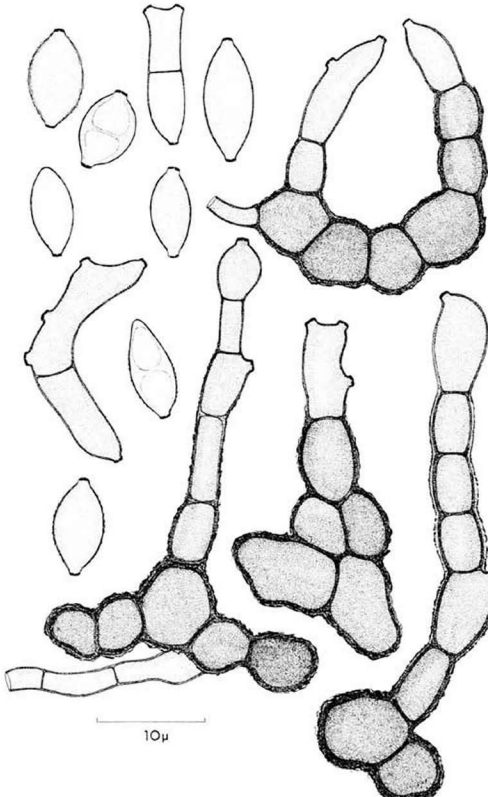

FIGURE 1. *Cladosporium leprosum.* Conidiophores and conidia.

constricta, laevia vel farinacea, brunnea, apicem versus pallidiora, 12 - 55 X 4 - 5μ. Cellulae conidiogenae polyblasticae, indeterminatae, in conidiophoris incorporatae, terminales, interdum intercalares, sympodiales, cylindricae vel doliiformes, usque ad 5 cicatrices atro brunneae, applanatas, incrassatas, protrudentes gerentes. Conidia catenata, sicca, ellipsoidea vel doliiformia, pallide brunnea, laevia vel verruculosa, 0 - 1 septata, ad bases cicatrice protrudenti et ad apice 1 - 4 cicatricibus protrudentibus, 9 - 16 X 4 - 5μ.

In pictis superficiebus, Auburn, Lee County, Alabama, April 1976, G. Morgan-Jones, BPI, holotypus.

Colonies effuse, frequently irregularly orbicular, dark brown to blackish or greyish brown, sometimes dark olivaceuous brown, dense or relatively sparse, crustaceous or powdery, varying in size. Mycelium partly immersed but mostly superficial, composed of pale brown, smooth, branched, septate 2.5 - 3.5μ wide hyphae. Hyphae often irregular and inflated. Stromata present, mostly rudimentary, composed of globose or subglobose, isodiametric, brown, thick-walled, up to 10μ wide cells the outer layer of whose walls breaks irregularly to give a farinaceous, scurfy appearance. Conidiophores macronematous or semimacronematous, arising singly or in small groups from the stromatic and hyphal cells, brown to pale brown, paler towards the apices, erect, straight or flexuous, simple or branched, usually septate, with cells frequently inflated, constricted at the septa, smooth or granular to farinaceous, thick-walled, 12 - 55 X 4 - 5μ. Conidiogenous cells polyblastic, indeterminate, integrated, terminal and intercalary, pale brown to brown, when terminal usually smooth, otherwise at least in part roughened, cylindrical to doliiform, sometimes tapering towards the irregular apices, with up to 5 dark brown scars at the ends of protuberances produced sympodially or unsynchronised. Conidia solitary or in simple or branched chains, dry, ellipsoid or doliiform to subglobose, pale brown, smooth or verruculose, 0 - 1 septate, with 1 basal and 0 - 4 apical, protruding, thickened scars, 9 - 16 X 4 - 5μ.

On painted surface; North America.

Collection examined: on painted surface of veneer, Auburn, Lee County, Alabama, April 1976, G. Morgan-Jones, BPI, AUA, type.

C. leprosum occurs solely on the paint and does not penetrate the veneer. It bears similarity to *Cladosporium nigrellum* in a number of respects but differs from it in its scurfy stromatic cells, less well developed conidiophores and in conidium shape and septation.

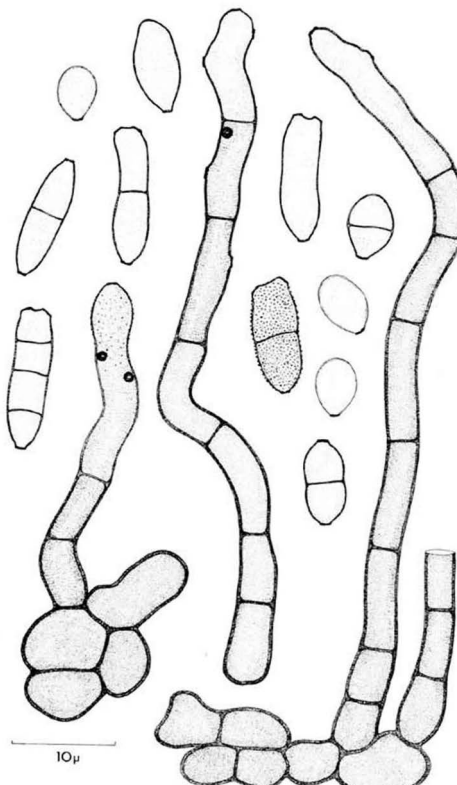

FIGURE 2. *Cladosporium nigrellum*.
Conidiophores and conidia.

Cladosporium nigrellum Ellis and Everhart, Proc. Acad. N. Sci. Philad. 1893:463, 1894 (Fig. 2).

Colonies widely effuse, dark brown or blackish olivaceous, velvety. Mycelium partly immersed in the substratum, partly superficial, composed of subhyaline to pale brown, smooth, branched, 3 - 4μ wide hyphae. Hyphae frequently becoming inflated, constricted at the septa, and giving rise to aggregations of brown, thick-walled, stromatic cells, 5 - 9μ wide, from which the conidiophores are produced. Conidiophores macronematous, arising singly or in small groups, brown to pale brown, paler towards the apex, thick-walled, smooth, erect, straight or more frequently flexuous, simple, septate, cylindrical, tapering very gradually towards the distal end, smooth or delicately verruculose towards the apex, 45 - 230 X 5 - 9μ. Conidiogenous cells polyblastic, indeterminate, integrated, terminal and intercalary, pale brown to brown, cylindrical, with up to 3 dark brown scars. Conidia in simple or branched chains, dry, cylindrical, ellipsoidal or limoniiform, 0 - 3 septate, sometimes slightly constricted at the septa, pale brown, smooth or densely verruculose, with 1 basal and 0 - 2 apical thickened scars, 6 - 15 X 4 - 7μ.

On inner bark of *Robinia*; North America.

Collections examined: on inner bark of *Robinia* railroad ties, Nuttalburg, West Virginia, U.S.A., October 1893, L.W. Nuttall, Flora of Fayette County, W. Va. no. 172, holotype, NY; Ellis and Everhart, Fungi Columbiani 382, NY; Ellis and Everhart, North American Fungi (second series) 3086, NY.

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I thank Dr. Clark T. Rogerson for making available on loan the material of *C. nigrellum* housed at the New York Botanical Garden and Dr. C. J. K. Wang for reviewing the manuscript.

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THE SYNONYMY OF *STERIGMATOMYCES PENICILLATUS* AND *STERIGMATOMYCES POLYBORUS*

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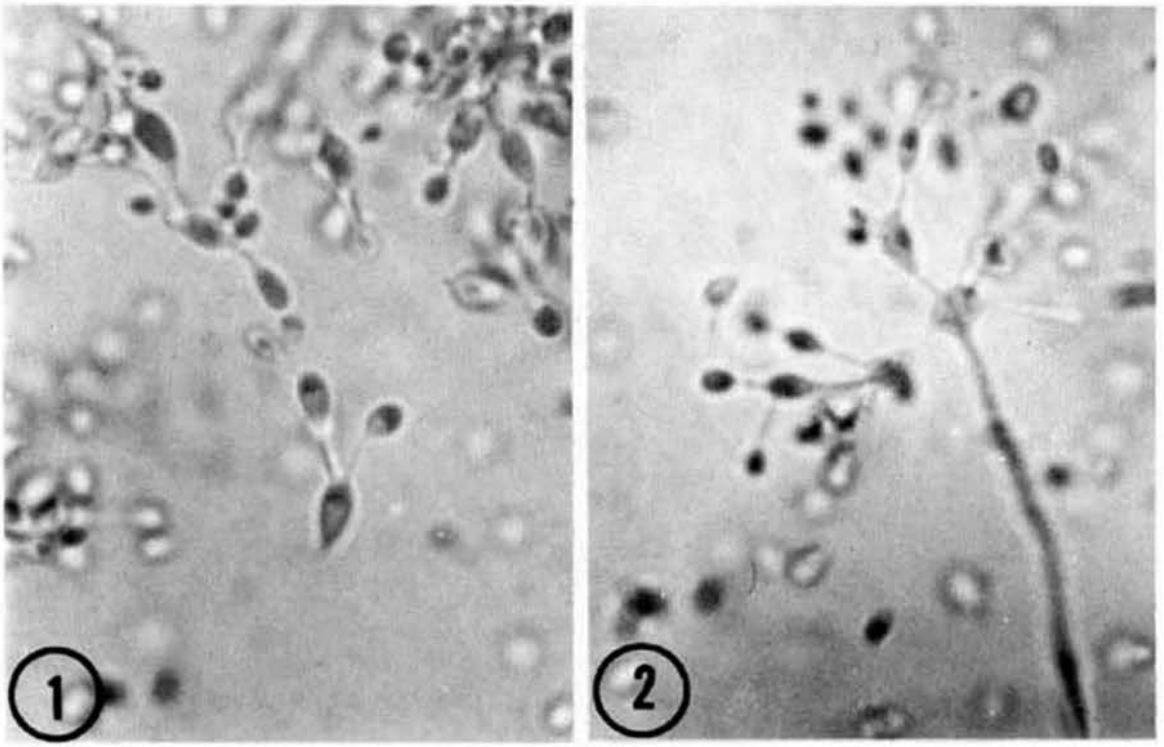
SUMMARY

Examination of *Sterigmatomyces penicillatus* strain ATCC 32128 (type), and *S. polyborus* strains ATCC 32821 (type) and ATCC 32822 in culture revealed that these strains are morphologically and physiologically very similar. The name *S. penicillatus* Rodrigues de Miranda, 1975, is proposed to be a later, facultative synonym of *S. polyborus* Scott & van der Walt, 1970. The distinguishing features of the species are discussed.

Rodrigues de Miranda (1975) recently described a new species of yeast, *Sterigmatomyces penicillatus* Rodrigues de Miranda, that produces extracellular starch-like compounds, a property which was not originally accepted in the diagnosis of the genus *Sterigmatomyces* Fell (1966). The two strains studied were isolated as contaminants on agar plates by G. Kraepelin in Germany. One of them, designated as the type culture, was deposited at the American Type Culture Collection as ATCC 32128. According to Rodrigues de Miranda, *S. penicillatus* is closely related to *S. polyborus* Scott & van der Walt (1970) in similarity of morphological features on potato dextrose agar and in failing to assimilate nitrate. They were stated to differ, however, by the ability of *S. penicillatus* to produce starch-like compounds and its inability to utilize raffinose and soluble starch as sole sources of carbon.

Sterigmatomyces polyborus was isolated from the tunnels of wood-boring beetles in Natal, South Africa. ATCC



Figs. 1-2. Conidia, sterigmata, conidiogenous cells and a blastese-like structure. 1. *Sterigmatomyces polyborus* ATCC 32821, 7 days PDA culture, lactophenol-cotton blue mount, *ca.* X 1,100. 2. *Sterigmatomyces penicillatus* ATCC 32128, 8 days PDA culture, lactophenol-cotton blue mount, *ca.* X 1,500.

32821 is the type culture for the species. The ATCC also maintains another strain (ATCC 32822) of *S. polyborus* which was obtained from the Centraalbureau voor Schimmelcultures of the Netherlands; no isolation data are available for this strain. As indicated by the specific epithet, *S. polyborus* is characterized by its ability to utilize a rather wide range of carbon sources.

In our authentication of the imperfect yeast strains maintained in the mycological collection of the ATCC, we have examined the cultures of *S. penicillatus* ATCC 32128 and *S. polyborus* ATCC 32821 and ATCC 32822. On potato dextrose agar (PDA), they all produced *Penicillium*-like conidial heads of round or elongate cells with sterigmata

of various lengths (Figs. 1 & 2). We also observed non-septate filamentous cells which occasionally branch and resemble a ramified, one-celled blastese in culture of each strain (Fig. 2). However, ATCC 32128 produced the nonseptate blastese-like cells in greater abundance than did ATCC 32821 and ATCC 32822.

The results of our physiological tests are shown in TABLE I. All three strains produced extracellular starch-like compounds, although Scott and van der Walt (1970) reported ATCC 32821, the type of *S. polyborus*, to lack this ability. The method of Lodder (1970) was followed for this test, and was repeated several times. Furthermore, the production of starch by ATCC 32821 was much stronger than that observed for the second strain of *S. polyborus* (ATCC 32822) and the type of *S. penicillatus* (ATCC 32128). In their carbon assimilation patterns, ATCC 32821 and ATCC 32128 differed only in the utilization by the former of glycerol. ATCC 32822 failed to utilize both glycerol and α-methyl-D-glucose. These differences can only be considered significant at the strain level and can not justify establishing a new species. All three strains also were unable to utilize potassium nitrate or to grow at 37 C.

We are therefore convinced that ATCC 32128, ATCC 32821 and ATCC 32822 represent the same species. Consequently *Sterigmatomyces penicillatus* Rodrigues de Miranda (Antonie van Leeuwenhoek *41:* 195, 1975) becomes a later, facultative synonym of *Sterigmatomyces polyborus* Scott & van der Walt (Antonie van Leeuwenhoek *36:* 389, 1970).

Sterigmatomyces polyborus is readily distinguished from the other species of the genus morphologically by the formation of one-celled blastese-like structures and *Penicillium*-like conidial heads with elongate sterigmata and physiologically by its ability to utilize a wide range of carbon sources and the production of extracellular starch-like materials.

TABLE I. PHYSIOLOGICAL TEST RESULTS

	S. penicillatus	*S. polyborus*	
	ATCC 32128	ATCC 32821	ATCC 32822
Fermentation	-	-	-
Growth at 37 C	-	-	-
Assimilation of potassium nitrate	-	-	-
Formation of starch-like compounds	+	+	+
Assimilation of:			
Glucose	+	+	+
Galactose	+	+	+
L-sorbose	+	+	+
Maltose	+	+	+
Sucrose	+	+	+
Cellobiose	+	+	+
Trehalose	+	+	+
Lactose	+	+	+
Melibiose	+	+	+
Raffinose	+	+	+
Melezitose	+	+	+
Inulin	-	-	-
Soluble starch	+	+	+
D-xylose	+	+	+
L-arabinose	+	+	+
D-arabinose	+	+	+
D-ribose	+	+	+
L-rhamnose	+	+	+
D-glucosamine	+	+	+
Ethanol	-	-	+
Glycerol	-	+	-
i-Erythritol	+	+	+
Adonitol	+	+	+
Dulcitol	+	+	+
D-mannitol	+	+	+
D-sorbitol	+	+	+
α-methyl-D-glucoside	+	+	-
Salicin	+	+	+
Inositol	+	+	+
Lactic acid	+	+	+
Citric acid	+	+	+
Succinic acid	+	+	+
Valine	-	-	-
Glycine	-	-	-
Proline	-	-	-
Arginine	-	-	-

ACKNOWLEDGMENTS

We are grateful to Mrs. Kathryn Schmeding for her patience in repeatedly testing these strains for the production of starch-like compounds. This work was supported in part by the Brown-Hazen grant 846 from Research Corporation, New York.

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IDENTITY OF *STERIGMATOMYCES APHIDIS* AND *TRICHOSPORON ORYZAE*

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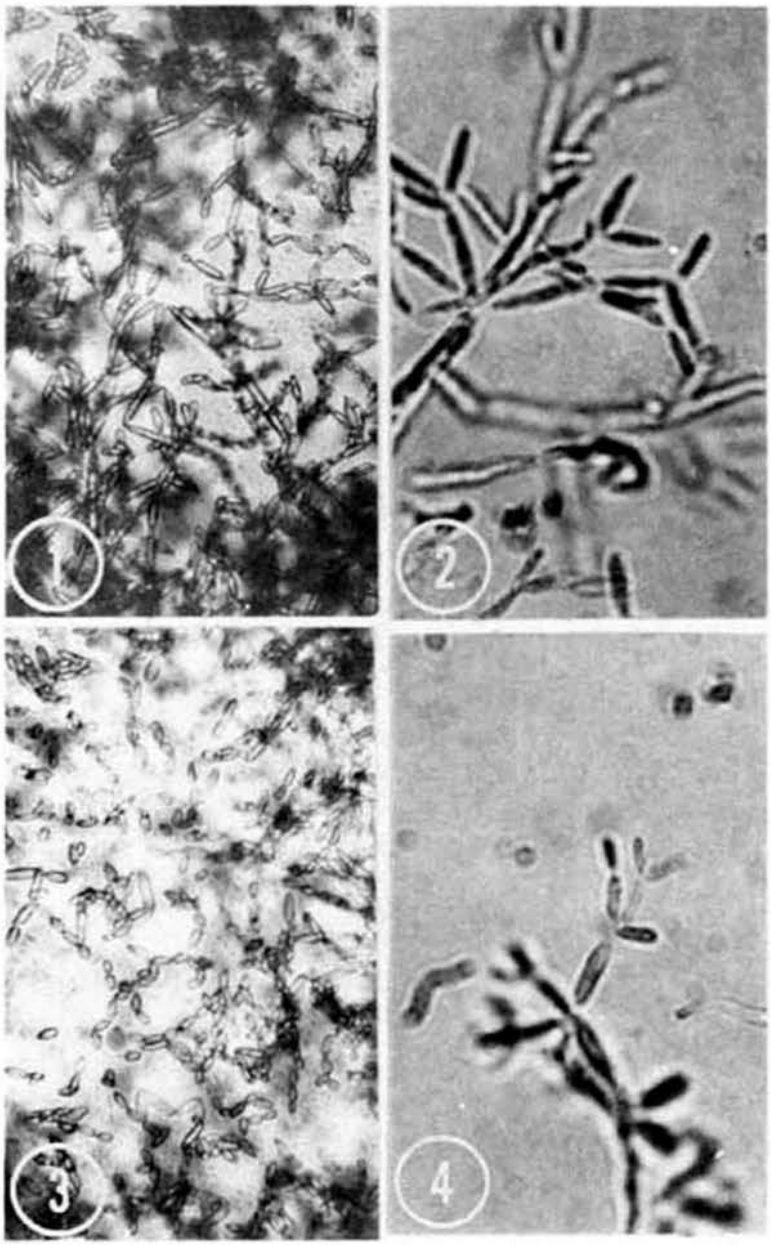
SUMMARY

Morphological and physiological studies on the type cultures of *Sterigmatomyces aphidis* ATCC 32657, *Trichosporon oryzae* ATCC 28323 and *Candida edax* ATCC 18414 demonstrated that these strains are conspecific. Thus, *Sterigmatomyces aphidis* Henninger & Windisch, 1975, and *Trichosporon oryzae* Ito *et. al.*, 1974, are later, facultative synonyms of *Candida edax* van der Walt & Nel, 1968.

In the course of our current investigations into the systematics of imperfect yeast genera, thirteen strains originally assigned to the genus *Sterigmatomyces* Fell and forty-eight strains originally assigned to the genus *Trichosporon* Behrend, including the type strain of each species described, were examined morphologically and nutritionally. The type cultures of *Sterigmatomyces aphidis* Henninger and Windisch (1975) and *Trichosporon oryzae* Ito *et al.* (1974) were strikingly similar. Their affinities and taxonomic disposition are discussed herein.

Sterigmatomyces aphidis was described in 1975 by Henninger and Windisch. The type culture was isolated from the secretions of Aphididae on leaves of *Solanum pseudocapsicum* in Germany, and was deposited in the American Type Culture Collection as ATCC 32657. The non-filamentous yeast-like genus *Sterigmatomyces* with *S. halophilus* Fell as the type species is characterized by single cells that reproduce vegetatively by the forma-



Figs. 1 & 2. *Sterigmatomyces aphidis* ATCC 32657, PHB-agar culture. 1. On agar, *ca.* X 450. 2. Lactophenol-cotton blue mount, *ca.* X 1,000.
Figs. 3 & 4. *Trichosporon oryzae* ATCC 28323, PHB-agar culture. 3. On agar, *ca.* X 450. 4. Lactophenol-cotton blue mount, *ca.*X 1,000.

tion of holoblastic conidia on distinct sterigmata. The ability of ATCC 32657 to form true mycelium made its inclusion in this genus appear dubious.

In 1974, Ito *et al.* described a new species of yeast from unpolished new crop rice in Japan. The species exhibited high resistance to gamma radiation. It was named *Trichosporon oryzae* because morphological features of the fungus were interpreted to represent true mycelium, arthrospores and blastospores (budding cells). Strain ATCC 28323 is the type for the species.

Morphologically, both ATCC 32657 and ATCC 28323 produced filamentous growth that became septate on all solid media employed; this type of growth was particularly prominent on PHB agar (Matsushima, 1961), cornmeal agar and potato dextrose agar. Unicellular blastospores were borne laterally on septate hyphae. They either gave rise to short chains in acropetal succession (Figs. 2 & 4) or became detached and subsequently reproduced by budding (Figs. 1 & 3). The blastospores of ATCC 28323 (2-3 X 2-10 µm) had a slightly greater width -to-length ratio than those of ATCC 32657 (1.4-3.6 X 4.3-11.5 µm). Because ATCC 32657 produces true mycelia, and because no distinct chains of arthroconidia of the *Trichosporon* type as defined by King and Jong (1976) were observed in ATCC 28323, we are convinced that they do not belong in *Sterigmatomyces* or *Trichosporon*, respectively.

Physiologically, ATCC 32657 and ATCC 28323 were able to utilize a wide range of carbon compounds. Furthermore, they grew at 37 C and on vitamin free medium, and assimilated potassium nitrate (see TABLE I). ATCC 28323 deviated from the carbon assimilation pattern of ATCC 32657 in failing to utilize adonitol and dulcitol.

We consider the differences between these two strains to be significant only at the strain level and not at the specific level; thus, both strains represent the same species. Both the filamentous and the unicellular phase of these strains are typical of the genus *Candida*. According to the fermentation and assimilation patterns of the nitrate-positive *Candida* species given by

TABLE I

PHYSIOLOGICAL TEST RESULTS

ATCC Strain	18414	28323	32657
Fermentation	-	-	-
Growth in vitamin-free medium	+	+	+
Growth at 37 C	+	+	+
Assimilation of potassium nitrate	+	+	+
Assimilation of:			
Glucose	+	+	+
Galactose	+	+	+
L-sorbose	+	+	+
Sucrose	+	+	+
Maltose	+	+	+
Cellobiose	+	+	+
Trehalose	+	+	+
Lactose	+	+	+
Melibiose	+	+	+
Raffinose	+	+	+
Milezitose	+	+	+
Inulin	-	-	-
Soluble starch	+	+	+
D-xylose	+	+	+
L-arabinose	+	+	+
D-ribose	+	+	+
L-rhamnose	+	+	+
Ethanol	-	+	+
Glycerol	+	+	+
i-Erythritol	+	+	+
Adonitol	+	-	+
Dulcitol	+	-	+
D-mannitol	+	+	+
D-sorbitol	+	+	+
α-methyl-D-glucoside	+	+	+
Salicin	+	+	+
Lactic acid	+	+	+
Succinic acid	+	+	+
Citric acid	+	+	+

Grinbergs and Yarrow (1970), ATCC 28323 and ATCC 32657 differ from *Candida edax* van der Walt & Nel (1968) by utilizing ethanol as a carbon source, and ATCC 28323 differs further by failing to utilize adonitol and dulcitol (TABLE I). As noted before, differences of this magnitude are not significant at the specific level. Further, examination of the type culture of *Candida edax* ATCC 18414 has confirmed the marked similarities of these three strains.

We therefore propose that *Sterigmatomyces aphidis* Henninger & Windisch (Arch. Microbiol. *105:* 50, 1975) and *Trichosporon oryzae* Ito *et al.* (Agr. Biol. Chem. *38:* 1599, 1974) are later, facultative synonyms of *Candida edax* van der Walt & Nel (Antonie van Leeuwenhock *34:* 106, 1968).

Candida edax was first found by van der Walt and Nel (1968) from frass recovered from deserted subcortical insect galleries in *Sclerocarya caffra* Sond. in the Transvaal of South Africa. The species is now also known from Japan and Europe, and is well established in different climatic regions of the world. Thus, it is a clearly defined fungus taxon.

ACKNOWLEDGMENTS

This work was supported in part by the Brown-Hazen Grant BH 846 from Research Corporation, New York.

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ACANTHOSTIGMELLA (HERPOTRICHIELLACEAE)

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SUMMARY

Five species of *Acanthostigmella* are recognized with the addition of the new species *A. pallida* and *A. pellucida*.

Several genera of Loculoascomycetes contain small hypersaprobes, in particular members of the Herpotrichiellaceae. Species of *Herpotrichiella* Petrak have dark grayish or olivaceous brown setose ascocarps, short apical periphysoids, and inequilateral, grayish or olivaceous brown ascospores with one or several septa. A small group of species is known which differs from species of *Herpotrichiella* in thinner, softer, more pallid peridium, light colored setae and hyaline or slightly pigmented ascospores. These species appear to deserve segregation and the generic name *Acanthostigmella* v. Höhnel is available to accommodate them.

Acanthostigmella was described with the sole species *A. genuflexa* v. Höhnel (1905). He later (1909a, 1909c) added two more species to the genus; the only other use of the name was by Linder (1929) when he described *A. thaxteri*. Von Höhnel (1905) observed that *A. genuflexa* was associated with *Helicosporium phragmitis* v. Höhnel on the old culms of *Phragmites*, and suggested that this might be the conidial state. However, in 1909b, von Höhnel associated *H. phragmitis* with *Tubeufia helicomyces* v. Höhnel. Webster (1951) confirmed the connection. Von Höhnel (1905) compared *Acanthostigmella* with *Nematostoma* Sydow, an epiphyte with pseudoparaphyses which belongs in the Dimeriaceae. *Aphanostigme* Sydow is also epiphytic on leaf hairs, and a member

of the Dimeriaceae. Clements and Shear (1931) synonymized *Acanthostigmella* under *Acanthostigma* de Not., while von Arx and Müller (1975) considered that it was a synonym of *Tubeufia*. *Tubeufia* Penzig & Sacc. differs from *Acanthostigmella* in broader peridium, pseudoparaphyses, and elongate phragmospores, whereas *Acanthostigma* apparently is sphaeriaceous.

Acanthostigmella v. Höhnel, Ann. Mycol. 3: 327. 1905.

Ascocarps minute to small, setose, pallid or light to brown or grayish, superficial on a delicate hyphal subiculum; peridium thin, formed of few layers of compressed cells; periphysoids present in the apical region of locule, short. Asci bitunicate, oblong, obovate, saccate, without pseudoparaphyses. Ascospores fusoid elliptic, usually inequilateral, hyaline, yellowish, or light olivaceous brown, one to several septate, thin walled. Hypersaprobic on old plant remains or other fungi.

Type species: *Acanthostigmella genuflexa* v. Höhnel

Key to Species

1. Ascocarps 35-60 µm diam, nearly hyaline to straw colored, setae one celled, thick walled, hyaline to light brown, over old perithecia or stromata; ascospores 7.5-10 x 2.5-3.5 µm, 1-(3-)septate . . . . . *A. pallida*
1. Ascocarps 80-180 µm diam, light brown, grayish or olivaceous, setae brownish or pallid at tips, on plant parts 2
   2. Setae one celled, thick walled, forming a whorl around and in apical pore, pointed, often recurved 3
   2. Setae one celled or septate, thin walled, over much of peridium, ends usually obtuse, straight . 4
3. Ascospores 9-11(-14) x 2-2.5(-3.5) µm, 1-, 2-(3-) septate . . . . . *A. genuflexa*
3. Ascospores 15-20 x 3-3.5 µm, 4-5-septate . . . . . *A. thaxteri*
   4. Ascocarps grayish brown; ascospores 15.5-18.5 x 4-4.5 µm, (1-, 2-)3-septate . . *A. orthoseta*
   4. Ascocarps light brown, pinkish tinged at times; ascospores (13.5-)15-23 x (4.5-)5-6(-7.5) µm, (1-)2-(3-)septate . . . . . *A. pellucida*

Acanthostigmella genuflexa v. Höhnel, Ann. Mycol. 3: 328. 1905. Figs. 1-3

Ascocarps 90-104 µm diam, 117-130 µm high, globose conic, setae in a whorl around apex and short in apical pore, curved, light brown, up to 60 µm long, hyphae of subiculum light brown. Asci 30-35 x 5-6 µm. Ascospores 9-11(-14) x 2-2.5(-3.5) µm, hyaline singly, light yellowish brown in mass, fusoid elliptic, 1-2-(3-)septate, contents minutely guttulate.

On *Phragmites communis* Trin., Austria.

Material examined: Langenschönbiche bei Tulln, 3 Juni 1905, v. Höhnel (TYPE, FH).

The culms are fragmentary and ascocarps difficult to locate; most of the information given above was obtained from two slides of type material prepared by von Höhnel.

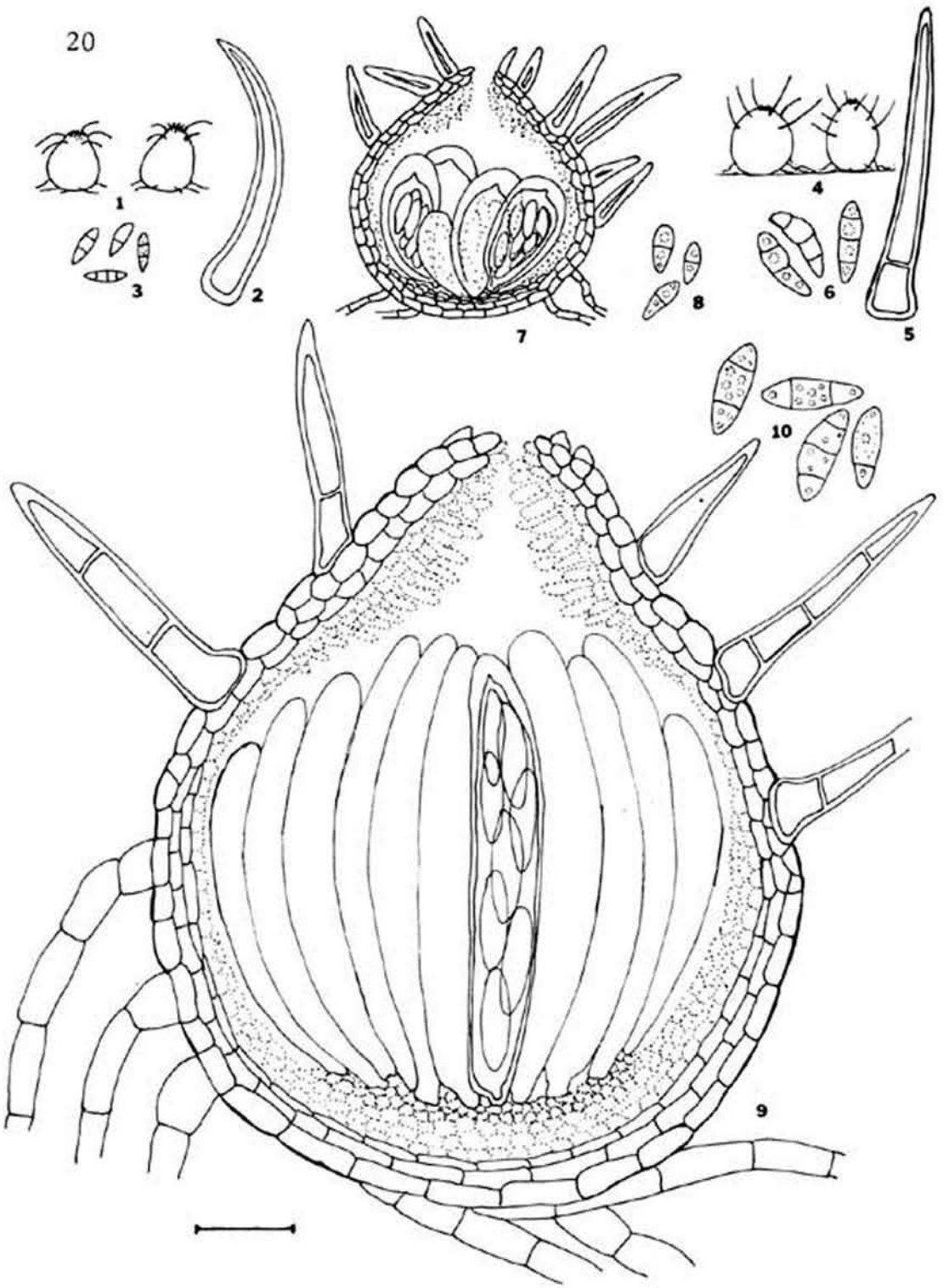
Acanthostigmella orthoseta v. Höhnel, Sitzungsber. Kaiserl. Akad. Wiss., Math.-Naturwiss. Cl., Abt. 1, 118: 1201. 1909. Figs. 4-6

Ascocarps 80-140 µm diam, globose to conic, setae short around apical pore or elongate on sides of peridium, up to 40-130 µm long, 3.5-4.5 µm wide near base, hyphae of subiculum light brown to hyaline. Asci 33-46 x 7.5-11 µm. Ascospores 15.5-18.5 x 4-4.5 µm, hyaline at first, becoming dull grayish to olivaceous brown, fusoid elliptic, usually curved slightly, (1-, 2-)3-septate, slightly constricted at the middle septum and cell above somewhat broader than other cells, contents usually with one globule in each cell.

On dead stalks of herbaceous plants.

Material examined: Conway, Massachusetts, 8 Oct 1961, on *Polygonum* sp., Barr 3157 (MASS).

Acanthostigmella orthoseta was described from stalks of *Heracleum* sp. Von Höhnel (1909c) suggested that *A. zahlbruckneri* (Strasser) v. Höhnel, on stalks of *Mentha* sp. was perhaps a depauperate form of *A. orthoseta*, and indeed the descriptions provide little to differentiate the two beyond sparse setae on the peridium of *A. zahlbruckneri*.



Figs. 1-10. Species of *Acanthostigmella*. 1-3. *A. genuflexa;* 1. Ascocarps. 2. Seta from ascocarp. 3. Ascospores. 4-6. *A. orthoseta;* 4. Ascocarps. 5. Seta from ascocarp. 6. Ascospores. 7-8. *A. pallida;* 7. Ascocarp. 8. Ascospores. 9-10. *A. pellucida;* 9. Ascocarp. 10. Ascospores. Scale = 200 μm for Figs. 1 and 4; 20 μm for remainder of figs.

Acanthostigmella pallida Dennis & Barr, sp. nov. Figs. 7, 8

Ascocarpia 35-60 μm diametro, hyalina vel straminea, setis hyalinis vel brunneolis 6.5-30 μm longis ornatis. Asci 20-25 x 10-11 μm. Ascosporae 7.5-10 x 2.5-3.5 μm, hyalinae, fusiformae, 1- (vel 3-)septatae.

Holotypus insidens *Hypoxylo mammato*, ad "Dunworth Wood, Wiltshire, England, 19 Oct 1976," a J. B. Hindley lecto, in herbario K.

Ascocarps 35-60 μm diam, globose conic, nearly hyaline or light straw color, setae hyaline or light brownish, short, 6.5-30 μm long, ca. 5 μm wide near base, one celled, thick walled. Asci 20-25 x 10-11 μm. Ascospores 7.5-10 x 2.5-3.5 μm, hyaline, fusoid elliptic, straight or inequilateral, 1-(3-)septate, contents with one or a few globules in each cell.

On old *Hypoxylon mammatum* (Wahl.) Miller on *Salix* sp., *Lasiosphaeria* sp. on *Acer* sp.

Material examined: Dunworth Wood, Wiltshire, England, 19 Oct 1976, J. B. Hindley (HOLOTYPE, K; ISOTYPE, MASS); Long Trail, Bolton, Vermont, U.S.A., 18 Aug 1964, Barr 4550 (MASS).

This minute species is readily overlooked. Under a dissecting microscope it could be confused with a hypocreaceous species which also occurs on old pyrenomycetes, but has a totally different centrum.

Acanthostigmella pellucida Barr, sp. nov. Figs. 9, 10

Ascocarpia 80-180 μm diametro, brunneola subrosea suffusa, setis septatis brunneolus 30-165 μm longis ornatis. Asci 45-70 x 9-16.5 μm. Ascosporae (13.5-)15-23 x (4.5-)5-6(-7.5) μm, luteolae vel brunneolae vel subroseae, fusiformae, (1-)2-(3-)septatae.

Holotypus insidens *Taxo canadensi*, ad "Mt. Johnson, St. Gregoire, Quebec, 27 Jul 1957," a M. E. Barr lecto, in herbario MASS.

Ascocarps 80-180 μm diam, globose conic, light brown with pinkish tinge, setae septate, often elongate, 30-165 μm long, 5-6.5 μm wide near base, over much of peridium, hyphae of subiculum light brown or hyaline. Asci 45-70 x

9-16.5 μm. Ascospores (13.5-)15-23 x (4.5-)5-6(-7.5) μm, (1-)2-(3-)septate, yellowish or light brownish or pinkish, inequilateral, middle cell broadest of the three, contents minutely guttulate.

On overwintered plant parts: *Lycopodium obscurum* L., *Taxus canadensis* Marsh., *Buxus* sp., *Gaultheria procumbens* L., *Linnaea borealis* L. var. *americana* (Forbes) Rehd.

Material examined: Mt. Johnson, St. Gregoire, Quebec, Canada, 27 Jul 1957, Barr 1873 (HOLOTYPE); E. Millinocket, Penobscot Co., Maine, U.S.A., 7 Aug 1962, Barr 3584; top of Mt. Mansfield, Vermont, 15 Jul 1964, Barr 4319A; Sunderland, Massachusetts, 20 Jun 1958, Barr 2355; Amherst, Massachusetts, 9 Jun 1958, Barr 2331; Clarksburg State Park, Massachusetts,12 Jul 1960, Barr 2706; Conway State Forest, Massachusetts, 15 Jun 1961, Barr 2911; New Salem, Massachusetts, 2 Aug 1961, Barr 3069 (all MASS).

This species was tentatively identified with *Herpotrichia parasitica* (Hartig) E. Rostrup, on the basis of Munk's (1957) description. However, pseudoparaphyses are present in the locule of *H. parasitica* and the ascospores differ in shape and constriction at the septa. The detailed description by Freyer and van der Aa (1975) of *H. parasitica* and the conidial *Pyrenochaeta parasitica* state make the differences between it and *A. pellucida* obvious.

Acanthostigmella thaxteri Linder, Ann. Missouri Bot. Gard. 16: 321. 1929.

Ascocarps 90 x 79 μm, pyriform, setae in irregular whorl around apical pore, 27-36 μm long. Asci 36-45 x 7.2 μm. Ascospores 15-20 x 3-3.5 μm, hyaline becoming subfuscous, 4-5-septate.

On *Costus spiralis* (?*Costus speciosus* (Koenig.) Sm.), Trinidad, West Indies.

The description is paraphrased from Linder's (1929) description and illustration (pl. 25, figs. 22-24) of *A. thaxteri*. This species appears to be closely related to *A. genuflexa* and to differ chiefly in longer ascospores with additional septa.

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MYCOTAXON

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THE CURRENT TAXONOMIC STATUS OF DIPLODIA GOSSYPINA

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During the course of an unpublished study of a hardwood canker disease caused by Diplodia gossypina Cke., it became necessary to involve myself with the taxonomy of the pathogen. Recently, other Forest Pathologists requested that I publish the conclusions to which I came. This paper summarizes the pertinent literature and presents a logical conclusion based on that literature. The concern here is mainly with D. gossypina, but other binomials will be mentioned when appropriate.

The genus Diplodia Fries was described in 1849 as having scattered subcutaneous to erumpent, black, characteristically papillate pycnidia; spores are septate, brown to dark. Botryodiplodia Saccardo, 1880, had clustered stromatic, hairless or hairy pycnidia, otherwise similar to Diplodia. Chaetodiplodia Karsten 1880 was also similar to Diplodia, but the pycnidia had hair, or bristles, and Lasiodiplodia Ellis and Everhart 1896 was distinguished as being stromatic and paraphysate. Taubenhaus (1915) was able to demonstrate that the above characters are not constant. He concluded that Botryodiplodia, Chaetodiplodia, and Lasiodiplodia are congeneric with Diplodia. The findings of later workers support his conclusions (Satour, et al., 1969; Satour and Hewitt, 1967; Webster et al., 1969). Satour et al., using defined carbon and nitrogen sources, demonstrated that only certain spore characteristics are constant. Brown (1971) found that newly formed pycnidia of D. natalensis on dead Valencia orange (Citrus sinensis) and grapefruit (C. paradisi) twigs are at first immersed and scattered in host tissue, but became progressively more stromatic and erumpent as the summer progressed. Therefore, all the generic characteristics used in this group have been found highly variable, with two possible exceptions. Taubenhaus (1915) found that paraphyses were highly variable, but Webster et al. (1967, 1969) found the presence or absence of paraphyses to be constant, although sometimes not easily seen in older pycnidia. It is possible that Taubenhaus did not realize the effect of

pycnidial age upon paraphyses. Paraphyses may, therefore, have taxonomic utility in this group, but need further study. Spore ornamentation is the one character which is apparently not variable (Satour et al., 1969; Satour and Hewitt, 1969; Webster et al., 1969). Until recently spore ornamentation has not been considered in the taxonomy of this group, consequently some Diplodia spp. have been described as having smooth spore walls, and some as having striate walls. The same situation holds for Botryodiplodia spp. (Satour et al., 1969; Satour and Hewitt, 1967). Von Arx (1970) has used spore ornamentation for generic separation in his key, but he recognizes Lasiodiplodia which, based upon information in the literature, is not tenable. His key is not clear at this point, but he characterizes Botryodiplodia as having smooth spores. If this is acceptable, Diplodia could be characterized as having striate ornamentations on its spore walls. Therefore, Taubenhaus' (1915) broadened description of Diplodia may be correct, except that the spores may be further described as striate when in the uniseptate state. The description of Botryodiplodia would be similar, except the spores are smooth when uniseptate.

Polach et al. (1969) and Webster et al. (1969), working with isolates of D. natalensis from grape (Vitis unifera), were able to show that spore size of cultures taken from single pycnidia varied as much as the spore sizes of cultures from different isolates. Some of these variations were statistically significant, though not taxonomically so. This indicates that while spore size may have validity in specific determinations in this group, a given species has an extremely wide spore size range. The original description of D. gossypina (Cooke, 1879) is rather meager, so Stevens (1925) had type material examined, and reported that spore size was 20-27 μm x 10-15 μm.

On the basis of evidence available in the literature as summarized above, I have tentatively regarded the following bionomials as synonyms of D. gossypina:

Botryodiplodia gossypina E. & B.
B. theobromae Pat.
Chaetodiplodia grisea Petch
Diplodia cacaoicola P. Henn.
D. natalensis Evans
D. theobromae (Pat.) Now.
D. tubericola (Ell. & Ev.) Taub.
Lasiodiplodia theobromae (Pat.) Griff. & Maubl.
L. triflorae Higgins
L. tubericola Ell. & Ev.

The above list does not pretend to be exhaustive, but indicative. D. gossypina, as considered in this paper has a host range of about 138 plant species in fifty-eight

families (U. S. D. A. 1960). The host range for the entire Diplodia-Botryodiplodia complex may be much greater. This paper presents a basis for further work on the taxonomy of this group, as well as a definite reference for concerned plant pathologists.

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ROGERSIA, A LATER NAME FOR FILOSPORELLA

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Rogersia Shearer and Crane (1976) was published on the 13th of October, 1976, with *R. annelidica* Shearer and Crane as the type species. Conidium ontogeny in *Rogersia* is identical to that in *Filosporella* Nawawi (1976) published on the 18th of September, 1976, with *F. aquatica* as the type species. We consider *Rogersia annelidica* distinct from *F. aquatica* since the conidia are always sigmoidal with the curvature in more than one plane while the conidia of *F. aquatica* are filiform. In addition, the fascicles of the dichotomous and trichotomous branches in *F. annelidica* are longer and these branches lack constrictions at the septa. Therefore, a new combination in *Filosporella* is proposed.

Filosporella Nawawi, Trans. Brit. Mycol. Soc. 67: 175. 1976.
=*Rogersia* Shearer and Crane, Mycologia 68: 946. 1976.

Filosporella annelidica (Shearer and Crane) Crane and Shearer, Comb. nov.
≡*Rogersia annelidica* Shearer and Crane, Mycologia 68: 949. 1976. (basionym).

ACKNOWLEDGMENT

We thank Dr. B. C. Sutton, of the Commonwealth Mycological Institute, for the loan of the type material of *Filosporella aquatica* and Dr. John Webster for reading the manuscript.

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GLOMUS ETUNICATUS SP. NOV.

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Apparently this is a rather common mycorrhizal fungus. It has been observed in wet-sievings of soils from Illinois, Missouri and Florida. Because of the extreme variability of spores with age, at one time we assumed that more than one species was represented. Its developmental morphology was not established until it was obtained in pure "pot culture".

Glomus etunicatus Becker & Gerdemann, sp. nov. Figs. 1-6

Chlamydosporae singillatim in solo vel radicibus emortuis efformatae, globosae vel subglobosae, 68-144 (-162) µm diametro, leves vel propter tunicae externae dissolutionem atque quisquiliarum adhesionem rugosae. Sporarum cortex 4-13 µm crassus, ex tunica exteriore ephemera hyalina ad 5 µm crassa et interiore persistenti lutea vel brunnea laminosa 2-8 µm crassa compositus. Sporarum maturarum tunica exterior raro intacta, interior maturitate saturescens et laminosa facta. Sporae ad hypham unam vel duas affixae, tunica exteriore brevem partem hyphae proximam includente, et interiore per spatium 30 µm in hypha extensa et eam incrassante. Sporarum contentus primo ab hypha a septo tenui curvato separatus, maturarum a lamina interiore incrassata.

Chlamydospores formed singly in soil or dead roots, globose to subglobose 68-144 (162) µm diameter, smooth or roughened from decomposition of the outer wall and adherent debris. Spore wall 4-13 µm thick, composed of an ephemeral hyaline outer wall up to 5 µm thick, and a persistent yellow to brown laminate inner wall 2-8 µm thick. Intact outer wall rarely present on mature spores, inner wall darkening and becoming laminate with age. Spores with one,

rarely two, hyphal attachments. Outer wall extending down attached hypha for a short distance. Attached hypha thickened by extension of inner spore wall for up to 30 µm. Spore contents separated from attached hypha by a thin curved septum; at maturity, opening occluded by inner wall thickening.

DISTRIBUTION, HABITAT, AND SEASON: Known from a virgin sand prairie in central Illinois and agricultural fields in Illinois, Missouri and Florida. Probably widespread in Eastern United States and present in the soil throughout the year. Spores form abundantly in pot culture after several months.

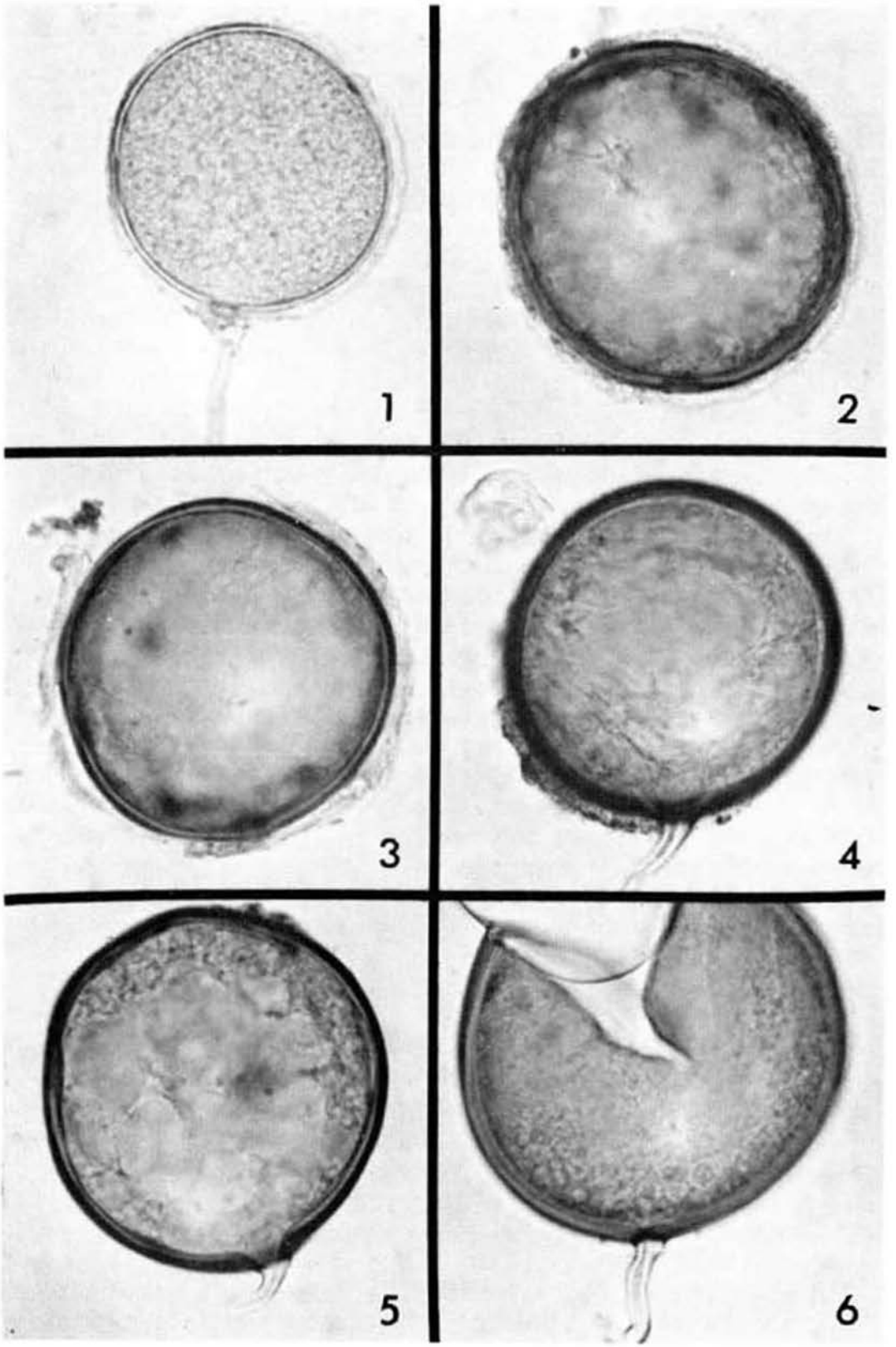
MYCORRHIZAL ASSOCIATIONS: Associated in the field with *Andropogon scoparius* Michx. and *Zea mays* L., forming vesicular-arbuscular mycorrhizae in pot cultures with *Allium cepa* L., *A. sativum* L., *Capsicum frutescens* var. *longum* Sendt., *Gleditsia triacanthos* var. *inermis* Willd., and *Trifolium repens* L.

ETYMOLOGY: Latin, etunicatus (deprived of its coat), referring to the ephemeral outer wall.

COLLECTIONS EXAMINED: TYPE: ILLINOIS - Mason Co., State of Illinois Department of Conservation Area, R.9W., T.20N., sections 14 and 23, inoculum from the sand prairie mixed with autoclaved soil and planted with onion, spores were retrieved June 23, 1976, Becker 02 (OSC). PARATYPE: FLORIDA - Orange Co., leg. Stanley Nemec (OSC).

Figures 1-6. *Glomus etunicatus*.

1. Young chlamydospore with intact outer wall, x 378.
2. Chlamydospore with intact outer wall, x 378.
3. Chlamydospore with outer wall beginning to slough off, x 378. 4. Chlamydospore with three-fourths of outer wall gone, x 378. 5. Chlamydospore with only a fragment of the outer wall remaining, x 378. 6. Chlamydospore without an outer wall. Note laminate inner wall and thickening in the attached hyphae, x 378.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Glomus etunicatus can be a very confusing species. The hyaline outer wall quickly decomposes, presumably from the action of soil microorganisms, and it is commonly absent from mature spores. Collections containing only young or only mature spores could easily be presumed to represent two distinct taxa. Spores of intermediate age are necessary in order to establish a relationship between the extremes.

The immature spores of *G. etunicatus* most clearly resemble those formed by *G. caledonius* (Nicol. & Gerd.) Gerd. and Trappe (1974). *G. caledonius* has, however, considerably larger spores (130-279 x 120-272 µm) and a hyaline outer wall which usually is persistent.

The hyphae of *G. etunicatus* are thin-walled and spores tend to break off just below the end of the inner wall thickening in the subtending hypha. Therefore collections of spores wet-sieved from soil very seldom occur in clusters. This serves to distinguish mature spores of *G. etunicatus* from those produced by *G. fasciculatus* (Thaxter) Gerd. & Trappe or *G. macrocarpus* Tul. & Tul. var. *macrocarpus* which because of thick-walled hyphae, tend to occur in clusters when wet-sieved.

Mature spores of *G. etunicatus* might be confused with those of *G. macrocarpus* var. *geosporus* (Nicol. & Gerd.) Gerd. & Trappe, the spores of which also occur singly when wet-sieved from soil. The spores of *G. macrocarpus* var. *geosporus* are darker, larger (110-290 x 100-290 µm), and the wall thickening extends down the attached hypha a much greater distance (50-150 µm).

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NEW GYMNOASCACEAE

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SUMMARY

Two new genera of the Gymnoascaceae, one with two species, are described: *Plunkettomyces littoralis*, *Disarticulatus devroeyi* and *D. indicus*. They are also compared with related genera.

INTRODUCTION

Several strains of gymnoascaceous fungi that differed from known species were isolated from different substrates and geographic areas. A study of these strains indicated that they represented unknown genera and species. They are described here and compared with other members of the family.

Desiccated cultures of the holotype specimen, isotypes, and representative strains of the fungi have been deposited in NY, FH, and CUP. Representative cultures have been deposited in ATCC and NRRL.

TAXONOMY AND DISCUSSION

PLUNKETTOMYCES ORR, GEN. NOV.

Gymnothecia flava usque ad aurantiaca ad aurantio-brunnea, plus minus globosa; elementa extrinsecus e centro vel e basi caespitium ascogenorum radiantia, elongata septata glabra vel tuberculata, flavidula vel subaurantiaca; asci globosi vel ellipsoidei, evanescentes octospori; ascosporae flavo-brunneae vel aurantio-brunneae, lenticulares, per axem longitudinalem costata; status asexualis in forma arthroaleuriosporarum; hyphae ampulliformes praesentes.

Species typicus: *Plunkettomyces littoralis* Orr

Etym: After Dr. O. A. Plunkett, Mycologist, who isolated most of the cultures, and who taught and interested many individuals in the fields of general and medical mycology.

Gymnothecia yellow to orange, more or less globose with elements radiating outward from the center or from the base of the ascal clusters. Elements elongate, septate, smooth to tuberculate, pale yellowish or orangish. Asci globose or ellipsoid, evanescent, 8-spored. Ascospores yellow-brown to orange-brown, lenticular, rimmed on the longitudinal axis. Asexual phase represented by arthroaleuriospores. Racquet (ampulliform) hyphae present. *Plunkettomyces littoralis* Orr, sp. nov.

Fungus homothallicus. Gymnothecia flava usque ad aurantiobrunnea, plus minus globosa, 35-155 µm diam, confluentia; elementa 2.1-3.3 µm lata, extrinsecus e centro vel e basi caespitum ascogenorum radianta, hyalina vel colorata, simplicia vel dichotome ramosa, glabra vel tuberculata; asci globosi 9.5-9.9 µm diam, vel ellipsoidei 7.7-10.3 x 10.3-10.8 µm, hyalini evanescentes octospori; ascosporae flavo-brunneae vel aurantio-brunneae in aspectu fronti circulares, 4.2-5.7 µm diam, costa externa 0.3-0.6 µm lata praeditae, vel lenticulares, a latere visae ad axem longitudinalem vittate, 2.9-3.8 x 4.2-5.6 µm, crassitunicatae glabrae; status asexualis in forma arthroaleuriosporarum plus minus cylindricarum, 2-2.8 x 5-7 µm; hyphae ampulliformes praesentes non gymnothecia consociates.

Type culture: O-3053, isolated from a conch shell collected on the beach at April Point, Quadra Island, Vancouver, B. C., Canada. Holotype specimen deposited in NY.

Fungus homothallic. Gymnothecia yellow to orange-brown, more or less globose, 35-155 µm diam, often confluent; elements 2.1-3.3 µm wide radiating outward from the center or the base of the ascal clusters, hyaline or colored, simple or dichotomously branched, smooth or tuberculate. Asci globose, 9.5-9.9 µm diam, or ellipsoid, 7.7-10.3 x 10.3-10.8 µm hyaline, evanescent, 8-spored. Ascospores yellow-brown or orange-brown, circular in face view, 4.2-5.7 µm diam, with an external rim, 0.3-0.6 µm wide, or lenticular in side view with a band on the longitudinal axis, 2.9-3.8 x 4.2-5.6 µm, walls thick, smooth. Asexual phase represented by more or less cylindrical arthroaleuriospores, 2-2.8 x 3.5-7 µm. Racquet hyphae present, not in association with the gymnothecia.

Material examined: (Unless otherwise noted, isolations were made from beached materials or beach soil). Canada: April Point, Vancouver, B. C. - O-3051, snail shell; O-3053 (ATCC 34436), conch shell. Mexico: Mazatlan, Sinaloa - 3-3043 (ATCC 34432), kelp; O-3045, sand; O-3046, red algae; O-3050, crab shell; O-3055, sea anemone, Puerto Vallarta, Sinaloa - O-3071, sand; O-3073, crab shell; O-3076, insect carapace; O-3078, coral. San Jose Island, Baja California del Sur - O-3048 (ATCC 34434), O-3049 (ATCC 34435), clam shells. U. S. A.: Cabrillo Beach, San Diego, California - O-3024 (ATCC 34431), sand; O-3044, red algae; O-3065 (ATCC 34437), limpett shell. Italy: Romagna region - O-3360 (Varsavsky I-6a, ATCC 34430), soil.

Colonies on Freezing agar (4) or Oatmeal-Salts agar (10) attain a diameter of 70-75 mm in 25-35 days at 30 C. Color of mature colonies may be in buff, dull yellow or yellow-brown shades. Colony reverse is sometimes yellowish. Occasionally, some colorless exudate may be present, but no odor was observed.

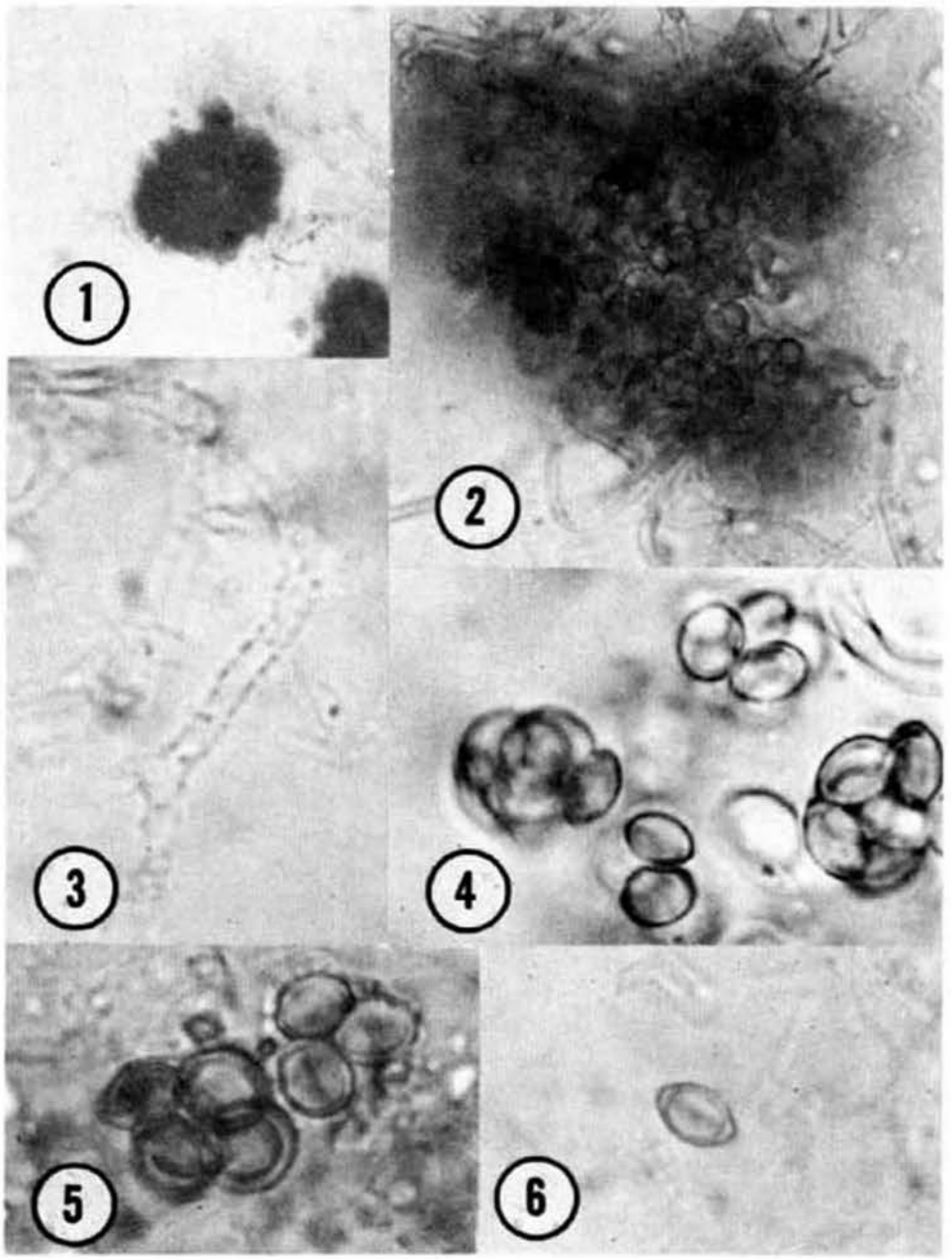
Gymnothecia (Fig. 1) are similar to those of *Gymnascella* Peck (8) in general morphology. Peridial elements (Fig. 2) radiate outward from the centrum or the base of the asci. These elements are smooth or coarsely tuberculate (Fig. 3) and taper slightly toward the apices. They may be hyaline, pale yellow, or pale yellow-brown. Gymnothecia of *P. littoralis* also differ from those of *Pseudoarachniotus* Kuehn (8) since the latter has ascocarps composed of loosely interwoven elements (which often disintegrate by maturity) or produces only free ascal clusters.

The ascospores of *P. littoralis* are lenticular with a longitudinal band (Figs. 5, 6) and are similar in morphology to those of *Pseudoarachniotus flavoluteus* (Kuehn & Orr) Orr, Ghosh & Roy (8). The ascospores of the former, however, are yellow-brown to orange-brown and in the latter they are yellow to pale orange. Some ascospores of *P. flavoluteus* may be banded around both axes, a condition not observed on the ascospores of *Plunkettomyces littoralis*. Ascospores in *Gymnascella* are oblate and without adornment rather than lenticular and banded as in *P. littoralis*.

Plunkettomyces littoralis may represent an intermediate between *Gymnascella* and *Pseudoarachniotus*.

DISARTICULATUS ORR, GEN. NOV.

Gymnothecia flavo-aurantia usque ad aurantia, plus minus globosa, elementis saepe inflatis crassitunicatis ad disarticulationem inclinantibus composita; asci globosi vel ellipsoidei evanescentes octospori; ascosporae circulares



Figures 1-6. *Plunkettomyces littoralis*. Fig. 1. Gymnothecium. x 45. Fig. 2. Gymnothecium and individual elements. x 450. Fig. 3. Tuberculate peridial elements. x 950. Fig. 5. ascospores in face view showing external rim. x 1000. Fig. 6. Ascospore in longitudinal view showing rim. x1000.

usque ad ellipticae, protuberatione exiqua laterali praeditae, flavae usque ad aurantiae, crassitunicatae glabrae; status asexualis carens; hyphae ampulliformes praesentes.
Species typica: *Disarticulatus devroeyi* Orr
Etym: To break apart or become disjointed.

Gymnothecia yellow-orange to orange, more or less globose, composed of thick-walled, often inflated elements tending to disarticulate. Asci globose or ellipsoid, evanescent, 8-spored. Ascospores circular to elliptical with a slight lateral bulge, yellow to orange, walls thick, smooth. Asexual phase absent. Racquet hyphae present.

Disarticulatus devroeyi Orr, sp. nov.

Fungus homothallicus. Gymnothecia flavo-aurantia usque ad aurantia, plus minus globosa 30-175 μm diam, cellulis in forma variabilibus 3.8-13.3 μm latis, crassitunicatis (0.6-1.4 μm), libenter disarticulantibus composita, cellulis aliquis gymnothecialibus e sulcis internis annularibus lineatis; asci globosi, 9.5-15 μm diam vel ellipsoidei, 9.1-9.5 x 11.4-12.3 μm, hyalini evanescentes octospori; ascosporae flavo-aurantiae usque ad aurantiae, in aspectu frontali circulares 5.9-7.6 μm diam vel ellipticae longitudinaliter visae protuberatione laterali exigua praeditae, 3.4-3.8 x 3.8-5.9 μm, crassitunicatae glabrae; sporae asexual iscarentes; hyphae ampulliformes praesentes, gymnothecia non consociatae.
Type culture: O-3485, from soil, Republic of Somalia. Holotype specimen deposited in NY.

Fungus homothallic. Gymnothecia yellow-orange to orange, more or less globose, 30-175 μm diam. Components of the gymnothecia of variously shaped cells, 3.8-13.3 μm wide, with thick walls, 0.6-1.4 μm tending to disarticulate readily; some individual cells of the gymnothecia lined with annular grooves on the interior. Asci globose, 9.5-15 μm diam, or ellipsoid, 9.1-9.5 x 11.4-12.3 μm, hyaline, evanescent, 8-spored. Ascospores yellow-orange to orange, circular in face view, 4.9-7.9 μm diam, or elliptical with a slight lateral bulge in side view, 3.4-3.8-3.8-5.9 μm, walls thick, smooth. Asexual phase absent. Racquet hyphae present, not in association with the gymnothecia.
Material examined: All strains were isolated from soil, Republic of Somalia by Dr. C. Devroey, Institut de Médicine Tropicale Prince Léopold, Antwerp, Belguim. O-3167 (RV 20001), O-3185 (RV 19811), O-3475 (RV 19863), O-3476 (RV 19864), O-3485 (RV19682, NRRL 5543, ATCC 34425, UAMH 4018), O-3489 (RV 20002, ATCC 34426), O-3490 (RV 19653).

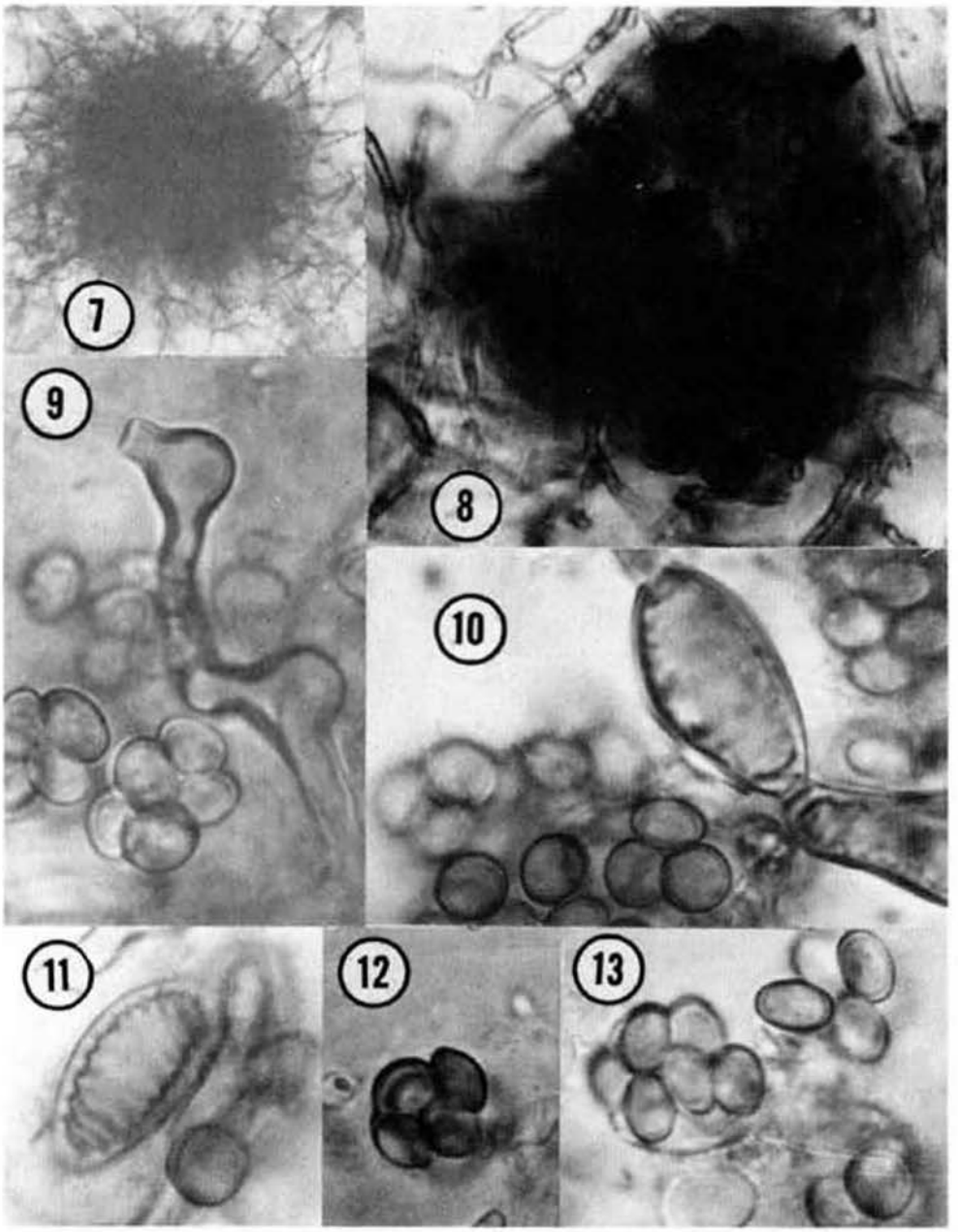
Colonies of *D. devroeyi* on freezing agar (4) and Oatmeal-Salts agar (10) attain a diameter of 75-80 mm in 25-30 days at 30 C. Colonies are at first white, becoming yellowish to yellow-green and finally orange, orange-brown or cinnamon in age. Colony reverse is frequently reddish-brown. A red exudate is sometimes present, but no odor was observed.

Discrete gymnothecia (Figs. 7, 8) are composed of large, thick-walled elements (Figs. 9, 10) that tend to disarticulate readily, resembling *Shanorella* Benjamin (1). Some of these peridial elements have distinct interior annular grooves (Figs. 10, 11). This character has not been observed in the peridial elements of any other gymnoascaceous species. The peridial elements are otherwise similar to those of *Petalosporus nodulosus* Ghosh, Orr & Kuehn (3). *Petalosporus* Ghosh, Orr & Kuehn (3) was described originally as having a rudimentary peridium. Additional observations on numerous strains of two of the three *Petalosporus* species demonstrate that the peridium is not as rudimentary as originally described (Fig. 14).

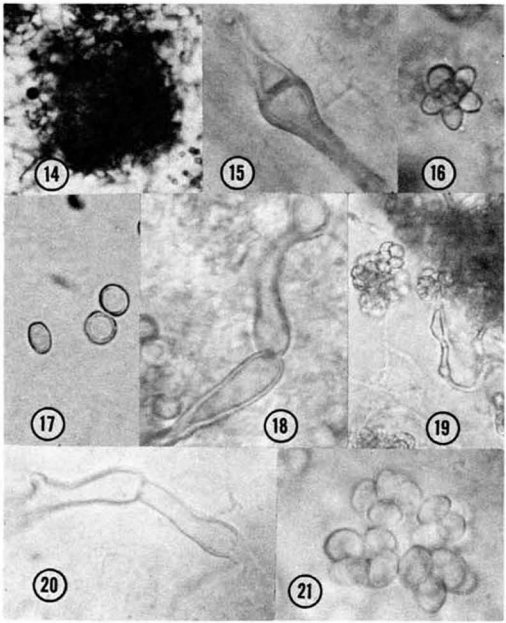
Ascospores of *D. devroeyi* are circular in face view (Fig. 12) and elliptical in longitudinal view (Fig. 13). In shape, they are similar to ascospores of *Gymnoascus* Baran., *Gymnascella* and other gymnoascaceous species listed by Orr (6) and Orr et al. (8, 9). Padhye and Carmichael (10) have described similar ascospores in *Arthroderma* Berkeley and *Nannizzia* Stockdale as "oblate spheroids." The ascospores of *D. devroeyi* resemble those of species of *Petalosporus* (3, 5, 7) since slight lateral bulges (Figs. 13, 17) are present in both. The isolates representing *D. devroeyi* were provisionally identified as *Petalosporus* sp. by DeVroey (2). The disposition of ascospores in the ascus in a petaloid arrangement in *Petalosporus* species is lacking in *D. devroeyi* (Figs. 12, 13). *Disarticulatus* and *Petalosporus* are probably related.

Disarticulatus indicus Orr, sp. nov.

Fungus homothallicus. Gymnothecia flava usque ad aurantia, plus minus globose, 225-625 µm diam, confluentia; elementa gymnothecialia e cellulis in forma variabilibus 6.3-15 µm latis crassitunicatus (0.6-1.3 µm) ad disarticulationem inclinatibus composita; asci globosi 9-12.9 µm vel ellipsoidei 8.6-12.1 x 10.8-16.3 µm, hyalini evanescentes octospori; ascosporae flavo-brunneae usque ad aurantio-brunneae, in aspectu frontali circulares 4-6.4 µm diam, vel ellipticae, longitudinaliter visae protuberatione laterali exigua praeditae, 3.6-5.7 (7.6) x 5.9-7.6 (11.4)



Figures 7-13. *Disarticulatus devroeyi*. Fig. 7. Gymnothecium. x100. Fig. 8. Gymnothecium and peridial elements. x450. Fig. 9. Swollen peridial elements. x1000. Fig. 10. Enlarged elements with thick walls. x1000. Fig. 11. Enlarged elements showing interior grooves. x1000. Fig. 12. Ascospores within an ascus. x950. Fig. 13. Ascospores. Note lateral bulges. x1000.



Figures 14-16. *Petalosporus nodulosus*. Fig. 14. Gymnothecium. x450. Fig. 15. Thick walled peridial elements with swellings. x1000. Fig. 16. Ascospores in petaloid arrangement. x950. Figures 17-18. *Petalosporus anodosus*. Fig. 17. Ascospores. Note lateral bulge. x1000. Fig. 18. Peridial elements. x1000. Figures 19-21. *Disarticulatus indicus*. Fig. 19. Peridial elements. x450. Fig. 20. Peridial elements. x1000. Fig. 21. Asci and ascospores. x1000.

µm, crassitunicatae glabrae; status asexualis carens; hyphae ampulliformes gymnotheciis consociatae praesentes. Type culture: O-1130, from soil, Calcutta, West Bengal, India. Holotype specimen deposited in NY.

Fungus homothallic. Gymnothecia yellow to orange, more or less globose, 225-625 µm diam, often confluent; elements composing the gymnothecia of variously shaped cells, 6.3-15 µm wide, with thick walls (0.6-1.3 µm), tending to disarticulate. Asci globose, 9-12.9 µm diam, or ellipsoid, 8.6-12.1 x 10.8-16.3 µm, hyaline, evanescent, 8-spored. Ascospores yellow-brown to orange-brown, circular in face view, 4-6.3 µm diam, or slliptical with a slight lateral bulge in longitudinal view, 3.6-5.7 (7.6) x 5.9-7.6 (11.4) µm, walls thick, smooth. Asexual phase absent. Racquet hyphae present, in association with the gymnothecia.

Material examined: India: Bhubaneswar, Orissa - O-951 (ATCC 34427), guinea pig dung. Puri, Orissa - O-1069 (Ghosh GR-15), bat dung. Calcutta, West Bengal (?) - O-1130 (Gugnani S 399, ATCC 34428), from soil; O-1131 (Gugnani S 400, ATCC 34429), from soil.

Colonies of *D. indicus* on Freezing agar (4) and Oatmeal-Salts agar (10) attain a diameter of 80-85 mm in 25-30 days at 30 C. Colonial felt may be in yellow-orange, orange or cinnamon shades on those media, but little aerial mycelium is present. Colony reverse may be orange or brownish. Cultures produce a slightly musty odor, but no exudate was observed.

Gymnothecia (Fig. 14) and peridial elements (Figs. 19, 20) are somewhat similar to those produced by *Petalosporus anodosus* Kuehn, Orr & Ghosh (Fig 18). These similarities also suggest a relationship between *Disarticulatus* and *Petalosporus*.

Ascospores of *D. indicus* (Fig. 21) are similar in morphology to those of *Petalosporus* (Fig 17) since they are circular in face view and elliptical in longitudinal view. In addition, ascospores have slight lateral bulges (Fig. 21). However, the petaloid arrangement of the ascospores in the asci in species of *Petalosporus* is lacking in *D. indicus*.

Keys to some genera and species of the Gymnoascaceae was prepared by Orr (6) and Orr et al. (9).

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SYNOPSIS OF WOOD-ROTTING FUNGI ON SPRUCE IN NORTH AMERICA: I[1]

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SUMMARY

One hundred and twenty-nine species of wood-rotting basidiomycetes in the family Corticiaceae are reported to occur on 8 species of North American spruces. The new combinations *Hyphoderma ludoviciana*, *Hyphoderma resinosum*, and *Hyphoderma terricola* are proposed.

The genus *Picea* A. Dietr. is represented in North America by 9 species commonly known as spruces. These are *Picea breweriana* S. Wats. (Brewer spruce), *P. engelmannii* Parry (Engelmann spruce), *P. glauca* (Moench.) Voss (white spruce), *P. mariana* (Mill.) B. S. P. (black spruce), *P. pungens* Engelm. (blue spruce), *P. rubens* Sarg. (red spruce), *P. sitchensis* (Bong.) Carr. (Sitka spruce), *P. chihuahuana* Martinez (Chihuahua spruce), and *P. mexicana* Martinez (Mexican spruce). Spruces occur in cool north temperate regions of North America and two occur at high elevations in Mexico.

Brewer spruce is limited to a few localities in southwestern Oregon and northern California and is of little commercial importance. Engelmann spruce occurs in the

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Rocky Mountain region from southern Arizona to central Alberta and British Columbia and in the Cascade Mountain forests and is an important timber tree. White spruce is a widely distributed tree ranging from Newfoundland across Canada and nearly to the western coast of Alaska. It occurs in the United States in the Northeast, the Great Lakes region, western Montana, and the Black Hills of South Dakota and Wyoming. White spruce is important for saw timber and pulpwood. Black spruce has a distribution in Canada and Alaska similar to that of white spruce and extends into the United States in the Northeast and Great Lakes region. It is important for pulpwood.

Blue spruce occurs in the central Rocky Mountains from southern Idaho and Wyoming to Arizona and New Mexico. It is a minor timber species. Red spruce is distributed from Labrador to the Great Smoky Mountains of North Carolina and Tennessee. It is important for timber and pulpwood, especially in the maritime provinces of Canada and the northeastern United States. Sitka spruce occurs only along the Pacific Coast from southern Alaska to northern California. It is the largest North American spruce and is an important timber tree. Chihuahua spruce has a limited distribution in the mountains of Chihuahua, and Mexican spruce occurs only in the mountains around Saltillo, Coahuila. Detailed information on the distribution and silvical characteristics of the spruces is in publications by Fowells (1965) and Little (1971) and in Harlow and Harrar's textbook of dendrology (1958). For information on the Mexican spruces, see Martinez (1963).

This is the first part of an intended three part synopsis of wood-rotting fungi that have been found on the spruces in North America. The fungi include both those collected by the authors and those reported in literature. Host indices including records of wood-rotting fungi on North American spruces are those of Magasi (1966), Lowe (1969), Shaw (1973), Gilbertson, Martin, and Lindsey (1974), the USDA host index (1960), and Connors (1967).

Part 1 includes keys to the orders of lignicolous Basidiomycetes, keys to the families of the Aphyllophorales, and keys to the subfamilies, genera, and species of the Corticiaceae.

Pertinent descriptive characters not included in the keys, the species of spruce on which each fungus occurs,

geographical locality, and type of rot produced (if known) follow each fungal species. If only one species of a genus has been found on spruce, the species is included in the generic key.

We have no reports of wood-rotting fungi on *P. mexicana*. Numbers used to designate the other species of spruce in the text are as follows: 1. *P. breweriana;* 2. *P. engelmannii;* 3. *P. glauca;* 4. *P. mariana*; 5. *P. pungens*; 6. *P. rubens*; 7. *P. sitchensis*; 8. *P. chihuahuana*; 9. *Picea* sp. Abbreviations designating geographical localities are: AK, Alaska; AZ, Arizona; AT, Alberta; BC, British Columbia; CA, California; CO, Colorado; CH, Chihuahua; CT, Connecticut; ID, Idaho; MB, Manitoba; ME, Maine; MN, Minnesota; MT, Montana; NB, New Brunswick; NF, Newfoundland; NH, New Hampshire; NM, New Mexico; NWT, Northwest Territories; NS, Nova Scotia; NY, New York; OR, Oregon; OT, Ontario; PA, Pennsylvania; PEI, Prince Edward Island; QB, Quebec; SK, Saskatchewan; UT, Utah; VT, Vermont; WA, Washington; WS, Wisconsin; WY, Wyoming; YT, Yukon Territory.

Key to the Orders of Lignicolous Basidiomycetes

1. Basidia septate, bifurcate, or with stout epibasidia . . . . . TREMELLALES
1. Basidia not septate, not bifurcate, and without stout epibasidia. 2
    2. Hymenophore in form of radial lamellae; basidiocarps mostly fleshy, deteriorating rapidly after maturity. . . . . AGARICALES
    2. Hymenophore smooth, hydnaceous, folded, in the form of united tubes or erect flattened branches; if lamellate, then basidiocarps tough, corky and not deteriorating rapidly . . . . . APHYLLOPHORALES

Key to Families of APHYLLOPHORALES

1. Tissue brown, permanently darkening in KOH solution; clamp connections absent; setae present or absent. . . . . HYMENOCHAETACEAE
1. Tissue white to light or bright colored, if brownish not permanently darkening in KOH solution; clamps present or absent, setae not present . . . 2

2. Hyphae pigmented, loosely arranged; basidiospores pigmented, echinulate to verrucose or strongly warted. . . . . THELEPHORACEAE
2. Hyphae hyaline or pigmented, loosely to compactly arranged; basidiospores hyaline or pigmented, smooth with few exceptions. . . 3
3. Basidiocarps with hymenophore in form of united tubes . . . . . POLYPORACEAE
3. Basidiocarps not as above 4
4. Basidiocarps with hymenium on erect branched or simple lobes 5
4. Basidiocarps not as above 6
5. Basidiocarps much branched with hymenium on surface of anastomosing petal-like lobes .SPARASSIDACEAE
5. Basidiocarps with simple, erect lobes or, if branched, lobes not petaloid. . . . . CLAVARIACEAE
6. Basidiospores brown to yellowish, dextrinoid or not in Melzer's reagent. . . . CONIOPHORACEAE
6. Basidiospores hyaline or faintly pigmented, amyloid, dextrinoid or negative in Melzer's reagent 7
7. Dextrinoid hyphidia present . . . . LACHNOCLADIACEAE
7. Dextrinoid hyphidia absent. 8
8. Basidiocarps woody, perennial; basidiospores amyloid; thick-walled, incrusted cystidia present . . . . . ECHINODONTIACEAE
8. Not with the above combination of characters. 9
9. Basidiospores amyloid; gloeoplerous hyphae present . . . . . HERICEACEAE
9. Basidiospores amyloid or not; gloeoplerous hyphae not present. 10
10. Hymenophore toothed or smooth; hyphal system dimitic with thick-walled incrusted cystidia. . . . . STECCHERINACEAE
10. Hymenophore smooth or merulioid; if toothed, hyphal system not dimitic 11
11. Hymenophore merulioid; hymenium developed on the ridges and absent between them. . . . PUNCTULARIACEAE
11. Hymenophore and hymenium not as above 12
12. Basidiocarps effused-reflexed to sessile . . . . . STEREACEAE
12. Basidiocarps resupinate . . . . . CORTICIACEAE

Family CORTICIACEAE

Key to subfamilies

1. Subicular hyphae large, up to 8-10 µm diam with distinctive right angle branching; lacking thick-walled, incrusted cystidia. .BOTRYOBASIDIOIDEAE Parm.
1. Subicular hyphae smaller, usually 2-6 µm diam, usually without distinctive right angle branching, or with thick-walled incrusted cystidia 2
   2. Basidia globose or subglobose to urniform or if clavate then hyphae ampullate at the septa. . .SISTOTREMOIDEAE J. Erikss. emend. Parm.
   2. Basidia narrowly to broadly clavate or utriform, hyphae not ampullate at septa . . . 3
3. Basidia utriform, arising from imbedded basidioles, developing in a catahymenium . . . . . ALEURODISCOIDEAE (Pil.) Parm.
3. Basidia not utriform, developing in a typical euhymenium. 4
   4. Hymenophore smooth; cystidia thick-walled, mostly with a thin-walled apical bulb, usually rooted, dissolving in 10% KOH; if cystidia absent, rooted basidia present . . . . . TUBULICRINIOIDEAE Parm.
   4. Hymenophore smooth; hydnaceous, merulioid, or poroid; cystidia if present not rooted, and usually not dissolving in KOH; basidia not rooted. 5
5. Gloeocystidia present; basidiospores weakly to strongly amyloid . . . . GLOEOCYSTIDIELLOIDEAE Parm.
5. Gloeocystidia present or absent, if present, basidiospores not amyloid 6
   6. Subicular hyphae usually gelatinizing, not readily separable . . . . . PHLEBIOIDEAE J. Erikss. emend. Parm.
   6. Subicular hyphae usually distinct, not gelatinizing (see also *Dacryobolus*). 7
7. Lower subiculum with a layer of loosely arranged basal hyphae parallel to substratum; hymenial layer usually forming a distinct pellicle . . . . . ATHELIOIDEAE Parm.
7. Basal hyphae rarely parallel to substratum, hymenial layer appearing tomentose or pilose, not pelliculose . HYPHODERMOIDEAE J. Erikss. ex Parm.

Subfamily ALEURODISCOIDEAE

Key to Genera

1. Basidiospores amyloid; acanthophyses or paraphysoid hyphae present; gloeocystidia present in most species . . . . . *Aleurodiscus* Rabenh. ex J. Schroet.
1. Basidiospores not amyloid; acanthophyses and gloeocystidia not present . *Aleurocystidiellum* Lemke

Aleurocystidiellum subcruentatum (Berk. et Curt.) Lemke. Basidiocarps discoid to subpileate, cream-buff; hyphal system dimitic, generative hyphae with clamps; incrusted paraphysoids abundant; basidiospores ovoid to broadly ellipsoid, verruculose, 15-18 x 11-15 µm. On 3 in QB; 6 in NH, NY; 7 in AK, CA, OR, WA; 9 in NS, OT.

Key to Species of *Aleurodiscus*

1. Basidiospores echinulate. 2
1. Basidiospores smooth. 5
2. Basidiocarps corticioid 3
2. Basidiocarps discoid

Aleurodiscus amorphus (Pers. ex Fr.) J. Schroet. Hymenial surface orange-buff to rosaceous-buff; hyphae simple-septate; moniliform paraphysoid hyphae present between basidia, not projecting; basidiospores subglobose to ovoid, 20-26 x 16-20 µm. White rot on 3 in AT; 5 in CO, ID; 7 in CA, OR; 9 in CO.

3. Basidiospores less than 15 µm long and 14 µm wide 4
3. Basidiospores 15-20 x 14-18 µm

Aleurodiscus penicillatus Burt. Basidiocarps in small crust-like patches; hymenial surface light-buff to cream-buff; hyphae with clamps; moniliform or mammillate gloeocystidia abundant; acanthophyses cylindrical to clavate, with acicular projections towards the apex; basidiospores globose to subglobose. White rot on 3 in QB; 6 in NH; 7 in BC, OR.

4. Basidiospores 5-7 x 5-6 µm

Aleurodiscus weirii Burt. Hymenial surface white when fresh, aging cream to Cartridge Buff; hyphae with clamps; acanthophyses cylindrical, with aculeate projections at the apex; basidiospores subglobose. White rot on 7 in AK.

4. Basidiospores 8-10 x 8-9 µm

Aleurodiscus laurentianus Jacks. et Lemke. Hymenial surface white when fresh, drying creamy to tan; hyphae with clamps; acanthophyses cylindrical to subrectangular, aculeate projections lateral or apical or both; basidiospores globose to subglobose. On 4 in QB.

5. Basidiospores ellipsoid to subglobose, over 10 µm long and 7 µm wide 6
5. Basidiospores cylindric, 6-8 x 3-4 µm

Aleurodiscus lividocoeruleus (Karst.) Lemke. Basidiocarps widely effused; hymenial surface cream colored to dark bluish gray; hyphae with clamps; gloeocystidia imbedded or projecting, often moniliform or mammillate; acanthophyses subclavate, aculeate over apical portion. White rot on 2 in AZ, CO, UT; 3 in AK, YT; 4 in OT; 9 in AT, BC, MT, NF, OT, QB.

6. Basidiocarps orbicular with determinate margins; hyphae simple-septate 7
6. Basidiocarps corticioid; hyphae with clamps

Aleurodiscus canadensis Skolko. Basidiocarps in small adnate patches, pruinose, pale brownish; gloeocystidia abundant, mostly imbedded; acanthophyses strongly aculeate, often swollen at the base; branched paraphysoids present; basidiospores ellipsoid, 17-22 x 10-14 µm. White rot on 3 in OT, QB; 9 in OT, QB.

7. Basidiospores 17-20 x 13-25 µm

Aleurodiscus piceinus Lyon et Lemke. Hymenial surface drying ochraceous buff with rosaceous and cinereous tints; margin whitish; gloeocystidia embedded,

mammillate; acanthophyses cylindrical to clavate, aculeate on the upper half; basidiospores ovoid to ellipsoid. On 6 in NH, QB, VT; 9 in OT.

7. Basidiospores 12-15 x 7.5-9 µm

Aleurodiscus fennicus Laur. Hymenial surface pale gray to grayish rose; margin somewhat reflexed, white; gloeocystidia cylindrical, embedded; acanthophyses cylindrical to subclavate, acicular projections on the upper one-third to two-thirds; basidiospores ovoid to ellipsoid. White rot on 6 in NH, NY, QB.

Subfamily ATHELIOIDEAE

Key to Genera

1. Basidiospores dextrinoid or amyloid in Melzer's reagent 2
1. Basidiospores negative in Melzer's reagent. . . . 3
   2. Hymenial surface merulioid; basidiospores ellipsoid, dextrinoid . . . *Leucogyrophana* Pouz.
   2. Hymenial surface smooth; basidiospores narrowly ellipsoid to cylindric, amyloid . . . . . *Amylocorticium* Pouz.
3. Hymenial surface merulioid when fresh, usually remaining merulioid on drying. 4
3. Hymenial surface smooth when fresh, or if merulioid then becoming smooth on drying. 5
   4. Hymenial surface buff to pinkish or reddish; basidiospores hyaline in KOH. *Byssomerulius* Parm.
   4. Hymenial surface orange-yellow; basidiospores pale yellowish in KOH. . . .*Plicatura* Pk.

Plicatura aurea (Fr.) Parm. Basidiocarps radiately plicate; hyphae with clamps; basidiospores cylindric to sub-allantoid, 3.5-4.5 x 1.5-2 µm. Brown rot on 2 in MT; 3 in BC.

5. Hymenial layer pellicular, on a soft, arachnoid subiculum; cystidia absent. *Athelia* Pers. emend. Donk
5. Hymenial layer waxy to tomentose or arid, or if pellicular, then conspicuous cystidia present . . 6

6. Subicular hyphae mostly simple-septate, but most species with some double or single clamps; basidiospores cylindric . . . . . *Phanerochaete* Karst. emend. Donk
6. Subicular hyphae strictly with clamps; basidiospores triangular. . . . . *Tylospora* Donk

Key to Species of *Amylocorticium*

1. Basidiospores narrowly cylindric, slightly curved

Amylocorticium subsulphureum (Karst.) Parm. Hymenial surface yellowish to cream colored; hyphae with clamps; cystidia cylindric, abundant; basidiospores 5-6.5 x 1.5-2 µm. White rot of 2 in MT; 9 in AT.

1. Basidiospores narrowly ellipsoid, flattened on one side

Amylocorticium subincarnatum (Pk.) Pouz. Hymenial surface yellow to cinnamon yellow; margin minutely fibrillose; hyphae with clamps; cystidia cylindric, abundant, sometimes with a clamp; basidiospores 4-5.5 x 2-2.5 µm. White rot on 2 in AZ; 3 in BC, MN; 9 in AT.

Key to Species of *Athelia*

1. Hyphae mostly simple-septate, some with rare clamps. 2
1. Hyphae mostly with clamps 5
   2. Basidiospores ellipsoid, or subglobose to ovoid, not over 4 µm long 3
   2. Basidiospores ellipsoid, to 8 µm long.

Athelia decipiens (Hoehn. et Litsch.) J. Erikss. Hymenial surface white to grayish, cracking on drying; basidiospores 4-6 (-8) x 2-3 µm. White rot on 2 in CO, UT.

3. Rhizomorphs absent or not bright yellow 4
3. Bright yellow rhizomorphs at margin and in substratum

Athelia bicolor (Pk.) Parm. Hymenial surface smooth, whitish to yellowish buff; subiculum bright yellow; basidiospores ellipsoid to ovoid, 3-4 x 2-3 µm. On 3 in AK, BC; 9 in AT, CO, QB.

4. Hymenial surface often warted or with circular depressions; white rhizomorphs often present

Athelia byssina (Karst.) Parm. Hymenial surface cream or splotched with golden yellow; basidiospores ovoid to subglobose, 3-4 x 2-3 µm. White rot on 2 in AZ, MT; 3 in MN, NWT; 9 in AT.

4. Hymenial surface smooth; rhizomorphs absent

Athelia reticulata (Litsch.) Parm. Hymenial surface cream colored; basidiospores broadly ellipsoid, 3-4 x 2-3 µm. White rot on 2 in AZ.

5. Hymenial layer whitish to buff; subiculum concolorous or paler 6
5. Hymenial layer cream to buff on a pale brown subiculum

Athelia fuscostrata (Burt) Donk. Margin sometimes rhizomorphic; basidiospores ellipsoid to short cylindric, flattened on one side, 3-4 x 2-2.5 µm. White rot on 2 in AZ, BC.

6. Basidiospores over 4.5 µm long. 9
6. Basidiospores 4.5 µm long or less 7
7. Cystidia absent 8
7. Cystidia present

Athelia munda (Jacks. et Deard.) M. P. Chris. Cystidia cylindric, slightly thick-walled, 30-40 x 3-4 µm; basidiospores narrowly ellipsoid to fusiform, 3-4 x 2-2.5 µm. White rot on 2 in AZ.

8. Hymenial layer cream to pale buff; basidiospores 2.5-3 x 2-2.5 µm

Athelia microspora (Karst.) Gilbn. Subicular hyphae often incrusted with small granules and appearing rough. White rot on 5 in CO; 9 in AT.

8. Hymenial layer whitish with a bluish tint; basidiospores 3-4.5 x 2-3 µm

Athelia galzinii (Bourd.) Donk. Basidiospores cylindric-ellipsoid. White rot on 2 in CO, MT; 3 in YT; 9 in QB.

9. Basidiospores ellipsoid to cylindric or obliquely pyriform 10
9. Basidiospores obovate to subglobose

Athelia neuhoffii (Bres.) Donk. Hymenial layer whitish to cream yellow; basidiospores 5.5-7.5 x 3.5-5 µm. White rot on 3 in AK; 9 in AT, QB.

10. Basidiospores cylindric, length greater than twice the width 11
10. Basidiospores ellipsoid or obliquely pyriform, length less than twice the width

Athelia tessulata (Cke.) Donk. White rhizomorphs present; basidiospores with large apiculus, 4.5-5 x 2.5-3 µm. White rot on 3 in BC.

11. Hymenial surface light buff to ochraceous buff, shallowly merulioid

Athelia septentrionalis J. Erikss. Rhizomorphs absent; basidiospores cylindric, 6-6.5 x 2 µm. White rot on 2 in AZ; 3 in AK.

11. Hymenial surface with a faint tint of rose, smooth

Athelia borealis (Rom.) Parm. Rhizomorphs present in subiculum and marginal tissue; basidiospores cylindric to fusiform, slightly curved, 4-6 x 2-2.5 µm. White rot on 3 in BC; 4 in AT; 9 in BC.

Key to Species of *Byssomerulius*

1. Hyphae simple-septate 2
1. Hyphae with clamps 3
2. Cystidia present

Byssomerulius hirtellus (Burt) Parm. Hymenial surface pinkish buff to cream colored or cinereous

when dry; subiculum white; cystidia hyphoid, cylindric; basidiospores cylindric to slightly allantoid, 4-5 x 1.5-2 µm. White rot on 2 in AZ, CO, UT; 6 in NY.

2. Cystidia absent

Byssomerulius corium (Fr.) Parm. Hymenial surface reticulately poroid, pale buff to dark cinnamon brown; basidiospores subcylindrical, 4-6 x 1.5-2.5 µm. White rot on 4 in MN.

3. Hymenial surface pale buff to yellowish; rhizomorphs usually present

Byssomerulius serpens (Fr.) Parm. Basidiospores short-cylindric, 4-5 x 1.5-2 µm. White rot on 2 in AZ; 9 in AT.

3. Hymenial surface buff to olive brownish or yellowish; rhizomorphs not present

Byssomerulius incarnatus (Schw.) Gilbn. et Budington. Basidiospores cylindric, 5-7 x 2.5-3.5 µm. White rot on 9 in AT.

Key to Species of *Leucogyrophana*

1. Hymenial surface olivaceous, yellow to pinkish orange, merulioid to smooth or grandinioid . . . 2
1. Hymenial surface brown, becoming hydnaceous or raduloid in appearance

Leucogyrophana pinastri (Fr.) Ginns et Weresub. Hyphae with clamps or simple-septate; basidiospores 4.5-7 x 3-5 µm. Brown rot on 2 in AZ; 7 in AK.

2. Hymenial surface yellow to pinkish orange, shallowly to strongly merulioid 3
2. Hymenial surface mustard color to olivaceous; hyphoid cystidia present; associated with sclerotia

Leucogyrophana olivascens (Berk. et Curt.) Ginns et Weresub. Hyphae with clamps; basidiospores 4-6.5 x 3-4 µm. On 5 in CO.

3. Basidiocarps thin, delicate, pelliculose; hymenial surface drying bright yellowish to orange

Leucogyrophana mollusca (Fr.) Parm. Basidia 25-28 x 4-5 µm; basidiospores 4.5-6 x 3.5-4.5 µm. White rot on 2 in MT; 7 in AK; 9 in AT.

3. Basidiocarps becoming thick and fleshy; hymenial surface pinkish orange when fresh, drying cream buff to dark reddish brown

Leucogyrophana pseudomollusca (Parm.) Parm. Basidia 27-30 x 5-8 µm; basidiospores 7-9 x 4-5 µm. Brown rot on 2 in MT.

Key to Species of *Phanerochaete*

1. Hymenial surface yellowish to mustard color . . . 2
1. Hymenial surface buff to whitish or cinereous or with reddish tints. 3

2. Hymenial surface yellowish; cystidia heavily incrusted

Phanerochaete sulphurina (Karst.) Budington et Gilbn. Basidiocarps becoming pale brownish on drying and cracking extensively to expose bright yellow subiculum in the cracks; yellow rhizomorphs present; cystidia usually imbedded; basidiospores short cylindric, slightly curved, 4-4.5 x 2-2.5 µm. White rot on 9 in AT.

2. Hymenial surface yellowish to mustard color, cystidia not incrusted.

Phanerochaete carnosa (Burt) Parm. Yellow rhizomorphs present; cystidia abundant, often septate, tapering to the tip; basidiospores short-cylindric, 4-5 x 2-2.5 µm. White rot on 2 in AZ; 4 in NF.

3. Cystidia abundant, usually incrusted. 4
3. Cystidia occasional, not incrusted

Phanerochaete sanguinea (Fr.) Parm. Hymenial surface varying from cream to red or salmon, often rhizomorphic; cystidia fusiform; basidiospores ellipsoid, flattened on one side, 5-6 x 2-2.5 µm. White rot on

9 in QB.

4. Lower subiculum loosely arranged; cystidia thin-walled, usually lightly incrusted

Phanerochaete cremea (Bres.) Parm. Hymenial surface white to light buff; cystidia cylindric to bluntly fusoid, capitately incrusted; basidiospores cylindric, 6-7.5 x 2-2.5 µm. White rot on 3 in BC; 9 in CO.

4. Lower subiculum compactly arranged; cystidia thick-walled, heavily incrusted

Phanerochaete velutina (DC. ex Fr.) Parm. Hymenial surface pinkish buff or vinaceous buff; margin often with whitish rhizomorphs; cystidia cylindric; basidiospores short-cylindric, slightly curved, 6-7 x 2.5-3 µm. White rot on 9 in AT, NY, QB.

Key to Species of *Tylospora*

1. Basidiospores even

Tylospora asterophorum (Bon.) Donk. Basidiocarps white; basidiospores 4-5 µm broad. On 9 in QB.

1. Basidiospores nodulose

Tylospora fibrillosum (Burt) Donk. Basidiocarps white; basidiospores 4-7 µm broad. On 9 in QB.

Subfamily BOTRYOBASIDIOIDEAE

Key to Species of *Botryobasidium*

1. Cystidia absent 2
1. Cystidia present

Botryobasidium ansosum (Jacks. et Rogers) Parm. Basidiocarps cream colored to bright yellow; hyphae with clamps; cystidia abundant, thin-walled, cylindric; basidiospores elliptical to broadly fusiform, 7.5-9 x 3.5-4 µm. White rot on 2 in AZ; 7 in BC, WA.

2. Hyphae simple-septate 3
2. Hyphae with clamps

Botryobasidium subcoronatum (Hoehn. et Litsch.) Donk. Basidiocarps white to cream colored on drying; basidiospores navicular, tapering to the apex, mostly 7-9 x 3-3.5 µm, but up to 12-15 x 5 µm. White rot on 2 in MT; 3 in BC; 6 in NY; 9 in QB.

3. Basidiospores ellipsoid or navicular, longer than 6 µm 4
3. Basidiospores ovoid to subglobose, 4-6 x 3-4 µm

Botryobasidium pruinatum (Bres.) J. Erikss. Basidiocarps very thin, grayish white, hypochnoid to arachnoid. White rot on 3 in MN; 7 in AK; 9 in QB.

4. Basidiospores navicular, wider than 3 µm. . . 5
4. Basidiospores ellipsoid, 8-9 x 2.5-3 µm

Botryobasidium vagum (Berk. et Curt.) Rogers. Basidiocarps cream colored to pale buff. White rot on 2 in AZ, MT; 7 in AK; 9 in QB.

5. Basidia 2-4 sterigmate; basidiospores 8-14 x 6-8 µm.

Botryobasidium flavescens (Bon.) Rogers. Hymenial surface often becoming tufted in older specimens, whitish or cream to yellowish or olive buff. On 3 in BC.

5. Basidia usually 6-sterigmate; basidiospores 9-12 x 4.5-6 µm

Botryobasidium botryosum (Bres.) J. Erikss. Basidiocarps whitish, yellowish grey, or pale buff, drying yellowish; basidiospores appearing biapiculate. On 7 in AK.

Subfamily GLOEOCYSTIDIELLOIDEAE

Key to Species of *Gloeocystidiellum*

1. Basidiospores smooth. 2
1. Basidiospores echinulate to asperulate. 5

2. Hyphae with clamps; if dimitic, generative hyphae with clamps 3
2. Hyphae simple-septate

Gloeocystidiellum citrinum (Pers.) Donk. Basidiocarps usually with a whitish fibrillose margin; hymenial surface cream to pale brownish; gloeocystidia mostly imbedded, appearing hyaline and empty, irregular with inflated portions; basidiospores globose, 4-6 µm diam. White rot on 2 in AZ, CO.

3. Basidiospores ellipsoid to oval-ellipsoid, less than 11 µm long 4
3. Basidiospores allantoid, 11-15 x 4.5-6.5 µm

Gloeocystidiellum leucoxanthum (Bres.) Boidin. Hymenial surface bluish white to pale brownish; gloeocystidia cylindrical to narrowly clavate or moniliform; narrow, branched paraphyses present. White rot on 2 in CO.

4. Basidiospores ellipsoid, 4-6 x 2.5-3 µm

Gloeocystidiellum ochraceum (Fr.) Donk. Hymenial surface tuberculate when fresh, becoming smooth on drying, cream to dark ochraceous. On 7 in AK.

4. Basidiospores oval-ellipsoid, 7-9 x 4.5-5 µm

Gloeocystidiellum luridum (Bres.) Boidin. Hymenial surface smooth, bluish grey when fresh, becoming paler and somewhat dirty yellow on drying; gloeocystidia narrowly fusoid. White rot on 2 in AZ.

5. Basidiospores ovate to ellipsoid. 6
5. Basidiospores subglobose to globose, 5-6 µm diam

Gloeocystidiellum furfuraceum (Bres.) Donk. Hymenial surface finely granulose-arachnoid to more continuous and waxy, creamish; gloeocystidia subcylindrical. On 9 in QB.

6. Hyphal system dimitic

Gloeocystidiellum nannfeldtii J. Erikss. Hymenial layer whitish to pale ochraceous or argillaceous;

gloeocystidia sinuous with one or more constrictions; basidiospores 4.5-5.5 x 2.5-3.5 µm. On 3 in AK.

6. Hyphal system monomitic

Gloeocystidiellum porosum (Berk. et Curt.) Donk. Hymenial surface whitish cream to yellow; gloeocystidia fusoid, numerous; basidiospores 3.5-5 x 2.5-3 µm. White rot on 2 in MT; 5 in CO; 6 in NY.

Subfamily HYPHODERMOIDEAE

Key to Genera

1. Basidiospores mostly less than 3 µm wide and 8 µm long 2
1. Basidiospores mostly more than 3 µm wide and 8 µm long 3
   2. Basidiocarps very soft and byssoid, usually rhizomorphic . . . . . *Amphinema* Karst.
   2. Basidiocarps soft and fibrous but not byssoid, not rhizomorphic. . .*Hyphodontia* J. Erikss.
3. Basidiospores globose to ellipsoid, thick- or thin-walled, smooth or slightly rough 4
3. Basidiospores cylindric to ellipsoid, tending to be flattened on one side or slightly curved, smooth 5
   4. Basidiospores globose to ellipsoid, thin-walled, smooth. .*Radulomyces* Christ. emend. Parm.

Radulomyces notabilis (Jacks.) Parm. Basidiocarps whitish to ivory yellow; hyphae with clamps; hyphal-like paraphyses present; basidiospores 7-9 x 4.5-7 µm. On 4 in OT; 9 in MB.

   4. Basidiospores subglobose to broadly ellipsoid, rather thick-walled, smooth or slightly rough . . . . . *Hypochnicium* J. Erikss.

Hypochnicium bombycinum (Fr.) J. Erikss. Basidiocarps cream colored with a wide fibrillose margin, often cracking on drying; hyphae with clamps; basidiospores 7-10 x 5-6 µ. White rot on 2 in ID.

5. Basidiospores pinkish in mass . . . . . *Peniophora* Cke. emend. Donk
5. Basidiospores not pinkish in mass 6
6. Cystidia thin-walled or with walls slightly thickened at the base 7
6. Cystidia very thick-walled with wall thinning toward the apex . . . . . *Chaetoderma* Parm.

Chaetoderma luna (Rom.) Parm. Basidiocarps white to cream colored; hyphae with clamps; cystidia abundant, narrowly clavate; basidia clavate, long, and slender; basidiospores cylindric and slightly curved, 12-18 x 4-4.5 µm. Brown rot on 2 in CO, MT, UT; 3 in AK, BC, YT; 4 in AK; 7 in BC; 9 in AT.

7. Basidiospores narrowly to broadly ellipsoid . . . 8
7. Basidiospores narrowly cylindric, 10-17 x 2-3 µm . . . . . *Subulicystidium* Parm.

Subulicystidium longisporum (Pat.) Parm. Cystidia abundant, incrusted with plate-like crystals; basidiocarps white, thin and delicate. White rot on 4 in BC.

8. Basidiocarps white to cream colored or pale buff. . . . . *Hyphoderma* Wallr. emend. Donk
8. Basidiocarps golden-ochraceous or mustard colored . . . . . *Crustoderma* Parm.

Crustoderma dryinum (Berk. et Curt.) Parm. Hyphae with clamps; cystidia usually abundant, cylindric; basidiospores cylindric to oblong-ellipsoid, 8-10 x 3-4 µm. White rot on 2 in AZ; 3 in AK; 7 in BC; 9 in QB.

Key to Species of *Amphinema*

1. Basidiocarps yellowish with long yellow rhizomorphs

Amphinema byssoides (Fr.) J. Erikss. Hyphae with clamps, cystidia abundant, narrowly cylindric, with clamps, often with fine incrustation; basidiospores short-cylindric to ellipsoid, 5-6 x 2-3 µm. White rot on 2 in AT, AZ, CO, BC; 3 in AK, BC, YT; 5 in CO; 9 in QB.

1. Basidiocarps snow white, lacking long rhizomorphs

Amphinema tomentella (Bres.) M. P. Chris. Hyphae with clamps; cystidia broadly cylindric, with clamps, mostly smooth; basidiospores obovate, 2.5-4 x 3-3.5 µm. White rot on 2 in AZ.

Key to Species of *Hyphoderma*

1. Gloeocystidia present 2
1. Gloeocystidia absent. 3
2. Cystidia terminally swollen, incrusted or not

Hyphoderma praetermissum (Karst.) J. Erikss. et Strid. Hymenial surface smooth, cracking on drying; hyphae mostly with clamps; embedded gloeocystidia abundant; stephanocysts abundant in some specimens; basidiospores short cylindric to ellipsoid, 8-12 x 4-5 µm. White rot on 2 in AZ, CO, MT; 5 in CO; 9 in QB.

2. Cystidia basally swollen, incrusted

Hyphoderma puberum (Fr.) Wallr. Basidiocarps waxy to horny when dry; hyphae with clamps; gloeocystidia embedded, usually with a swollen base; stephanocysts present in lower subiculum of some specimens; basidiospores cylindric-ellipsoid, 8-12 x 3-4 µm. White rot on 9 in QB.

3. Cystidia present. 4
3. Cystidia absent

Hyphoderma sibiricum (Parm.) Erikss. et Strid. Basidiocarps thin, membranaceous; hyphae with clamps; basidia suburniform with long sterigmata; basidiospores 7-9 x 3-3.5 µm. White rot on 9 in CO.

4. Cystidia septate 5
4. Cystidia not septate. 6
5. Hymenial surface finely warted or hydnoid; basidiospores oblong-ellipsoid to short-cylindric, 7-11 x 4-6 µm

Hyphoderma setigerum (Fr.) Donk. Basidiocarps usually thin, abundantly cracked; hyphae with clamps,

some simple septa also present; basidiospores oblong-ellipsoid to short cylindric, 7-11 x 4-6 µm. White rot on 3 in BC.

5. Hymenial surface densely tomentose, pure white; basidiospores oval, 6-8.5 x 3.5-5 µm

Hyphoderma polonense (Bres.) Donk. Basidiocarps floccose; hyphae with clamps; basidia cylindrical. White rot on 9 in QB.

6. Hymenial surface cream to buff or pinkish . . 7
6. Hymenial surface greenish yellow to golden yellow

Hyphoderma ludovicianum (Burt) comb. nov. (basionym-*Peniophora ludoviciana* Burt, Mo. Bot. Gard. Ann. 12: 244. 1926). Hymenial surface becoming brown to brownish buff on drying; hyphae with clamps, cystidia cylindrical, incrusted or not; basidia subcylindrical; basidiospores oblong to oblong-ellipsoid, 4-6 x 2-3 µm. White rot on 2 in CO, MT.

7. Basidiospores shorter than 12 µm. 8
7. Basidiospores 10-16 µm long

Hyphoderma medioburiense (Burt) Donk. Basidiocarps floccose; hyphae with clamps; cystidia cylindrical, sometimes sparsely incrusted; basidiospores cylindrical, slightly curved, 10-16 x 4.5-6 µm. White rot on 2 in CO, MT.

8. Cystidia thin-walled. 9
8. Cystidia thick-walled, projecting to 100 µm

Hyphoderma resinosum (Jacks. et Deard.) comb. nov. (basionym-*Peniophora resinosa* Jacks. et Deard., Can. J. Res. 27, Sec. C, p. 147. 1949.) Basidiocarps with a considerable amount of resinous material; hyphae with clamps; cystidia abundant, clavate, incrusted above with resinous material; basidiospores broadly ellipsoid, 7-9 x 4.5-5.5 µm. On 7 in BC.

9. Hyphal segments not swollen and short; clamps at all septa 10
9. Hyphae composed of swollen, short segments; both simple septa and clamps present

Hyphoderma terricola (Burt) comb. nov. (basionym-*Peniophora terricola* Burt, Mo. Bot. Gard. Ann. 12: 337. 1926). Basidiocarps cream, membranous, rigid when dry; cystidia few, subulate, not incrusted; basidiospores broadly ellipsoid to turbinate, 6-8 x 4-5 µm. On 3 in AT.

10. Cystidia clavate to moniliform, without a swollen base. 11
10. Cystidia fusiform or conical, swollen at the base

Hyphoderma argillaceum (Bres.) Donk. Hymenial surface cream colored to pinkish buff; basidiospores ellipsoid, 7-9 x 4-5 µm. White rot on 2 in CO.

11. Cystidia clavate

Hyphoderma clavigerum (Bres.) Donk. Basidiocarps white to cream, at first floccose, becoming pelliculose; basidiospores cylindrical to broadly ellipsoid, 6-9 x 4-5 µm. White rot on 9 in QB.

11. Cystidia moniliform

Hyphoderma radula (Fr.) Donk. Hymenial surface white to ochraceous, becoming raduloid; basidiospores 9-11 x 3-3.5 µm. White rot on 4 in OT.

Key to Species of *Hyphodontia*

1. Hymenial surface hydnaceous to grandinioid; teeth with fimbriate apices 2
1. Hymenial surface smooth or slightly warty 9
2. Basidiospores cylindric 3
2. Basidiospores subglobose to ellipsoid 6
3. Cystidia large, well differentiated; basidiospores narrowly allantoid 4
3. Cystidia hyphoid to narrowly fusoid; basidiospores short cylindric, straight or slightly curved 5
4. Cystidia thin-walled, mostly embedded

Hyphodontia alutacea (Fr.) J. Erikss. Hymenial surface cream colored to Light Buff; hyphae with clamps; cystidia occasionally with clamps; basidiospores 4.5-

9 x 1.5-2 µm. White rot on 2 in AZ; 3 in AK, MN; 7 in WA; 8 in CH; 9 in AT, OT.

4. Cystidia thick-walled, wall thinning at apex

Hyphodontia floccosa (Bourd. et Galz.) J. Erikss. Hymenial surface Light Ochraceous Buff, cracking on drying; hyphae with clamps; basidia in candelabrums; basidiospores 5.5-7 x 1.5-2 µm. White rot on 3 in AK; 9 in AT, QB.

5. Cystidia hyphoid at apices of teeth; basidiospores straight

Hyphodontia papillosa (Fr.) J. Erikss. Hymenial surface densely granular, whitish cream, hyphae with clamps; basidiospores short cylindric to oblong, 2-3 x 4.5-5.5 µm. White rot on 2 in MT.

5. Cystidia narrowly fusoid, scattered throughout hymenium; basidiospores slightly curved

Hyphodontia crustosa (Pers. ex Fr.) J. Erikss. Hymenial surface whitish, yellowish to ochraceous, cracking on drying; hyphae with clamps; basidiospores oblong to subcylindrical, 5.5-7 x 2-3.5 µm. White rot on 2 in CO; 4 in BC.

6. Cystidia thick-walled, wall thinning at apex. 7
6. Cystidia thin-walled. 8

7. Basidiospores cylindric-ellipsoid, 5-7 x 3-4 µm

Hyphodontia abieticola (Bourd. et Galz.) J. Erikss. Hymenial surface light ochraceous to light brownish; hyphae with clamps; cystidia long, clavate. White rot on 4 in NF.

7. Basidiospores broadly ellipsoid, 4.5-5 x 3-3.5 µm

Hyphodontia barba-jovis (Sw. ex Fr.) J. Erikss. Hymenial surface whitish; hyphae with clamps; cystidia cylindrical. On 9 in QB.

8. Basidiocarps compact, waxy

Hyphodontia aspera (Fr.) J. Erikss. Hymenial surface whitish yellow; hyphae with clamps; cystidia fusoid

or cylindrical and capitate; basidiospores obovate, 5-6.5 x 3.5-5 µm. White rot on 2 in AZ, BC, MT; 3 in BC, MN; 7 in BC; 8 in CH; 9 in QB.

8. Basidiocarps loose, floccose

Hyphodontia breviseta (Karst.) J. Erikss. Hymenial surface Light Buff to cream colored; hyphae with clamps; cystidia hyphoid, with slight constrictions or swellings, sometimes slightly incrusted; basidiospores ovoid to ellipsoid, 3-4.5 x 2.5-3 µm. White rot on 2 in MT; 4 in MN, NF; 9 in AT, BC.

9. Basidiospores subglobose to ellipsoid 10
9. Basidiospores allantoid

Hyphodontia subalutacea (Karst.) J. Erikss. Hymenial surface Light Buff; hyphae with clamps; cystidia thick-walled at the base with wall thinning out at apex; basidiospores 6-8 x 1.5-2 µm. White rot on 2 in UT.

10. Cystidia of two types 11
10. Cystidia of one type 12
11. Some cystidia capitate, others sagittate, incrusted at apex

Hyphondontia alutaria (Burt) J. Erikss. Hymenial surface pale buff; hyphae with clamps; capitate cystidia with clamps; basidiospores ellipsoid to subglobose, 4-5 x 3-4 µm. White rot on 3 in MN.

11. Some cystidia capitate, others fusiform

Hyphodontia sambuci (Pers.) J. Erikss. Hymenial surface white; hyphae with clamps; basidiospores ellipsoid to ovate, 5-7 x 4-5 µm. White rot on 5 in CO; 9 in QB.

12. Cystidia septate, with clamps

Hyphodontia pallidula (Bres.) J. Erikss. Hymenial surface cream colored to Light Buff; hyphae with clamps; basidiospores ellipsoid, 3.5-5 x 2.5-3.5 µm. White rot on 2 in AZ, CO; 3 in BC; 9 in QB.

12. Cystidia not septate

Hyphodontia alienata (Lund.) J. Erikss. Hymenial surface pale cream, farinaceous; hyphae with clamps; cystidia abundant, cylindrical, not incrusted; basidiospores broadly ellipsoid, 6-7.5 x 4-4.5 µm. On 9 in QB.

Key to Species of *Peniophora*

1. Gloeocystidia present 2
1. Gloeocystidia not present 3
   2. Gloeocystidia elongate, length to width ratio 7 to 1 or greater

Peniophora septentrionalis M. Laur. Basidiocarps pinkish or reddish when fresh, becoming pinkish grey or violaceous or brownish grey on drying; hyphae with clamps; basidiospores cylindrical, slightly curved, 7-10 x 2.5-3.5 µm. On 2 in AT; 3 in AT, BC, SK; 4 in OT, QB; 6 in NS; 9 in AT.

   2. Gloeocystidia broad, length to width ratio less than 7 to 1

Peniophora pseudo-pini Weresub. et Gibson. Basidiocarps pinkish brown to brownish purple; hyphae with clamps; basidiospores cylindrical, 6-7.5 x 2-2.5 µm. On 3 in AT, BC, MB; 4 in AT, MB.

3. Basidiospores longer than 7 µm. 4
3. Basidiospores 5.5-7 x 2-2.5 µm

Peniophora pithya (Pers.) J. Erikss. Basidiocarps purplish brown, waxy; hyphae with clamps; cystidia conical to subfusiform, heavily incrusted; basidiospores cylindrical, slightly curved. On 2 in AZ, UT; 3 in OT; 4 in NB; 9 in NS, QB.

   4. Hyphae simple-septate

Peniophora separans Burt. Basidiocarps pale ochraceous buff or gray, usually with a purple or pinkish tinge; cystidia incrusted at the apex; basidiospores cylindrical, slightly curved, 7-10 x 2-3 µm. On 2 in AT; 3 in AT, BC; 9 in NF.

   4. Hyphae with clamps

Peniophora cinerea (Fr.) Cke. Basidiocarps pale gray with a tint of pink, waxy; cystidia conical, thick-walled, heavily incrusted; basidiospores cylindrical, curved, 7.5-9 x 2.5-3 µm. On 2 in CO; 9 in AT, CO.

Subfamily PHLEBIOIDEAE

Key to Genera

1. Subhymenial tissue gelatinized and compact, basidia clavate, 4-5 µm wide. 2
1. Subhymenial tissue gelatinized or not; basidia cylindric, narrow, up to 3 µm wide. . . . . *Dacryobolus* Fr.
   2. Cystidioles with an apical bulb or halo. . . . . *Resinicium* Parm.
   2. Cystidioles or cystidia, if present, lacking an apical bulb or halo . . . . . *Phlebia* Fr. emend. Donk

Key to Species of *Dacryobolus*

1. Hymenial surface smooth; cystidia thick-walled

Dacryobolus karstenii (Bres.) Oberw. ex Parm. Hymenial surface cream colored to pale buff, cracking upon drying; hyphae thin-walled and with clamps to thick-walled and aseptate, basidiospores allantoid, 4.5-6 x 1-1.5 µm. Brown rot with strong anise odor on 2 in ID, MT; 3 in AK; 7 in AK.

1. Hymenial surface papillate with amber colored droplets at the apices of the papillae; cystidia thin-walled

Dacryobolus sudans (Fr.) Fr. Hymenial surface Pale Ochraceous Buff to Cinnamon; hyphae with clamps, gelatinizing; cystidia clustered at the apices of papillae; basidiospores narrowly allantoid, 4-5.5 x 0.7-1 µm. Brown rot on 3 in BC.

Key to Species of *Phlebia*

1. Hymenial surface smooth to tuberculate. 2
1. Hymenial surface hydnaceous

Phlebia hydnoides (Cke. et Massee) M. P. Chris. Basidiocarps bluish grey to reddish grey when fresh, whitish when dry; hyphae indistinct; cystidia numerous, thick-walled, incrusted; basidiospores oblong to short-cylindric, 3-4 x 1.5-2 µm. White rot on 9 in AT.

2. Cystidia present. 3
2. Cystidia absent 4
3. Cystidia heavily incrusted, conical, imbedded or projecting

Phlebia gigantea (Fr.) Donk. Hymenial surface watery white to cream colored or light buff when fresh; drying horny; hyphae simple-septate; basidiospores cylindric, 5-7 x 3-3.5 µm. White rot on 2 in ID, MT, OR; 3 in BC; 9 in QB.

3. Cystidia thin-walled, acicular or fusiform, projecting

Phlebia subserialis (Bourd. et Galz.) Donk. Basidiocarps yellowish to pale buff, waxy; hyphae with clamps; cystidia small, not incrusted; basidiospores ellipsoid to short-cylindric, 5-7 x 2-2.5 µm. White rot on 2 in CO; 5 in CO; 9 in QB.

4. Basidiospores 4-5 x 1.5-2 m; calcareous granules projecting from hymenial surface

Phlebia livida (Fr.) Bres. Hymenial surface usually dark reddish brown or purplish on drying; hyphae with clamps, indistinct in subhymenium; basidiospores cylindric. White rot on 2 in AZ, 9 in AT.

4. Basidiospores 5-8 x 2.5-3.5 µm; calcareous granules absent from hymenial surface

Phlebia albida Post. ex Fr. Basidiocarps waxy when fresh, drying cartilaginous; hymenial surface usually drying dark reddish brown to purplish; hyphae with clamps; basidiospores cylindric-ellipsoid.

White rot on 2 in AZ, MT.

Key to Species of *Resinicium*

1. Hymenial surface hydnaceous 2
1. Hymenial surface smooth

Resinicium furfuraceum (Bres.) Parm. Basidiocarps thin, waxy to membranous, often cracking on drying; hymenial surface cream colored to light buff; hyphae with clamps; basidiospores oblong-ellipsoid, 4-6 x 2-3 µm. White rot on 2 in MT; 9 in QB.

2. Hymenial surface slightly hydnaceous; spherical clusters of crystals abundant

Resinicium bicolor (Fr.) Parm. Basidiocarps thin, waxy; hymenial surface cream to watery white; hyphae with clamps; cystidia of two types, some with apical bulb that often ruptures leaving a collarette, others capped by a spherical or stellate mass of crystals; basidiospores short-cylindric, 4-5 x 2.5-3 µm. White rot on 3 in BC, SK; 4 in NB, OT.

2. Hymenial surface strongly hydnaceous; no spherical clusters of crystals

Resinicium chiricahuaensis Gilbn. et Budington. Basidiocarps cream to bright yellow, teeth numerous, conical, often branched apically; hyphae with clamps; basidiospores allantoid, 4-7 x 1.5-2 µm. White rot on 2 in AZ; 9 in AT.

Subfamily SISTOTREMOIDEAE

Key to Genera

1. Basidia globose to subglobose or pyriform 2
1. Basidia urniform to clavate 3
2. Basidia globose to subglobose, 4-sterigmate. . . . . *Sphaerobasidium* Oberw.
2. Basidia pyriform, 4-8 sterigmate. . . . . *Paullicorticium* J. Erikss.

3. Basidia developing by repetition from base of collapsed basidia; remains of old basidia persistent at base . . . . . *Repetobasidium* J. Erikss.
3. Basidia not developing as above 4
4. Basidia 6-8 sterigmate 5
4. Basidia 4-sterigmate. . . . . . *Trechispora* Karst. emend. Liberta
5. Basidia urniform. . . . . *Sistotrema* Fr. emend. Donk
5. Basidia tubular . . . . . *Sistotremastrum* J. Erikss. emend. Oberw.

Sistotremastrum suecicum Litsch. ex J. Erikss. Basidiocarps at first grayish, then pure white; hyphae with clamps; basidiospores oblong, 5-7 x 2.5-3.5 µm. On 9 in QB.

Key to Species of *Paullicorticium*

1. Subicular hyphae with clamps

Paullicorticium delicatissimum (Jacks.) Liberta. Basidiocarps white to yellowish white; basidia with 5-7 slender, divergent sterigmata; basidiospores oblong-ellipsoid, hyaline 2.5-3 x 1.5-2 µm. On 9 in QB.

1. Subicular hyphae simple-septate

Paullicorticium pearsonii (Bourd.) J. Erikss. Basidiocarps grayish; basidia 5-8 sterigmate; basidiospores curved, tapering at both ends, 4-6 x 2-2.5 µm. White rot on 9 in QB.

Key to Species of *Repetobasidium*

1. Basidiospores allantoid

Repetobasidium vile (Bourd. et Galz.) J. Erikss. Basidiocarps white, inconspicuous; hyphae with clamps, cystidia abundant, conical; basidia developing directly on substratum; basidiospores 6-7.5 x 1.5-2.5 µm. On 9 in QB.

1. Basidiospores subglobose

Repetobasidium mirificum J. Erikss. Basidiocarps whitish; hyphae with clamps; cystidia with a swollen apex; basidiospores 5.5-6.5 x 5-5.5 µm. On 9 in QB.

Key to Species of *Sistotrema*

1. Gloeocystidia absent. 2
1. Gloeocystidia present

Sistotrema coroniferum (Hoehn. et Litsch.) Donk. Basidiocarps whitish; hyphae with clamps; gloeocystidia cylindrical to fusoid, irregular, with yellowish contents; basidiospores oblong-ellipsoid to subcylindrical, 4-5 x 2-3 µm. On 2 in CO.

2. Hymenophore strongly hydnaceous to granulose 3
2. Hymenophore smooth

Sistotrema diademiferum (Bourd. et Galz.) Donk. Basidiocarps whitish to grayish yellow, pruinose when dry; hyphae with clamps; basidiospores pyriform to subglobose, 3.5-5 x 2.5-3.5 µm. On 9 in QB.

3. Basidiospores short-cylindric to allantoid, 4-7 x 2-3 µm

Sistotrema brinkmannii (Bres.) J. Erikss. Basidiocarps white to grayish or buff, pelliculose, cracking into flakes on drying; basidiospores usually flattened on one side. Brown rot on 6 in NB; 9 in NS, QB.

3. Basidiospores cylindric, slightly fusiform, 7-9 x 2.5-3.5 µm

Sistotrema raduloides (Karst.) Donk. Basidiocarps pinkish buff, often with well developed teeth, associated with sclerotia. White rot on 3 in AK; 6 in NB.

Key to Species of *Sphaerobasidium* Oberw.

1. Basidiospores elliptical; cystidia present

Sphaerobasidium minutum (J. Erikss.) Oberw. Basidiocarps grayish, inconspicuous; hyphae with clamps; cystidia with an apical bulb, often incrusted; basidiospores 4-5 x 2-3 µm. On 2 in AZ, MT; 9 in QB.

1. Basidiospores navicular to subnavicular; cystidia absent

Sphaerobasidium subinvisible Liberta. Basidiocarps a whitish film, inconspicuous; hyphae with clamps; basidiospores 5.5-6.5 x 2.5-3 µm. On 9 in QB.

Key to Species of *Trechispora*

1. Basidiospores smooth. 2
1. Basidiospores echinulate, verrucose, or stellulate. 3

2. Basidiospores ellipsoid to ovoid

Trechispora submicrospora (Litsch.) Liberta. Basidiocarps white, strongly cracking on drying; hyphae with clamps; basidiospores 3 x 1.5 µm. On 4 in AK; 9 in QB.

2. Basidiospores obovate to subglobose

Trechispora confinis (Bourd. et Galz.) Liberta. Basidiocarps very thin, white to cream colored; hyphae with clamps; basidiospores with a conspicuous apiculus, 3-4 x 2.5-3.5 µm. White rot on 2 in CO; 4 in MN; 9 in QB.

3. Basidiospores echinulate or verrucose 4
3. Basidiospores stellulate

Trechispora stellulata (Bourd. et Galz.) Liberta. Basidiocarps cream colored; hyphae with clamps; basidiospores 5-6 rayed, 2.5-4 µm broad. On 9 in QB.

4. Hymenial surface not poroid 5
4. Hymenial surface poroid

Trechispora candidissima (Schw.) Bond. et Sing.

Basidiocarps white, soft and fragile, rhizomorphic; pores angular, 2-4 per mm; hyphae with clamps; basidiospores echinulate, ovoid to subglobose 3.5-4.5 x 3-3.5 µm. On 9 in QB.

5. Hymenial surface grandinioid or smooth. 6
5. Hymenial surface over intertwined, ropy strands

Trechispora vaga (Fr.) Liberta. Rope-like strands pale yellowish brown to dark purplish brown; margin cream to bright yellow; some hyphae thin-walled, with clamps, others thick-walled and aseptate; basidiospores echinulate, obovate to ellipsoid, 4.5-6 x 2.5-3.5 µm. White rot on 2 in CO; 3 in NF; 5 in CO.

6. Hymenial surface pale orange, hyphal system dimitic; basidiospores subglobose

Trechispora pallidoaurantiaca Gilbn. et Budington. Hymenial layer pelliculose on a pale orange brown subiculum; generative hyphae with clamps; cystidia hyphoid; basidiospores echinulate, 3-4 µm diam. On 4 in AT.

6. Hymenial surface whitish or pale buff; hyphal system monomitic; basidiospores ellipsoid

Trechispora farinacea (Pers. ex Fr.) Liberta. Basidiocarps whitish or pale buff; hymenial surface smooth, grandinioid or hydnaceous; margin occasionally rhizomorphic; hyphae with clamps; basidiospores ellipsoid to subglobose, finely echinulate, 3.5-4.5 x 3-3.5 µm. White rot on 5 in CO; 9 in AT, QB.

Subfamily TUBULICRINIOIDEAE

Key to Genera

1. Basidia clavate; cystidia thick-walled, with expanded lumen at apex in most species. . . . . *Tubulicrinis* Donk
1. Basidia usually short cylindric; cystidia if present not as above. . . . . *Xenasma* Donk

Key to Species of *Tubulicrinis*

1. Cystidia with lumen capillary 2
1. Cystidia with lumen noncapillary, with an umbrella-like structure at apex

Tubulicrinis hamatus (Jacks.) Donk. Basidiocarps white; hyphae with clamps; basidiospores ellipsoid, 5.5-7.5 x 4-4.5 µm. White rot on 9 in QB.

2. Cystidia mostly thick-walled with lumen expanding at apex to form a thin-walled apical bulb. 3
2. Cystidia mostly thick-walled with a narrow lumen extending to apex

Tubulicrinis chaetophorus (Hoehn.) Donk. Basidiocarps white to cream, cracking into small blocks; subicular hyphae mostly with clamps, some thick-walled, aseptate; cystidia weakly amyloid in Melzer's reagent; basidiospores narrowly ellipsoid, 4.5-6 x 2.5-3 µm. White rot on 9 in QB.

3. Apices of cystidia rounded 4
3. Apices of cystidia acute

Tubulicrinis subulata (Bourd. et Galz.) Donk. Hymenial surface whitish to cream; subicular hyphae infrequently with clamps; cystidia weakly amyloid in Melzer's reagent; basidiospores cylindrical to allantoid, 6-10 x 1.5-2 µm. White rot on 5 in CO; 9 in QB.

4. Apical bulb usually not exceeding the largest diameter of the cystidium 5
4. Apical bulb broader than the largest diameter of the cystidium

Tubulicrinis accedens (Bourd. et Galz.) Donk. Basidiocarps grayish; hyphae with clamps; basidiospores cylindric-ellipsoid to ellipsoid, 3-4.5 x 2-3 µm. White rot on 9 in QB.

5. Lumen of cystidia expanding abruptly 6
5. Lumen of cystidia expanding gradually

Tubulicrinis angustus (Rogers et Weresub) Donk.

Basidiocarps grayish; hyphae with clamps; basidiospores cylindrical, sometimes slightly curved, 7-11 x 1.5-2 µm. On 9 in QB.

6. Lumen of cystidia expanding symmetrically . . 7
6. Lumen of cystidia expanding asymmetrically

Tubulicrinis calothrix (Pat.) Donk. Basidiocarps white to Light Buff; hyphae with clamps; cystidia capped by a cluster of crystalline material, weakly amyloid in Melzer's reagent; basidiospores cylindrical to oblong-ellipsoid, 5.5-7.5 x 2-3 µm. White rot on 9 in QB.

7. Lumen of cystidia expanding abruptly to form a cylindrical apical bulb

Tubulicrinis glebulosus (Bres.) Donk. Basidiocarps cream to yellowish tan; hyphae with clamps; basidiospores cylindrical to slightly allantoid, 6-9 x 1.5-2 µm. White rot on 9 in MT, QB.

7. Lumen expanding abruptly to form a short, rounded apical bulb

Tubulicrinis propinqua (Bourd. et Galz.) Donk. Basidiocarps white to cream; hyphae with clamps; cystidia sometimes incrusted around the apex; basidiospores cylindrical, slightly curved, 5-8 x 1.5-2 µm. On 3 in MB; 9 in QB.

Key to Species of *Xenasma*

1. Basidiospores slightly amyloid. 2
1. Basidiospores nonamyloid 3
   2. Basidiospores oblong-ellipsoid, laterally depressed to short-allantoid, 4-4.5 x 2.5-3 µm

Xenasma grisellum (Bourd.) Liberta. Basidiocarps white to pale buff; hyphae with clamps. On 9 in QB.

   2. Basidiospores ellipsoid to allantoid, 5-6.5 x 2-3.5 µm

Xenasma rallum (Jacks.) Liberta. Basidiocarps gray

or bluish gray to light buff; hyphae with clamps. On 7 in BC.

3. Basidiospores smooth, narrowly clavate, laterally depressed near the apiculus; cystidia absent

Xenasma gaspesicum Liberta. Basidiocarps light gray, inconspicuous; hyphae with clamps; basidiospores 5.5-7 x 1.5-2 µm. On 9 in QB.

3. Basidiospores roughened, broadly ellipsoid to subglobose; cystidia present

Xenasma rimicolum (Karst.) Donk. Basidiocarps hyaline or bluish gray, sometimes yellowish in older portions; hyphae with clamps; cystidia cylindrical to slightly subulate, walls thickened below, tapering to thin near the apex; basidiospores 8.5-10 x 4.5-7 µm. On 9 in QB.

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MYCOTAXON

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SPECIFIC AND INFRASPECIFIC NAMES FOR FUNGI USED IN 1821. V. N - Z.[1]

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A brief discussion of the results of this study is offered, additional pre-1821 literature cited, and appropriate names traced to their origination.

The reader is referred to the introduction to the first in this series for the problems and goals surrounding the series' inception. Arriving now at the culmination of the series, it is time to sum up and to draw some conclusions.

1. It is quite reasonable, using the protologues of the 1821 authors, to trace the origin of virtually every name validated in 1821. It is concommitantly impossible, given certain combinations of validating authors in 1821, to accurately cite the correct (or first) validating author, for the actual sequence of publications *within* 1821 is only imperfectly known. For example, *Erysiphe aceris*, originated by De Candolle, was validated by St. Amans and Mérat, and should be cited as *Erysiphe aceris* DC per St. Amans, for St. Amans' publication is known to have appeared before that of Mérat. Conversely, the validator for *Agaricus annularius* [Bull.] cannot be cited accurately, for the dates of publication for Nocca & Balbis and Roques are not known, so that either of these could have preceded St. Amans, the earliest *sequenceable* validator. Nomenclatural technicians will wish to grapple with this problem, but it does not appear insurmountable.

2. It has been shown again and again that pre-1821 authors *often* generated new names for previously named taxa, and that these new names (which would clearly have been *nomina superflua* had they been proposed *after* the starting point) were repeatedly validated in or after 1821. Bolton was notorious for this practice (cf Petersen, 1977), but Bulliard and Sowerby shared in the guilt. In fact, of course

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[1]Previous numbers in this series are as follows: I. A-B. Mycotaxon 1: 149-188. 1975; II. C. ibid. 2: 151-165. 1975; III. D-G. ibid. 3: 239-260. 1976; IV. H-M. ibid. 4: 185-210. 1976.

this practice contributed heavily to the eventual codification of botanical nomenclature. In order to preserve "common usage" of such names, and to prevent their elimination in favor of prior, but obscure names, a later starting point is still advisable and presumably should be retained as 1 January 1821.

3. The number of pre-1821 literature sources has grown quite large, but my search, performed totally outside such established literature reviews as that by Lindau & Sydow, indicates that many more floristic works including fungus names will be rediscovered, often with one or two new names, the taxonomic concepts of which are either obscure or confusing. For example, an important source for Bulliard was a publication by Johan Pauli, cited as "Nomencl. Fung.," but the publication, its date and its scope are all unknown to me. Suffice to say, nonetheless, that retention of later starting points as a sort of nomenclatural "checkpoint" prevents such obscure names from leaping into prominence upon their resurrection.

4. Farlow & Atkinson (1910) summarized the thinking behind the selection of both later starting points and the starting point books (Fries and Persoon), as follows: "This opinion was based on the principle that *uniformity in the selection of the earliest comprehensive work treating a group, large or small, in a somewhat modern sense,* was of more importance than the principle of uniformity of date" [italics theirs]. The capricious attitude toward generating new names *before* 1800 was stifled largely by Persoon's "Synopsis Methodica Fungorum," which gave the practicing botanist *one* source for names. When Fries wrote the "Systema" and "Enenchus" he rather faithfully adopted names used by Persoon, and thus perpetuated these names, again screening out many names considered synonyms (including many names with priority), and dampening the urge to give new names to previously named taxa. The combination of Persoon and Fries established a high level of stability of nomenclature in the fungi, and mycologists were generally not plagued with the difficulties of nomenclature which eventually led to De Candolle's "Lois." In this way, therefore, mycology still lies in debt to its colleagues at the Brussels Congress, for although the selection of starting point books was made during a short recess, the selection was made wisely. Perhaps selection of only Persoon's book ultimately would have avoided future problems, but those problems were 50 years in surfacing, and still do not appear insurmountable.

5. At least two topics are important but peripheral to the intent of this series. While they should be mentioned, no solutions are offered, and these topics can be the subjects of other papers.

a). Post-1821 validation. Although Fries (Systema I, 1821) intended to give the basidiomycetes comprehensive coverage, and, therefore, validated many names in this group,

other authors validated many names in other groups (i.e. names in *Sphaeria, Peziza,* etc.). Whether later volumes of Systema and Elenchus should posses starting point status or not, is very important and will be discussed elsewhere.

b). Pre-1821 typification. Typification of pre-starting point names validated in or after 1821, has never been argued to conclusion, nor will it be discusses here. This series, however, now makes possible the identification of the originating pre-1821 author, and thereby, clues to the location of real or potential types. Again, this will be the subject of another paper.

MORE PRE-1821 MYCOLOGICAL LITERATURE

Balbis, Gioanni Battista. 1801. Elenco delle plante crescenti ne contorni di Torino. 82 pp [genera of plants arranged alphabetically-fungi throughout]. Torino. [pp. 83-102 entitled "Additamentum ad floram Pedemontanum," with fungi on pp. 101-102].

Balbis, Joanne Baptista. 1804. Miscellanea botanica ubi et rariorum horti botanici stirpium, minusque cognitarum descriptiones, ac additamentum alterum ad floram pedemontanam, et ad elenchum plantarum circa Taurinensem urbem nascentium; tum locorum natalium indicatio, ac observationes botanicae continentur. 68 + 11 pls. [fungi pp. 49-68]. Taurin.

Balbis, J. B. 1806. Miscellanea altera botanica. 43 + 2 pls [Fungi pp. 38-43]. Taurin.

Balbis, Johanne Baptista. 1806. Flora Taurinensis sive enumeratio plantarum circa Taurinensem urbem nascentium. xvi + 224 [fungi pp. 192-224]. Taurin.

Bergeret, Jean Pierre. Phytonomatotechnie universelle, c'est-a-dire, l'art de donner aux plantes des noms tirés de leurs caractères; nouveau systeme au moyen duquel on pent de soi-meme, sans le secours d'aucun livre, nommer toutes les plantes qui coirssent sur la surface de notre globe. A la publication de ce systeme, on joint les figures, les descriptions les plus méthodique, l'analyse, les propriétés, les virtus, l'usage, l'etymologie & la synonymie de toutes plantes de la France.

Vol. I. 1783. Paris. 240 + many plates

Vol. II. 1784. Paris. 252 + many plates

Berkenhout, John. 1789. Synopsis of the natural history of Great Britain and Ireland, containing a systematic arrangement and concise description of all the animals, vegetables, and fossils, which have hitherto been discovered in these kingdoms. London. Vol. II. 380 p. [fungi pp 352-363].

Bernardino ab Ucria, P. F. 1789. Hortus regius panhormitanus aerae vulgaris anno MDCCLXXX. Noviter extructus septoque ex indigenis, exoticisque plurimas complectens plantas accurantae. Panormi. vi + 498 [fungi pp 445-447].

Biroli, Joanne. 1808. Flora Aconiensis seu plantarum in Novariensi Provincia sponte nescentium descriptio. Vol. II. 260 pp [fungi pp 208-252]. Novari.

Brisseau-Mirbel, C. F. 1806. Histoire Naturelle, generale et particulaire des plantes; ouvrage faisant suite aux oeuvres de LeClerc de Buffon, et partie du cours complet d'histoire naturelle rédigé par C. S. Sonnini, membre de plusieurs sociétés savantes. Paris. Vol. III. [fungi pp 35-74].

Buniva, M. F. 1790. Nomenclator Linnaeanus. Florae Pedemontanae. Augustae Taurinorum. xxxv + 189 [genera of plants arranged alphabetically, with fungi throughout].

Jacquin, N. J. J. 1778. Fungi quidam subalpini. Misc. Austriaca 1: 135-146.

Jacquin, N. J. J. 1781. Observationes botanicae. Misc. Austriaca 2: 292-379.

Kirby, Wm. 1800- Observations upon certain fungi, which are parasites of the wheat. Trans. Linnaean Soc. [London] 5: 112-125.

LEM: Lamarck, J. B. de. 1783-1808. Encyclopedie Méthodique. Botanique. Eight volumes [fungi alphabetically throughout]. Paris & Liége. [Often cited as "Dict."]

Lambert, A. B. 1798. Description of the blight of wheat, *Uredo frumenti*. Trans. Linnaean Soc. [London] 4: 193-194.

LIL: Liljeblad, Samuel. 1816. Utkast till en Svensk Flora eller afhandling om Svenska Växternas väsendteliga kännetecken och nytta. Upsala. Introd. + lvi + 761 + map [fungi pp 643-682].

Otto, S. G. 1816. Versuch einer auf die Ordnung und den Stand der Lamellen gegründeten Anleitung und Beschreibung der Agaricorum. Leipzig [pagination unknown].

Pulteney, Richard. 1794. The history and description of a minute epiphyllous *Lycoperdon*, growing on the leaves of the *Anemone nemorosa*. Trans. Linnaean Soc. [London] 2: 305-312.

REICH: Reichard, Johann Jacob. 1780. Botanische Bemerkungen. Schrift. Berlin. Gesell. naturf. Freunde 1: 310-319.

Reyger, Gottfried. 1768. Die um Danzig wildwachsende Pflanzen nach ihren Geschlechtstheilen geordnet, Danzig. Forward + 431 [fungi pp 371-383].

Rubel, Francisco. 1778. Agaricum officinale. Misc. Austriaca 1: 164-203 [this is dated 20.ii.1778, but this may be the date of the defence of thesis].

Schaeffer, J. C. 1773 ["1.ix"]. Enleichterte Arzneykraeuter-wissenschaft. Regensburg. 234 + index + 6 pls [fungi in tables only].

SCHR: Schrader, Henrico Adolpho. 1794. Spicilegium Florae Germanicae. introd. + 194 [fungi pp 114-189]. Hannover.

THOR: Thore, J. 1803. Essai d'une chloris du Département des Landes. Paris. xliv + 516 [fungi pp 471-499].

Tournon, D.-J. 1811. Flore de Toulouse, ou description des plantes qui croissent aux environs de cette ville, avec l'indication de leur lieu natal, l'époque de leur ploraison, des observations sur leurs propriétés en medecine, en économie rurale, et les tables de leurs noms Francais, Latins et patois. xxii + 393. Toulouse.

Viborg, Erik. 1793. Forsog til systematiste Danske Ravne af indenlandse Planter forsattet til Brug for Loerlingerne med den Kongelige Veterinaerskole. Introd. + 344 [Fungi pp 254-276]. Kisbenhavn.

Vitman, Fulgentii. 1770. De medicatis herbarum facultatibus liber ex veteri medicorum fide, ex probata nuperorum observatione, ex pribatoquarumdam gentium usu methodo botanica. Pars prima. Faventiae. xvi + 373.

Wade, Walter. 1804. Plantae rariores in Hibernia inventae; or habitats of some plants, rather scarce and valuable, found in Ireland; with concise remarks on the properties and uses of many of them. Dublin. xiv + 214 [fungi pp 168-192].

Wahlenberg, Georgio. 1820. Flora Upsaliensis, enumerans plantas circa Upsaliam sponte crescentes. Enchiridion excursionibus studiosorum Upsaliensium accomodatum. viii + 495 + map [Fungi pp 438-478]. Upsala.

Withering, William. 1794. A new method of preserving fungi, etc... Trans. Linnaean Soc. [London] 2: 263-266.

Woodville, William. 1794. A supplement to medical botany, or, part the second: containing plates with descriptions of most of the principal medicinal plants not included in the material medica of the collegiate pharmacopoeias of London and Edinburgh: accompanied with circumstantial detail of their medical effects, and of the diseases in which they have been successfully employed. London. 169 + index.

Woodward, Thomas Jenkinson. 1794. As essay towards an history of the British stellated Lycoperdons: being an account of such species as have been found in the neighborhood of Bungay, in Suffolk. Trans. Linnaean Soc. [London] 2: 32-62.

Woodward, T. J. 1794. Additional note to the essay on the stellated Lycoperdons, referred to *L. recolligens*, at p 58. Trans. Linnaean Soc. [London] 2: 323-324.

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nanum (Helmisporium) LD 20: 496, G: 556 ← [NS: 67]
nanus (Agaricus) Fr: 200 ← [PS: 357]
nanus (Agaricus hariolorum var.) M: 74, var. nov.
narcoticus (Agaricus) Fr: 311, as "A. COPR. " ← [BEFC 1: 79]
narcoticus (Agaricus) R: 38 ← [BEFC 1: 79]
nebularis (Agaricus) Fr: 86, HFD 12: t. 1734 ← [BEFC 2: 25]
nebularis (Gymnopus) G: 609 ← [BEFC 2: 25 (Agaricus)]
nebulosa (Sphaeria) Schl: 59, FSS no. 197 ← [POM 2: 69] Fr 2: 430
nebulosum (Exormatostoma) G: 522 ← [POM 2: 69 (Sphaeria)]
necans (Lacterius) G: 625 ← [BH: 489, pl. 529 fig. 2, pl. 14 ("necator")]
necator (Agaricus) Fr: 64, SA: 565, M: 54, P: 397, R: 28 ← [BH: 489, pl. 14, 529, fig. 2]
neesii(Polyporus) Fr: 370, sp. nov.
nefrens (Agaricus) Fr: 209, sp. nov.
nemoralis (Agaricus) P: 225 ← [With: 239]
nemoreus (Agaricus) Fr: 99 ← [PS: 305]
nictitans (Agaricus) Fr: 38, sp. nov.
nidula (Sphaeria) G: 529 ← [S: p.f.pl. 394]
nidulans (Agaricus) Fr: 189 ← [PID: 19]
nidulans (Peziza) Schl: 58, ← ["Schm. & K."]
nidulans (Polyporus) Fr: 362, nom. nov.
niger (Agaricus croceus var.) M: 78, var. nov.
nigra (Clavaria coriacea var.) M: 33, var. nov.
nigra (Helvella mitra var.) P: 255, nom. nov.
nigra (Peziza) M: 26, SA: 535, G: 666 ← [BH: 238, pls. 116, 480, fig. 1]
nigra (Sphaeria) P: 489 ← [S: p.f.pl. 393]
nigra (Tremella cerebrina var.) M: 28 ← [BH: 221]
nigra (Virgaria) G: 553 ← [NS: 54]
nigrescens (Cephalotrichum) G: 563 ← [LM 3: 20 ("rigescens")]
nigrescens (Tuberculariа) SA: 615 ← [BH: 217, pl. 455, fig. 1 (Tremella "nigricans")]
nigricans (Agaricus) N&B: 329, M: 60 ← [BH: 587, pls. 212, 579, fig. 2 ("nigrescens" of text, "nigricans" of index)]
nigricans (Helvella) LD 20: 512 ← [Sch 4: 102 (Elvella)]
nigricans (Polyporus) Fr: 375, sp. nov.
nigricans (Rhizopus) ENA: 198, nom. nov.

nigricans (Tuberculariа) M: 129 ← [BH: 217, pl. 455, fig. 1 (Tremella)]
nigripes (Agaricus) SA: 571, N&B: 313, M: 62 ← [BH: 476, pls. 344, 519, fig. 2]
nigripes (Merulius) M: 47 ← [PS: 489]
nigro-cinctus (Hypochnus) Ehren: 519, Spr: 310 ← [Ehor: 85]
nigrocinctus ([Hypochnus]) LD 22: 369 ← [Ehor: 85]
nigrovirescens (Hypoderma) LD 22: 371, nom. nov.
nigrum (Astoma) G: 524 ← [S: p.f.pl. 393 (Sphaeria)]
nigrum (Hydnum) Fr: 404 ← [FO 1: 134]
nigrum (Stilbum) Schl: 59, M: 18 ← ["Persoon"]
nitens (Agaricus) Fr: 284† ← [Vahl, FD 18: pl. 1067 + acc. text]
nitens (Agaricus) Fr: 116† ← [BEFC 2: 21]
nitens (Agaricus) M: 84, SA: 585 ← [BH: 424, pls. 84, 566, fig. 4 ("niteus" of index)]
nitens (Gymnopus eburneus [var.]) G: 610 ← [S: p.f.pl. 71 ← Sch 4: 60 (Agaricus)]
nitida (Thelephora hirsuta var.) Schl: 60 ← [PD: 30 (Stereum)]
nitidum (Sclerotium) Schl: 59 ← ["P[ersoon?]"]
nitidus (Agaricus) Fr: 55† (as var.) ← [PS: 444 (A. Russ[ula] ____)]
nitidus (Polyporus) Fr: 379 ← [POM 1: 15 (Poria)]
nitidus (Agaricus araneosus var.) M: 82, SA: 583 ← [BH: pl. 431, fig. H ("niudus")]
nitratus (Agaricus murinaceus var.) M: 77 ← [PS: 356 (Agaricus)]
nivea (Peziza) P: 456 ← [Dick 1: 21]
nivea (Sphaeria) M: 141, Schl: 59, H: 6, P: 283, L: 486 ← [HV 1: 28]
niveum (Hydnum) Fr: 419, LD 22: 96, M: 37 ← [PS: 563 (Hydnum) PD: 30 (Odontia)]
niveus (Agaricus) Fr: 311, as "A. COPR. ____", P: 240 ← [PS: 400]
niveus (Agaricus) H: 22 ← [With: 235 Scop: 430]
niveus (Agaricus) P: 433 ← [JFA 3: 48, pl. 288]
niveus (Agaricus coprinus) Z: 107† ← [PS: 400 (Agaricus copr[inus] ____)]
niveus (Agaricus russula) Z: 353† ← [PS: 438 (Agaricus russ[ula] ____)]
nostoc (Tremella) P: 509 ← [LSpPl: 1625]
nucisedus (Agaricus) Fr: 293 ← [FO 2: 176]
nuda (Cortinaria) G: 628 ← [BH: 605, pl. 439 (Agaricus)]
nuda (Thelephora) Fr: 447, sp. nov.
nudus (Agaricus) Fr: 52, SA: 582, M: 80, L: 475 ← [BH: 605, pl. 439]
nudus (Agaricus nudus var.) M: 80 ← [BH: 605 (Agaricus ____)]
nudus totus rufescens (Agaricus nudus var.) M: 80† ← [BH: 605, pl. 439 (Agaricus _____)]
nummularia (Coltricia) G: 644 ← [BH: 335, pl. 124 (Boletus)]

nummularia (Sphaeria) SA: 522, M: 141, LD 22: 386 ← [BH: 179, pl. 468, fig. 4 (Hypoxylon)]
nummularius (Boletus) N&B: 336, M: 43, P: 437 ← [BH: 335, pl. 124]
nutans (Agaricus) Fr: 302, nom. nov.

-- O --

obesus (Agaricus) P: 393 ← [BEFC 2: 89]
obesus (Gymnopus) G: 607 ← [BEFC 2: 89 (Agaricus)]
oblectus (Coprinus) G: 634 ← [Bolt: 142, pl. 142 (Agaricus)]
obliquatus (Boletus) L: 471, M: 43, N&B: 337, SA: 552 ← [BH: 335, pls. 7, 459]
obliquum (Hydnum) Fr: 424 ← [Schr: 179]
obliquus (Agaricus) Fr: 169 ← ["PIC: pl. 13, fig. 3"]
obliquus (Boletus) P: 246 ← [PS: 548]
obliquus (Polyporus) Fr: 378 ← [PS: 548 (Boletus)]
oblongum (Geoglossum) G: 659, sp. nov.
obolus, (Agaricus) Fr: 89, sp. nov.
obrusseus (Agaricus) Fr: 104, nom. nov.
obscurus (Agaricus) P: 198†, sp. nov.
obscurus (Didymocrater) MNA: 509, sp. nov.
obturatus (Agaricus) Fr: 283, sp. nov.
obtusa (Clavaria) P: 268 ← [S: p.f.pl. 334]
obtusa (Odontia) G: 651 ← [Schr: 178 (Hydnum)]
obtusata (Aregma) Schl: 56 ← ["Fr[ies?]"]
obtusatus (Agaricus) Fr: 293 ← [PS: 428]
obtusum (Geoglossum) G: 659 ← [S: p.f.pl. 334 (Clavaria)]
obtusum (Hydnum) Fr: 419, Schl: 57 ← [Schr: 178]
obtusus (Agaricus) Fr: 233, sp. nov.
obtusus (Boletus) G: 642, N&B: 339, SA: 550 ← [PS: 538 (B. fomentarius var.) ← POM 2: 4)]
occarium (Hydnum) Fr: 412 ← [BEF: 113]
ocellatus (Agaricus) Fr: 134 ← [FO 1: 83]
ochracea (Himantia) LD 21: 164 ← [FO 1:"210]
ochracea (Solenia) Schl: 59 ← ["Höffm[ann?]"]
ochracea (Thelephora) Fr: 446 ← [FO 1: 151]

orcellus (Pleuropus) G: 615 ← [BH: 519, pls. 591, 573, fig. 1 (Agaricus)]
oreades (Agaricus) Fr: 127 ← [Bolt: 151, pl. 151]
oreinus (Agaricus) Fr: 52 ← [FO 2: 98 ("Orcinus")]
orientale (Hydnum) Fr: 407, nom. nov.
orobanches (Rhizoctonia) M: 135, sp. nov.
ostraceum (Hysterium) M: 153, LD 22: 386, SA: 515 ← [BH: 170, pl. 444, fig. 4 (Hypoxylon)]
ostreatus (Agaricus) Fr: 182, P: 239 ← [CFL 3: pl. 216 + acc. text ← JFA: 2: 3, pl. 104]
ostreatus (Crepidopus) G: 616 ← [CFL 3: pl. 216 + text ← JFA: 2: 3, pl. 104 (Agaricus)]
ovata (Pistillaria) Fr: 497, not 298 ← [PCC: 85 (Clavaria)]
ovata (Stilbospora) M: 147 ← [POM 1: 31]
ovatus (Agaricus) H: 24, P: 426 ← [CFL 2: pl. 10 + text]
ovina (Sphaeria) FSS: no. 149, G: 527, M: 144 ← [PS: 71] Fr 2: 446
ovinus (Agaricus) Fr: 109, M: 71 ← [BH: 592, pl. 580]
ovinus (Polyporus) Fr: 346 ← [Sch 4: 83, pls. 121, 122 (Boletus)]
ovoides (Agaricus) SA: 589 ← [BH: 668, pl. 364]
ovoideus (Agaricus) Fr: 15, M: 88, L: 476 ← [BH: 668, pl. 364 ("ovoides")]
oxycanthae (Erysiphe) M: 132 ← [DC 6: 106]
oxycanthae (Hypoderma xylomoides var.) M: 151, var. nov.
oxycoccos (Hysterium) FSS: no. 169, sp. nov.

-- P --

pachypus (Boletus) Fr: 390 ← [FO 1: 118]
palisoti (Daedalea) Fr: 335, nom. nov.
pallescens (Calycina) G: 670 ← [POM 2: 85 (Peziza)]
pallescens (Polyporus) Fr: 369 ← [FO 2: 256]
pallida (Helvella) LD 20: 512 ← [Sch 4: 112, pl. 282]
pallida (Typhoderma) G: 559 ← ["Dill[wyn] Conf., 78" (Conferva)]
pallida (Peziza chrysocoma var.) M: 21, var. nov.
pallidum (Erineum fagineum var.) M: 16†, var. nov.
pallidus (Agaricus) Fr: 67, R: 30 ← [PD: 64 (Lactaria)]
pallidus (Agaricus) N&B: 316, P: 183 ← [Sch 4: 22: pl. 50]
pallidus (Agaricus lactifluus) Z: 316† ← [PD: 64 (Lactaria)]

ochraceo-fuscus (Agaricus) Fr: 168 ← [Mey: 301]
ochraceum (Hydnum) Fr: 414 ← [Persoon apud GSN: 1440]
ochraceum (Steccherinum) G: 651 ← [Persoon apud GSN: 1440 (Hydnum)]
ochraceus (Agaricus) M: 85, SA: 586 ← [BH: 644, pls. 362, 530, fig. 3]
ochroleuca (Peziza) P: 458 ← [Bolt: 105, pl. 105]
ochroleuca (Thelephora) Fr: 440 ← [FO 2: 276]
ochroleucus (Agaricus) Fr: 234 ← [Sch 4: 24]
ochroleucus (Agaricus pectinatus var.) M: 52 ← [Sch 4: 24 (Agaricus ____)]
ochroleucus (Agaricus pectinatus [var.]) SA: 562 ← [Sch 4: 24 (Agaricus ____)]
odorata (Thelephora) Fr: 445, not 448 ← [FO 1: 151]
odoratus (Polyporus) Fr: 373 ← [JColl 2: 150 (Boletus)]
odorus (Agaricus) Fr: 90†, P: 394, R: 37, M: 70 ← [BH: 567, pls. 176, 556, fig. 3]
odorus (Gymnopus) G: 606 ← [BH: 567, pls. 176, 556, fig. 3 (Agaricus)]
oedematopus (Agaricus) Fr: 96 ← [Sch 4: 69, pl. 259]
officinalis (Polyporus) Fr: 365 ← [Vill[ars?], "Delph: 1041"]
olearius (Agaricus) Fr: 273, R: 53 ← [DC 6: 44]
olivacea (Virgaria) G: 553 ← [LM 3: 14 (Botrytis)]
olivaceo-albus (Agaricus) Fr: 35 ← [FO 1: 5]
olivaceum (Geoglossum) Fr: 489 ← [POM 1: 40]
olivaceus (Boletus) P: 439 ← [Sch 4: 77, pl. 105]
olorinus (Agaricus) Fr: 92 ← [FO 2: 143]
omphalodes (Peziza) M: 21, SA: 531 ← [BH: 264, pl. 485, fig. 1]
oniscus (Agaricus) Fr: 172 ← [FO 2: 209]
onobrychis (Xyloma) SA: 518 ← [DC 6: 159 ("onobrychidis")]
onotica (Scodellinia) G: 668 ← [PS: 637 (Peziza)] Fr 2: 48
opegraphoides (Hysterium) LD 22: 400 ← [DC 2: 307]
ophioglossoides (Clavaria) M: 32, SA: 540, P: 472, ← [LSpPl: 1652]
ophioglossoides (Hypoxylon) G: 512 ← [LSpPl: 1652 (Clavaria)]
opicus (Agaricus) Fr: 43 ← [FO 2: 112]
orbiculare (Hysterium) Spr: 310 ← [EHor: 98]
orbicularis (Erysibe) ENA: 203, nom. nov.
orbiculatum (Hydnum) Fr: 412 ← [PS: 559 ← "Balbis. Elenchus Rec. Stirp.: 5"]
orcades (Agaricus) P: 407 ← [WBA: 335 ("orcades") ← Bolt: 151, pl. 151 ("oreades")]
orcadis (Agaricus) H: 21, nom. nov.
orcellus (Agaricus) Fr: 180, M: 52, N&B: 330 ← [BH: 519, pls. 591, 573, fig. 1]

palmata (Clavaria) Fr: 469 ← [PS: 588]
palmata (Thelephora) Fr: 432 ← [Scop: 483 (Clavaria)]
palmatus (Agaricus) Fr: 186, M: 51, P: 430, SA: 561 ← [BH: pl. 216†]
palmatus (Pleuropus) G: 615 ← [BH: pl. 216† (Agaricus)]
palomet (Agaricus) SA: 591, L: 474 ← [Thor: 477]
paludosa (Mitrula) Fr: 491 ← [LIL 3: 664]
pannosa (Thelephora) Fr: 430 ← [S: p.f.pl. 155 (Hevella)]
pannosus (Agaricus) Fr: 261, sp. nov.
pannucius (Agaricus) Fr: 64, nom. nov.
pantherina (Lepiota colubrina [var.]) G: 602, var. nov.
pantherinus (Agaricus) Fr: 16 ← [DC 6: 52]
panuoides (Agaricus) Fr: 273 ← [FO 2: 227]
papilionaceus (Agaricus) Fr: 301, SA: 568, N&B: 322 ← [BH: 428, pls. 58, 561, fig. 2 ("Papillionaceus")]
papilionaceus (Coprinus) G: 633 ← [BH: 428, pls. 58, 561, fig. 2 (Agaricus "papillionaceus")]
papillaris (Peziza) G: 666, M: 22, SA: 532 ← [BH: 244, pl. 467, fig. 1]
papillatus (Agaricus) Fr: 312, as "A. COPR. ____" ← [BEFC 1: 81]
papillionaceus (Agaricus) M: 58 ← [BH: 428, pls. 58, 561, fig. 2]
papillosa (Sphaeria) P: 493 ← [S: p.f.pl. 236]
papyraceum (Hydnum) Fr: 413 ← [JColl 1: 345]
papyraceus (Agaricus) Fr: 305 ← [PS: 425]
papyraceus (Hypochnus) Schl: 58, sp. nov.
papyraceus (Prunulus) G: 631 ← [PS: 425 (Agaricus)]
papyrina (Auricularia) P: 455, M: 35 ← [BH: 279, pl. 402]
papyrina (Thelephora) SA: 543 ← [BH: 279, pl. 402 (Auricularia)]
Parabolicum (Astoma) G: 523 ← [TM 2: 43 (Sphaeria)]
paradoxum (Hydnum) Fr: 424 ← [Schr: 179]
parallelum (Peripherostoma) G: 515 ← [S: p.f.pl. 374 (Sphaeria)]
parasitica (Merulius) P: 179 ← [S: p.f.pl. 343 (Agaricus)]
parasiticum (Hydnum) Schl: 58 ← [LSpPl: 1648]
parasiticus (Agaricus) Fr: 135, M: 75 ← [BH: 609, pl. 574, fig. 2]
parasiticus (Boletus) Fr: 389, M: 46 ← [BH: 317, pl. 451, fig. 1]
parasiticus (Gymnopus) G: 610 ← [BH: 609, pl. 574, fig. 2 (Agaricus)]
pargamenus (Agaricus) Fr: 76 ← ["Swartz. Vetensk. Akad. Handl. 1809: 90"]
paridicola (Sphaeria lichenoides var.) M: 146, var. nov.

parietina (Byssus) M: 11, SA: 525 ← [DC 2: 66†]
parietina (Himantia) LD 21: 164 ← [DC 2: 66† (Byssus)]
parilis (Agaricus) Fr: 168 ← [FO 2: 214]
parvus (Agaricus) H: 22 ← [With: 237]
pascuus (Agaricus) Fr: 205 ← [PS: 427 ← PCS: 94]
pascuus (Agaricus pratella) Z: 313† ← [PS: 427 ← PCS: 94 (Agaricus ____)]
patella (Sphaeria) Schl: 59, H: 7 ← [PS: 76 (Sphaeria ____) ← TM 2: 45 (Sphaeria penetrans var. ____)]
patellaria (Peziza) L: 466, M: 20 ← [PS: 670]
patellariae (Peziza) SA: 530 ← [PS: 670 ("Patellaria")]
patens (Rhizomorpha) P: 306 ← [S: p.f.pl. 392, fig. 1]
patula (Morchella) G: 662 ← [GSN: 1449 (Phallus)]
patulus (Dasyscyphus) G: 671 ← [POM 1: 42 (Peziza)]
pectinatum (Hydnum) Fr: 412, nom. nov.
pectinaceus (Agaricus) N&B: 327, R: 26 ← [BH: 599; pl. 509]
pectinatus (Agaricus) SA: 561, M: 52 ← [BH: 599, pl. 509 ("pectinaceus")]
pediades (Agaricus) Fr: 290, sp. nov.
pedicularis (Agaricus variabilis var.) M: 51, var. nov.
pedunctulatum (Hypoxylon) G: 512 ← [Dick 4: 27 (Sphaeria)]
pelianthinus (Agaricus) Fr: 112, nom. nov.
pellitus (Agaricus) Fr: 198 ← [PS: 366]
pellitus (Polyporus) Fr: 362 ← [Mey: 303]
pelloporus (Boletus) SA: 548 ← [BH: 365, pl. 501, fig. 2]
pellospermus (Agaricus) M: 59 ← [BH: 426, pl. 561, fig. 1]
pellucidus (Agaricus) Fr: 156, M: 68 ← [BH: 536, pl. 550, fig. 2]
peltata (Sphaeria fusca var.) M: 139 ← [DC 2: 287 (Sphaeria _____)]
penicellata (Clavaria) M: 31 ← [BH: 207, pl. 448, fig. 3 ("penicillata")]
penicillata (Clavaria) SA: 539 ← [BH: 207, pl. 448, fig. 3]
penicillata (Monilia) M: 14, sp. nov.?
penicillata (Thelephora) Fr: 434 ← [PCC: 96 (Merisma)]
pendulum (Hydnum) Fr: 413, not 414 ← [A&S: 261]
pennatus (Agaricus) Fr: 297, sp. nov.
perennis (Boletus) Schl: 56, M: 43, N&B: 336, P: 449 ← [LSpPl: 1646]
perennis (Macroscyphus) G: 672 ← [PS: 644 (Peziza)]
perennis (Polyporus) Fr: 350 ← [LSpPl: 1646 (Boletus)]
perforans (Agaricus) Fr: 138 ← ["Hoffmann. Nomencl. Fung. pl. 4, fig. 2"]

perforans (Micromphale) G: 622 ← ["Hoffmann. Nomencl. Fung. pl. 4, fig. 2" (Agaricus)]
periza (Sphaeria) N&B: 299 ← [TM 2: 46 ("peziza")]
peronatus (Agaricus) Fr: 126, M: 74, P: 207 ← [Bolt: 58, pl. 58]
peronatus (Gymnopus) G: 607 ← [Bolt: 58, pl. 58 (Agaricus)]
perpendicularis (Agaricus) SA: 572, M: 64 ← [BH: 469, pl. 422, fig. 2]
perpusillus (Agaricus) Fr: 192 ← [LUMN: 523]
persicinus (Agaricus) Fr: 52, sp. nov.
persistens (Tremella) SA: 536, M: 28 ← [BH: 223, pl. 304]
personatus (Agaricus) Fr: 50 ← [FO 2: 89]
persoonii (Agaricus) Fr: 27 ← [FO 2: 7]
personii (Auricularia) M: 36 ← [DC 2: 107 (Thelephora "persoonii")]
perula (Polyporus) Fr: 349 ← [PFO: 14, pl. 8 (Microporus)
pes caprae (Polyporus) Fr: 354 ← [PT: 241]
pessundatus (Agaricus) Fr: 38, not 138, nom. nov.
petaloides (Agaricus) N&B: 331, M: 51 ← [BH: 391, pls. 226, 557, fig. 2 ("petalodes")]
petiginosus (Agaricus) Fr: 259, nom. nov.
petroselini (Albugo) G: 540 ← ["LDC: 49 (Uredo)"]
peziza (Sphaeria) H: 7, M: 143 ← [TM 2: 46]
pezizaeformis (Sphaeria) G: 526 ← [TM 2: 46 ("peziza")]
pezizoides (Agaricus) Fr: 276 ← ["Nees. Act. Nat. Cur. 9: 249"]
pezizoides (Xyloma) G: 546 ← [PS: 105]
phacorhiza (Clavaria) G: 658, P: 268 ← [Reich: 315]
phacorrhiza (Typhula) Fr: 495 ← [Reich: 315 (Clavaria)]
phaiocephalus (Agaricus) M: 76, SA: 579 ← [BH: 607, pl. 555, fig. 1]
phajocephalus (Agaricus) Fr: 46 ← [BH: 607, pl. 555, fig. 1 ("phaiocephalus")]
phaiopodius (Agaricus) M: 75 ← [BH: 622, pl. 532, fig. 2]
phajopodius (Agaricus) Fr: 122 ← [BH: 622, pl. 532, fig. 2 ("phaiopodius")]
phalloides (Agaricus) Fr: 13, nom. nov.
phiala (Agaricus) HFD 12: t. 1730, fig. 1 ← [Sae: 297]
philacteris (Thelephora) L: 469 ← [BH: 286, pl. 436, fig. 2 (Auricularia "phylacteris")]
phlebophorus (Agaricus) Fr: 200 ← ["Dittmar, pl. 15"]
pholideus (Agaricus) Fr: 219 ← ["Fries" ← Lil: 645]
phonospermus (Agaricus) M: 76, N&B: 314 ← [BH: 568, pls. 534, 590, 547, fig. 1]
phosphorea (Auricularia) P: 456 ← [LSpPl: 1638]
phylacteris (Auricularia) M: 35 ← [BH: 286, pl. 436, fig. 2]

phylacteris (Thelephora) SA: 544 ← [BH: 286, pl. 436, fig. 2 (Auricularia)]
phyllophilus (Agaricus) Fr: 83 ← [PS: 457]
physaloides (Agaricus) M: 64 ← [BH: 420, pl. 566, fig. 1]
phytumae (Asteroma) M: 151 ← [DC 6: 162]
picaceus (Agaricus) Fr: 308, M: 55, P: 233, SA 566 ← [BH: 407, pl. 206]
picaceus (Coprinus) G: 634 ← [BH: 407, pl. 206 (Agaricus)]
picea (Nemania) G: 516 ← [S: p.f.pl. 374 (Sphaeria)]
picea (Sphaeria) FSS: no. 194 ← [PS: 31] Fr 2: 431
piceae (Monilia) Schl: 58 ← ["Funk"]
picreus (Agaricus) Fr: 239, R: 37 ← [PID: 14]
pictus (Agaricus) Fr: 166 ← [FO 1: 83]
pileo flavido (Agaricus androsaceus var.) M: 61†
pileolarius (Agaricus) P: 393, M: 69 ← [BH: pl. 400 + index †]
pileus brownish (Amanita muscaria [var.]) H: 19†
pileus orange-red (Amanita muscaria [var.]) H: 19†
pilicare (Hysterium) Schl: 58 ← [PD: 5 ("pulicare")]
pilifera (Sphaeria) M: 143 ← [DC 2: 300] Fr 2: 472
piliforme (Stilbum) G: 563 ← [PAB: 31]
pilipes (Agaricus) Fr: 154 ← [S: p.f.pl. 249]
pilipes (Gymnopus) G: 611 ← [S: p.f.pl. 249 (Agaricus)]
pilosa (Sphaeria) Schl: 59 ← [PID: 41]
pilosus (Agaricus) P: 429 ← [S: p.f.pl. 164 ← HFA: 622]
piluliformis (Agaricus) SA: 584, M: 84, P: 234 ← [BH: pl. 112 + index †]
pinastri (Hydnum) Fr: 417 ← [FO 1: 149 ← FNS 2: 38]
pinastri (Hypoderma) M: 152 ← [PS: xxvii ← Schrader, J. Bot.: 69 (Hysterium)]
pinastri (Hysterium) Schl: 58, H: 8 ← [Schrader, J. Bot.: 69]
pinastri (Peziza) Schl: 58 ← [POM2: 83]
pinastri (Sphaeria) FSS no. 190 ← [DC 6: 133]
pineti (Helvella) LD 20: 510 ← [LSpPl: 1649]
pinguis (Peziza) M: 21 ← [BH: pl. 396, fig. 1†]
pini (Daedalea) Fr: 336 ← [Brot: 468 (Boletus)]
pini (Phacidium) FSS no. 163, sp. nov. Fr 2: 573
pini (Thelephora) Fr: 443, not 434, Schl: 60 ← [FO 1: 154 —— "Schleicher"]
piniarius (Agaricus) Fr: 85 ← [Bosc: 84]
pinicola (Polyporus) Fr: 372 ← ["Swartz, Obs. Bot.: 88" (Boletus)]

pinsitus (Agaricus) Fr: 184, sp. nov.
piperatum (Leccinum) G: 647 ← [BH: 318, pl. 451, f. 2 (Boletus)]
piperatus (Agaricus) Fr: 76†, R: 27, SA: 562 ← [POM 2: 40 (Lactarius)]
piperatus (Agaricus) H: 52† ← [BH: 601, pl. 292]
piperatus (Agaricus) H: 20† ← [WBA: 299]
piperatus (Agaricus acris var.) M: 53 ← [POM 2: 40 (Lactarius _____)]
piperatus, (Agaricus lactifluus) Z: 314† ← [POM 2: 40 (Lactarius)]
piperatus (Boletus) Fr: 388, SA: 555, M: 45 ← [BH: 318, pl. 451, fig. 2]
piperatus (Lactarius) G: 623 ← [Bolt: 21, pl. 21 (Agaricus)]
pisi (Erysibe) G: 589 ← [DC 2: 274 (Erysiphe)]
pisi (Erysiphe) M: 132, SA: 614 ← [DC 2: 274]
pistillaris (Clavaria) Fr: 477, SA: 538, G: 658, H: 30, P: 472, M: 30 ← [LSpPl: 1651]
pithya (Excipula) FSS no. 172 ← ["Fr. no. 14"] Fr 2: 184
pithya (Peziza) Schl: 58 ← [PID: 43]
pityrius (Agaricus) Fr: 268 ("pityreus" of index), sp. nov.
placidus (Agaricus) Fr: 202 ← [FO 2: 94]
plana (Tremella) Schl: 60 ← [Roth: 556 ← WH: 95]
planus (Agaricus) HFD 12: t. 1733 ← [Sae: 346]
plancus (Agaricus) Fr: 127, sp. nov.
platanoides (Sphaeria) FSS no. 186 ← [PS: 45] Fr 2: 404
platyspora (Grifola) G: 643, sp. nov. (non Boletus _____, PS: 521)
platyphyllus (Agaricus) Fr: 117 ← [POM 1: 47]
platypus (Agaricus) Fr: 154 ← [NS: 202 (Agaricus mycena _____)]
pleopodius (Agaricus) Fr: 207, M: 80 ← [BH: 566, pl. 556, fig. 2]
plexipes (Agaricus) Fr: 146, nom. nov.
plicatilis (Agaricus) Fr: 312 (as "A. COPR. _____") ← [S: p.f.p. 364 ← CFL 3: pl. 200 + text]
plicatilis (Agaricus) P: 427, H: 24, P: 231† ← [S: p.f.p. 364 ← CFL 3: pl. 200 + text]
plicatus (Agaricus striatus var.) M: 58 ← [Sch 4: 15, pl. 31 (Agaricus _____)]
plicatus (Agaricus coprinus) Z: 111† ← [Sch 4: 15, pl. 31 (Agaricus _____)]
plicatus (Coprinus) G: 634 ← [Sch 4: 15, pl. 31 (Agaricus)]
plumbeus (Agaricus) Fr: 73†, H: 30, M: 54 ← [BH: 498, pls. 282, 559, fig. 2]
plumbeus (Agaricus muscarius var.) P: 203 ← [Sch 4: 37, pls. 85, 86 (Agaricus _____)]
plumbeus (Agaricus lactifluus) Z: 318† ← [BH: 498, pls. 282, 559, fig. 2 (Agaricus _____)]
plumbeus (Lactarius) G: 625 ← [BH: 498, pls. 282, 559, fig. 2 (Agaricus)]

plumosus (Agaricus) Fr: 256 ← [Bolt: 33, pl. 33]
plumosus (Gymnopus) G: 609 ← [Bolt: 33, pl. 33 (Agaricus)]
pluteus (Agaricus) Fr: 199 ← [BEF: 79]
pluvius (Agaricus) Fr: 236, sp. nov.
podograriae (Sphaeria) FSS: no. 192 ← ["Roth" (not catal.)] Fr 2: 556
poliota (Sphaeria) FSS: no. 198, sp. nov., Fr 2: 512, Fr 3: 251
politus (Agaricus) Fr: 209 ← [PS: 465]
polycephalus (Boletus) K: 26 ← [PS: 520]
polygonati (Asteroma) M: 151 ← [DC 6: 163]
polygoni (Erysibe) G: 589 ← [DC 2: 273 (Erysiphe)]
polygoni (Erysiphe) SA: 614, Re: 55, M: 132 ← [DC 2: 273]
polygonia (Auricularia) M: 35 ← [PS: 574 (Thelephora) PD: 30† (Corticium)]
polygonia (Thelephora) Fr: 444, SA: 544 ← [PS: 574]
polygramma (Sphaeria) FSS no. 196, sp. nov., Fr 2: 432
polygramma (Mycena) G: 619 ← [BH: pl. 395 + index † (Agaricus)]
polygrammus (Agaricus) Fr: 146, M: 63 ← [BH: pl. 395 + index †]
polygrammus (Agaricus varius var.) P: 217 ← [BH: pl. 395 + index † (Agaricus)]
polygrammus (Agaricus mycena) Z: 105 † ← [BH: pl. 395 + index † (Agaricus)]
polymorpha (Microsphaeria) Tdb: 9, footnote, sp. nov.?
polymorpha (Peziza) P: 464† ← [WBA: 444]
polymorpha (Sphaeria) SA: 520, H: 4 ← [POM 2: 64]
polymorphum (Geoglossum) G: 659 ← [S: p.f.p. 276 (Clavaria)]
polymorphum (Hypoxylon) G: 512, M: 138 ← [POM 2: 64 (Sphaeria)]
polymyces (Agaricus (Lepiota)) K: 11 ← [PS: 269 ← PD: 19]
polymyces (Lepiota) G: 603 ← [PS: 269 (Agaricus) ← PD: 19 (Agaricus)]
polyphyllus (Agaricus) Fr: 43 ← [DC 6: 50]
polyporus (Boletus) SA: 553, M: 44 ← [BH: 331, pl. 469]
pomaceus (Boletus) G: 642 ← [PS: 538 (B. fomentarius var. _____)]
pomposus (Agaricus) P: 225 ← [Bolt: 5, pl. 5]
popinalis (Agaricus) Fr: 194, sp. nov.
populi (Erineum) Schl: 57 ← ["P[ersoon?]" (Variant of "populinum?")]
populi (Erysibe) G: 589 ← [DC 6: 104 ← "LDC: no. 733"]
populi (Erysiphe) M: 132, SA: 615 ← [DC 6: 104 ← "LDC: no. 733"]
populi (Peripherostoma) G: 515 ← [S: p.f.p. 374, fig. 2† (Sphaeria)]
populi (Sphaeria) Schl: 59, sp. nov.

populicola (Sphaeria lichenoides var.) M: 146, var. nov.?
populina (Nemospora) Schl: 58 ← [PS: 109 (Naemaspora)]
populinum (Erineum) P: 315, M: 17 ← [PS: 700 ← POM 1: 100]
populinum (Sclerotium) M: 130, Schl: 59 ← [POM 2: 25 "populneum"]
populinum (Xyloma) Schl: 60, SA: 519 ← [PS: 107]
populinum ([Xyloma]) M: 150† ← [PS: 107]
populinus (Polyporus) Fr: 367 ← [Sae: 384 (Boletus)]
populnea (Patellaria) G: 664 ← [PS: 671 (Peziza) ← PD: 35 (Peziza)]
populneum (Sclerotium) SA: 618 ← [PS: 125 ← POM 2: 25]
poriaeformis (Peziza) M: 22 ← [DC 6: 26 ← PS: 656 (Peziza anomala var. _____)]
porinoides (Merulius) Fr: 329 ← [FO 2: 237]
poronia (Sphaeria) Schl: 59 ← [PCC: 19]
poronia (Sphaeria) H: 5 ← [PCC: 19]
porphyrius (Agaricus) Fr: 14 ← [A&S: 142 (Amanita)]
porrea (Mycena) G: 619 ← [PS: 376 (Agaricus)]
porreus (Agaricus) Fr: 128 ("porrens" of index) ← [FO 2: 152]
porreus (Agaricus mycena) Z: 102† ← [PS: 376 (Agaricus)]
porrigens (Agaricus) Fr: 184 ("porrigeus" of index) ← [POM 1: 54]
portentosus (Agaricus) Fr: 39, sp. nov.
potentillae (Astoma) G: 525 ← [S: p.f.p. 370, fig. 2† (Sphaeria)]
praecox (Agaricus) Fr: 282 ← [PCS: 89]
prasiosmus (Agaricus) Fr: 148 ← [FO 2: 153]
pratensis (Agaricus) Fr: 99, HFD 12: t. 1731, fig. 1 ← [PS: 304]
pratensis (Clavaria) Fr: 471 ← [PCC: 51]
pratensis (Gymnopus) G: 604 ← [PS: 304 (Agaricus)]
pratensis (Ramaria) G: 655 ← [PCC: 51 (Clavaria)]
precox (Agaricus pratella) Z: 307† ← ["Batsch, p. 77" (not found)]
primula (Agaricus) P: 215 ← [With: 238]
probiscideus (Agaricus) Fr: 274 ← [FO 2: 232]
procerus (Agaricus) Fr: 20, not 80, L: 475, H: 23, N&B: 308, P: 418, R: 39 ← [Scop: 418]
procera (Lepiota) G: 601 ← [Scop: 418 (Agaricus)]
profuga (Sphaeria) Spr: 310 ← [Ehor: 92]
profusa (Nemaspora) G: 531 ← [S: p.f.p. 377 (Sphaeria)]
profusa (Sphaeria) P: 278 ← [S: p.f.p. 377]

proliferus (Agaricus fistulosus var.) M: 63, var. nov.
prolixus (Agaricus) Fr: 120, nom. nov.
proteus (Agaricus) SA: 583 ← [BH: 650]
proteus (Agaricus araneosus var.) M: 82, SA: 583 ← [BH: pl. 431, figs. 2, 3†]
protracta (Nemania) G: 518 ← [PS: 34 (Sphaeria)]
prunastri (Erysiphe) M: 134 ← [DC 6: 108]
prunastri (Patellaria) G: 664 ← [PS: 673 (Peziza) ← PD: 35?]
prunastri (Peziza) M: 20, H: 33 ← [PS: 673]
prunastri (Sphaeria) H: 6 ← [PS: 37]
prunastri (Boletus pomaceus [var.]) G: 642 ← [PS: 538†]
prunuloides (Agaricus) Fr: 198, sp. nov.
prunulus (Agaricus) Fr: 193†, not 191, N&B: 328 ← [Scop: 437]
prunulus (Agaricus omphalia) Z: 347† ← [Scop: 437 (Agaricus)]
psammocephalus (Agaricus) N&B: 311, M: 81 ← [BH: 655, pl. 531, fig. 2, pl. 586, fig. 1]
pseudo androsaceus (Agaricus) SA: 573, M: 67 [BH: 539, pl. 276 "pseudo-androsaceus"]
pseudo-androsaceus (Agaricus) P: 185 ← [BH: 539, pl. 276]
pseudo-aurantiacus (Agaricus) M: 87 ←[BH: 673, pl. 122]
pseudo-boletus (Hydnum) Fr: 424, ("pseudoboletus" of index), L: 469 ← [DC 6: 37 ("pseudoboletus")]
pseudo igniarius (Boletus) SA: 550 ← [BH: 356, pl. 458]
pseudo-igniarius (Boletus) P: 244, N&B: 338, M: 41 ← [BH: 356, pl. 458]
pseudo mouceron (Agaricus) SA: 576 ← [BH: 578, pl. 144, 528, fig. 2]
pseudo-mouceron (Agaricus) M: 80 ← [BH: 578, pl. 144, 528, fig. 2]
pseudo platani (Xyloma) M: 149 ← [DC 6: 152 ← "Hoppe, des. 1, no. 2"]
psittacinus (Agaricus) Fr: 102, P: 415 ← [Sch 4: 70, pl. 301]
psittacinus (Agaricus gymnopus) Z: 97† ← [Sch 4: 70, pl. 301 (Agaricus)]
pteridis (Sclerotium) Schl: 59 ← ["P[ersoon]"]
pteridis (Xyloma) M: 149 ← [DC 6: 154]
pterigenus (Agaricus) Fr: 160, not 100 ← [FO 1: 43]
pubescens (Polyporus) Fr: 367 ← [Sae: 384 (Boletus)]
pubescens (Sclerotium) SA: 617 ← [DCM 1815: 412]
puccineola (Sphaeria) Schl: 59 ← ["De Candolle" (not found)]
puccinioides (Conoplea) M: 16 ← [DC 2: 73]
pudens (Gymnopus) G: 605 ← [PS: 313 (Agaricus radiatus var. _____)]

pudicus (Agaricus) M: 86 ← [BH: 635, pl. 597, fig. 2]
pudorinus (Agaricus) Fr: 33, sp. nov.
puella ([Agaricus] pseudo-aurantiacus var.) M: 87 ← [BEF: 59 (Agaricus)]
pulchella (Peziza) M: 33, Schl: 58 ← [PS: 653]
pulchella (Sphaeria) FSS no. 146 ← [PD: 3] Fr 2: 406
pulchellum (Circinostoma) G: 521 ← [PD: 3 (Sphaeria)]
pulchellus (Dasyscyphus) G: 670 ← [PS: 653 (Peziza)]
pulcher (Agaricus coprinus) Z: 110† ← [PD: 63 (Agaricus _____)]
pulcher (Coprinus) G: 635 ← [PD: 63 (Agaricus)]
pulicare (Hysterium) P: 319, G: 510, LD 22: 400, M: 153, SA: 515, H: 8 ← [PD: 5]
pullatus (Coprinus cinereus [var.]) G: 634 ← [Bolt: 20, pl. 20 (Agaricus _____)]
pulmonarius (Agaricus) Fr: 187, sp. nov.
pulveracea (Sphaeria) M: 145 ← [DC 2: 297 ← PS: 83]
pulverulentus (Agaricus) SA: 570, M: 59, N&B: 323, R: 34 ← [BH: pl. 178 + index†]
pulvinatum (Corynium) Schl: 57 ← ["Kunz"]
pulvinatum (Coryneum) FSS no. 213 ← [no reference: sp. nov.?]
pulvinatum (Helicotrichum) LD 20: 461 ← ["Nees, nov. Acta Cur. 9: 146"]
pulvinatus (Agaricus) Fr: 180 ← [PS: 370]
pulvis pyrius (Sphaeria) H: 8†, Schl: 59† ← [PD: 51 (Sphaeria pulvis)] Fr 2: 458
pumulis (Agaricus) Fr: 263, SA: 573, N&B: 318, M: 65 ← [PS: 317]
punctata (Sphaeria) M: 140, SA: 522 ← [LSP: 1180 (Peziza)]
punctatum (Xyloma) M: 149, RvS: 345, Spr: 279 ← [POM 2: 100] Fr 2: 569 (Rhytisma)
punctiforme (Astoma) G: 524 ← [PAB 5: 26 (Sphaeria)]
punctiformis (Aegerita) M: 15 ← [DC 2: 72]
punctiformis (Byssocladium) G: 552 ← [RC 3: 220 (Conferva)]
punctiformis (Sphaeria) Schl: 59, N&B: 300, H: 8, SA: 523 ← [PAB: 26] Fr 2: 525
punctulatum (Xyloma) M: 149 ← [DC 6: 157†]
punicea (Peziza) P: 262 ← [BEFC 2: 97]
puniceus (Agaricus) Fr: 104, nom. nov.
purpurascens (Agaricus) Fr: 34 ← [A&S: 182]
purpurea (Clavaria) Fr: 480 ← [Müller, FD 14: pl. 837 + text]
purpurea (Thelephora) Fr: 440†, H: 29 ← [PS: 592 (Thelephora) ← PD: 30 (Stereum)]
purpureo-albus (Agaricus roseus var.) P: 224, nom. nov.
purpureo-fuligineus (Agaricus russula) Z: 353† ← [PS: 444 (Agaricus russula nitidus var. _____)]

purpureo-fuscus (Agaricus fascicularis var.) P: 225, var. nov.
purpureum (Erineum) FBR: 40, Schl: 57, M: 17 ← ["DC, Encycl. Bot. 8: 218"]
purpureum (Erineum fagineum var.) M: 16, var. nov.
purpureus (Agaricus) Fr: 228, M: 82 ← [PS: 290 ← BH†]
purpureus (Agaricus purus var.) M: 72 ← [Bolt: 41, pl. 41b (Agaricus _____)]
purpureus (Agaricus purus [var.]) G: 608 ← [Bolt: 41, pl. 41b (Agaricus _____)]
purpureus (Polyporus) Fr: 379, nom. nov.
purus (Agaricus) Fr: 151, M: 72 ← [PD: 21]
purus (Gymnopus) G: 608 ← [PD: 21 (Agaricus)]
pusilla (Peziza) Schl: 58 ← [Ach[arius]] Fr 2: 143
pusilla (Mitrula) Fr: 493† (as "M. heyderia _____") ← [NS: 173 (Leotia)]
pusilla (Pistillaria) Fr: 498, not 298 ← [PCC: 36]
pusillum (Hydnum) Fr: 407 ← [Brot: 470]
pusillus (Agaricus) Fr: 264†, sp. nov.
pusillus (Agaricus) Fr: 279†, N&B: 306, M: 89 ← [POM 2: 36 (Amanita)]
pusillus (Cantharellus) Fr: 321 ← [FO 2: 234 (Merulius)]
pustula (Sclerotium) SA: 618 ← [DC 6: 113†]
pustula (Sphaeria) FSS: no. 205 ← [PAB: 26] Fr 2: 547
pustulata (Scodellina) G: 669 ← [PS: 646 ← "Hedwig, Musc. pl. 6A" (Octospora)]
pustulata (Sclerotium) M: 130 ← [DC 6: 113 "pustula"]
pustulata (Sphaeria) SA: 522 ← [HV 1: 26]
pustulatum (Astoma) G: 526 ← [S: p.f.p. 370 (cf. S: p.f.p. 375, fig. 1, "pustula var. minuta")]
pustulatum (Engizostoma) G: 520 ← [HV 1: 26 (Sphaeria)]
pustulatus (Agaricus) Fr: 34 ← [PS: 354]
pustullata (Sphaeria) M: 142 ← [HV 1: 26 "pustulata"]
puteana (Thelephora) Fr: 448 ← [Sae: 397]
putillis (Agaricus) Fr: 129 ← [FO 2: 130]
putredinus (Sphaeria byssiseda var.) M: 144 ← [DC 2: 296†]
pyri (Erineum) Schl: 57 ← [PD: 43 "pyrinum"]
pygmeus (Agaricus) Fr: 263, M: 65 ← [BH: 437, pl. 525, fig. 2]
pyracanthae (Erineum) SA: 529 ← [DC 6: 13]
pyriformis (Agaricus) Fr: 158 ← [PS: 317]
pyriformis (Stilbospora) FSS no. 214 ← [Hoffm[ann?]]
pyrinum (Erineum) P: 315 ← [PD: 43]
pyriodorus (Agaricus) Fr: 255 ← [PD: 300]

pyrogalus (Agaricus) Fr: 74, SA: 564, R: 27, M: 54 ← [BH: 487, pl. 529, fig. 1]
pyrrospermus (Agaricus) M: 79 ← [BH: 571, pl. 547, fig. 3]
pyxidata (Clavaria) Fr: 470 ← [PCC: 47]
pyxidata (Scodellina) G: 669 ← [Sch 4: 111, pl. 280 (Elvela)]
pyxidatus (Agaricus) Fr: 164, not 185, M: 68 ← [BH: 514, pl. 568, fig. 2]

-- Q --

quaternata (Sphaeria) P: 288 ← [POM 1: 64 (Sphaeria)]
quaternatum (Circinostoma) G: 521 ← [POM 1: 64 (Sphaeria)]
querciaria (Sphaeria punctiformis var.) M: 146, var. nov.
quercicola (Sphaeria lichenoides var.) M: 146, var. nov.
quercina (Daedalea) Fr: 333, N&B: 333, G: 638, P: 247, Schl: 57, H: 26 ← [LSP: 1176 (Agaricus)]
quercina (Nemania) G: 518 ← [PD: 2 (Sphaeria)]
quercina (Sphaeria) FSS no. 143 ← [PD: 2] Fr 2: 362
quercina (Thelephora) Fr: 442, Schl: 60 ← [PS: 573]
quercinum (Corticium) G: 653 ← [PS: 573 (Thelephora)]
quercinum (Erineum) Schl: 57, sp. nov.
quercinum (Hypoderma) G: 509, M: 153, SA: 515, LD 22: 370 ← [PS: 100 (Hysterium) POM 1: 83 (Hysterium)]
quercinum (Sclerotium) G: 591, Schl: 59 ← [PS: 124 ← PD: 15]
quercinum (Sistotrema) N&B: 340 ← [PS: 552 (Sistotrema) ← POM 2: 17 (Odontia)]
quercinum (Steccherinum) G: 651, sp. nov.
quercinum (Xylodon) G: 649 ← [PS: 552 (Sistotrema) ← POM 2: 17 Odontia)]
quercinus (Agaricus) L: 471, M: 49, P: 435 ← [LSP: 1176]
quietus (Agaricus) Fr: 69, nom. nov.
quisquiliaris (Pistillaria) Fr: 497, not 297 ← [FO 2: 294 (Clavaria)]

-- R --

racemosa (Botrytis) SA: 527, M: 14 ← [BH: 104, pl. 504, fig. 7 (Mucor)]
racemosa (Monilia) SA: 527 ← [PD: 41]

racemosa (Mycena) G: 620 ← [PS: 389 (Agaricus) ← [S: p.f.p. 287 (Agaricus)]
racemosa (Monilia penicillata var.) M: 14† ← [BH: 104, pl. 504, fig. 7 (Mucor _____)]
racemosus (Agaricus) Fr: 134 ← [PS: 389]
radia (Peziza) M: 24 ← [POM 2: 78 ("badia")]
radians (Himantia) LD 21: 165 ← ["Pers[oon?]"]
radiata (Phlebia) Fr: 427, sp. nov.
radiata (Stictus) G: 663 ← [LSpPl: 1654 (Lycoperdon)]
radiatus (Agaricus) Fr: 313 (as "A. COPR. _____") ← [Bolt: 39, pl. 39C]
radiatus (Agaricus coprinus) Z: 109† ← [Bolt: 39, pl. 39C (Agaricus _____)]
radiatus (Coprinus) G: 635 ← [Bolt. 39, pl. 39C (Agaricus)]
radiatus (Hymenoscyphus) G: 673 ← [PS: 662 (Peziza)]
radiatus (Polyporus) Fr: 369 ← [S: p.f.p. 196 (Boletus)†]
radicans (Boletus) Fr: 390 ← [PS: 507]
radicatum (Helotium) LD 20: 509 ← [A&S: 348]
radicatus (Agaricus) Fr: 118, P: 407 ← [RelS 1:28]
radicatus (Agaricus gymnopus) Z: 93† ← [RelS 1: 28 (Agaricus _____)]
radicatus (Gymnopus) G: 605 ← [RelS 1: 28 (Agaricus)]
radicatus (Macroscyphus) G: 671 ← [Dickson and "Reichard, Beschäft Berlin Gesellsch. 3: 214" (Peziza)]
radicosa (Sphaeria) SA: 519 ← [BH: 195, pl. 440, fig. 2 (Clavaria)]
radicosum (Hypoxylon) M: 137 ← [BH: 195, pl. 440, fig. 2 (Clavaria)]
radicosus (Agaricus) Fr: 242, SA: 586, M: 85 ← [BH: 637, pl. 160]
radula (Hydnum) Fr: 422, Schl: 58 ← [FO 2: 271]
radula (Polyporus) Fr: 383 ← [PS: 547 (Boletus) ← POM 2: 13 (Poria)]
radula (Sphaeria) M: 141, Schl: 59 ← [DC 2: 291 ← PS: 37]
ramaria (Hydnum) Fr: 410, sp. nov.
ramealis (Agaricus) Fr: 135, P: 191, M: 79, ← [BH: 538, pl. 336]
ramealis (Gymnopus) G: 611 ← [BH: 538, pl. 336 (Agaricus)]
ramentacea (Typhula) Fr: 496, sp. nov.
ramentaceus (Agaricus) Fr: 25 ← [BH: 640, pl. 595, fig. 3]
ramentaceus ([Agaricus]) M: 85 ← [BH: 640, pl. 595, fig. 3]
ramosa (Elvela) K: 35 ← [Sch 4: 106]
ramosissima (Fibrillaria) LD 21: 165 ← [S: p.f.p. 387, fig. 2]
ramosum (Hydnum) M: 37 ← [BH: 305, pl. 390]
ramosum (Hypoxylon cornutum [var.]) G: 512 ← [S: p.f.p. 395 (Sphaeria _____) Dick 4: 27 (Sphaeria _____)]

ramosus (Agaricus) Fr: 95, M: 72, SA: 577 ← [BH: 591, pl. 102]
ramosus (Boletus) M: 39 ← [BH: 349, pl. 418]
ramosus (Mucor) SA: 601, M: 114, L: 481 ← [BH: 116, pl. 480, fig. 3]
ramosus (Polyporus) G: 645 ← [BH: 349, pl. 418 (Boletus)]
ramotus (Agaricus) L: 474 ← [DC 2: 178 "ramosus" ← BH: 591, pl. 102 "ramosus"]
rancidus (Agaricus) Fr: 141, sp. nov.
rapaeformis (Hymenoscyphus) G: 673 ← [BH: 265 (Peziza "rapulum")]
rapulum (Peziza) M: 24 ← [BH: 265]
ravidus (Agaricus) Fr: 265 ← [FO 2: 132]
recisa (Tremella) G: 593 ← ["Dittmar, Fung."]
reductus (Agaricus) Fr: 133, not 131 ← [FO 2: 137]
reflexa (Auricularia) M: 34, P: 454 ← [BH: 281, pl. 274, 483, fig. 1-5]
reflexa (Thelephora) L: 469, SA: 543 ← [BH: 281, pls. 274, 483, fig. 1-5 (Auricularia)]
reflexus (Agaricus gymnopus) Z: 99† ← [PS: 311 (Agaricus _____)]
reflexus (Gymnopus) G: 604 ← [PS: 311 (Agaricus)]
relicinus (Agaricus) Fr: 256, sp. nov.
reniformis (Agaricus) Fr: 191, P: 239 ← [Mey: 302]
repandum (Dentinum) G: 650 ← [LSP: 1178 (Hydnum)]
repandum (Hydnum) Fr: 400, M: 38, LD 22: 93, P: 450, N&B: 341, H: 28, L: 469, K: 37, SA: 545 ← [LSP: 1178]
repandus (Agaricus) Fr: 255, M: 79, SA: 578 ← [BH: 586, pl. 423, fig. 2, pl. 579, fig. 1]
repens (Agaricus) M: 75 ← [BH: pl. 90 + index†]
resinosus (Polyporus) Fr: 361 ← [Schr: 171 (Boletus)]
replaxus (Agaricus) Fr: 158†, sp. nov.
resimus (Agaricus) Fr: 75 ← ["FO 1: 58 "(not found)]
reticulatus (Agaricus) Fr: 238 ← [PID: 13]
reticulatus (Polyporus) Fr: 385 ← [NS (Ueberblick): 59 (Boletus)]
retirugis (Cantharellus) Fr: 324 ← [BH: 289, pl. 498, fig. 1 (Helvella)]
retirugis (Merulius) SA: 557, M: 48 ← [PS: 494 (Merulius) ← BH: 289, pl. 498, fig. 1 (Helvella)]
rhagadiosus (Agaricus) Fr: 30, sp. nov.
rhaphanoides (Agaricus) Fr: 230 ← [PS: 324 "raphanoides"]
rhodopolius (Agaricus) Fr: 197, HFD 13: † 1736
rhodellus (Polyporus) Fr: 380 ← [FO 2: 261]
rhodosporum (Actinocladium) LD 20: 497 ← [Ehrenberg, "Jahrb. Gewaechs. 1819, 1: 52"]

rhodostomum (Exormatostoma) G: 522 ← [A&S: 43 (Sphaeria)]
ribesia (Peziza) Schl: 58, M: 20 ← [PD: 35]
ribesia (Sphaeria) H: 5 ← [PS: 14]
ribis (Boletus) M: 40 ← [Persoon apud DC 6: 41]
ribis (Peripherostoma) G: 514 ← [PS: 14 (Sphaeria "ribesia")]
ribis (Polyporus) Fr: 375 ← [Sae: 386 (Boletus)]
rigidum (Stilbum) M: 17 ← [PAB: 31]
rimosa (Patellaria) G: 664 ← [S: p.f.p. 369, fig. 12 (Peziza)]
rimosa (Sphaeria) G: 528 ← [S: p.f.p. 375, fig. 3]
rimosa (Sphaeria) M: 140 ← [A&S: 13]
rimosipes (Morchella) SA: 591, M: 91 ← [DC 2: 214]
rimosus (Agaricus) Fr: 258, M: 79, P: 405, SA: 581, N&B: 312, R: 36 ← [BH: 558, pls. 388, 599]
rimosus (Gymnopus) G: 604 ← [BH: 558, pls. 388, 599 (Agaricus)]
rimosus (Agaricus araneosus var.) SA: 583, M: 82 ← [BH: pl. 431, fig. 4†]
rivulosus (Agaricus) Fr: 87 ← [PS: 369]
roboris (Sclerotium pustullata var.) M: 130, var. nov.
robustus (Agaricus) Fr: 26 ← [A&S: 147]
roridus (Agaricus) Fr: 156 ← [FO 1: 84]
rosacea (Russula) G: 618 ← [PS: 439 ← Sch 4: 32 (Agaricus "roseus")]
rosaceus (Agaricus) R: 26 ← [BH: 473, pl. 162, 507 ("roseus")]
rosaceus (Agaricus russula) Z: 351† ← [POM 1: 100 ← Sch 4: 32 (Agaricus) "roseus")]
rosaceus (Agaricus pectinatus var.) M: 52, comb. nov.
rosaceus (Agaricus pectinatus [var.]) SA: 562, comb. nov.
rosae (Sphaeria) Schl: 59 ← [PS: 18 "rosea"]
rosea (Botrytis) M: 15 ← [BH: 102, pl. 504, fig. 4 (Mucor)]
rosea (Clavaria) Fr: 482 ← [FO 2: 290 ← "Dalman, Vetensk. Akad. Handl. 1811: 157"]
rosea (Himantia) LD 21: 165 ← [FO 1: 211]
rosea (Peziza) M: 19 ← [POM 2: 82]
rosea (Psilonia) FSS no. 220, sp. nov.; Fr 3: 447
rosea (Thelephora) Fr: 451 (as "T. H[imantia] _____") ← [PS: 575 (Thelephora) PD: 31 (Corticium)]
rosea (Trichoderma) M: 16 ← [PD: 12]
rosea (Tubercularia) SA: 616, L: 484, M: 129 ← [POM 1: 78]
rosella (Omphalia) G: 613 ← [BEFC 1: 121]

rosellus (Agaricus) Fr: 151 ← [FO 1: 42 "rhodellus" ← PS: 393 "roseus" ← PD: 24 "roseus"]
roseo-albus (Agaricus) Fr: 199 ← [Hornemann, FD 28: pl. 1679 + text]
roseum (Fusarium) G: 547 ← [LM 3: 10]
roseum (Hyphasma) LD 20: 517 ← [Rebentisch, "Fl. Mem., 397"]
roseum (Trichothecium) G: 550 ← [PS: 231 ← LM 3: 8]
roseus (Agaricus) M: 65†, P: 224 ← [BH: 473, pls. 162, 507]
roseus (Polyporus) Fr: 372 ← [A&S: 251 (Boletus)]
roseus (Agaricus purus var.) M: 72† ← [BH: 473, pls. 162, 507 (Agaricus _____)]
rostrata (Sphaeria) G: 530 ← [TM 2: 14]
rotula (Agaricus) Fr: 136, L: 473 ← [Scop: 456]
rotula (Agaricus omphalia) Z: 346† ← [Scop: 456 (Agaricus _____)]
rubella (Clavaria) K: 33 ← [Sch 4: 119]
rubella (Peziza chrysocoma var.) M: 21†, var. nov.
rubeolarium (Leccinum) G: 648 ← [BH: 326, pl. 490, fig. 1 (Boletus)]
rubeolarius (Boletus) M: 44, P: 437, SA: 554, N&B: 335, R: 23 ← [BH: 326, pl. 490, fig. 1]
ruber (Agaricus) Fr: 58 ← ["Lam[arck]" ← PS: 433 (Agaricus lactifluus _____)]
ruber (Agaricus) L: 472, R: 26 ← [PS: 433 (Agaricus lactifluus _____)]
ruber (Agaricus (Lactifluus))K: 9 ← [PS: 433 (Agaricus lactifluus _____)]
ruber (Agaricus (Russula)) K: 20, sp. nov.
ruber (Boletus hispidus var.) M: 42 ← [BH: 351, pl. 210]
ruber (Boletus hispidus [var.]) SA: 548 ← [BH: 351, pl. 210]
ruber (Lactarius) G: 624 ← [PS: 433 (Agaricus lactifluus _____)]
rubescens (Agaricus) Fr: 18, N&B: 307 ← [PD: 67 (Amanita)]
rubescens (Amanita) G: 600 ← [PD: 67]
rubescens (Daedalea) Fr: 339 ← [A&S: 238]
rubescens (Pleuropus palmatus [var.]) G: 615, var. nov.
rubiformis (Sphaeria) G: 528, N&B: 295 ← [S: p.f.p. 373, fig. 2]
rubi fruticosi (Hypoderma virgultorum var.) M: 152†, var. nov.
rubiginosa (Sphaeria) FSS no. 142 ← [PS: 11] Fr 2: 340
rubiginosa (Thelephora) Fr: 436, H: 29 ← [Schr: 185 ← GSN: 1441]
rubiginosum (Stereum) G: 652 ← [GSN: 1441 (Thaelephora)]
rubra (Byssus) M: 12 ← [DC 2: 68]
rubra (Cucurbitaria) G: 519, sp. nov.
rubra (Sphaeria) FSS no. 191, sp. nov.: Fr 2: 554

rubra (Auricularia papyrina var.) M: 35 ← [BH: 280]
rubro castaneus (Agaricus subdulcis var.) M: 54† ← [DC 2: 144†]
rubro-cinctus (Hypochnus) Spr: 310 ← [Ehor: 84 "rubrocinctus"]
rubrocinereus (Hypochnus) LD 22: 368 ← [Ehor: 84 "rubrocinctus"]
rubromarginatus (Agaricus) Fr: 150 ("rubro-marginatus" of index) ← [FO 1: 42]
rubrotintus (Hypochnus) Ehren: 519 ← [Ehor: 84 "rubrocinctus"]
rubrum (Polystigma) SA: 516, M: 151 ← [DC 6: 164†]
rubrum (Xyloma) N&B: 301, H: 9, Schl: 61, P: 316 ← [POM 2: 101]
rufa (Clavaria) Fr: 480 ← [PS: 600 ← "Müller," FD 5: pl. 775 + text†]
rufescens (Dentinum) G: 650 ← [Sch 4: 95 (Hydnum)]
rufescens (Hydnum) Fr: 401, not 400, LD 22: 94 ← [PS: 555 ← Sch 4: 95]
rufescens (Polyporus) Fr: 351, not 315 ← [PS: 550 (Sistotrema)]
rufescens (Agaricus fistulosa var.) M: 63, var. nov.
rufescens (Agaricus grammopodius var.) M: 71, var. nov.
rufida (Clavaria pistillaris var.) M: 30 ← [BH: 211, pl. 244]
rufipes (Agaricus gnaphaliocephalus var.) M: 69, var. nov.
rufo-fusca (Sphaeria) Schl: 59 ← [Fr[ies?]]
rufolamellatus (Agaricus cyathiformis var.) M: 67, var. nov.
rufo-olivaceus (Agaricus) Fr: 223 ← [PS: 285]
rufo velutinus (Agaricus) M: 50† ← [DC 2: 134 "rufo-velutinus"]
rufum (Leccinum aurantiacum [var.]) G: 646, var. nov.?
rufus (Agaricus lactifluus) Z: 317† ← [PS: 433† (Agaricus lactifluus subdulcis var.)]
rufus (Boletus) K: 27 ← [Sch 4: 75]
rufus (Boletus aurantiacus var.) M: 46 ← [Sch 4: 75 (Boletus _____)]
rufus (Merulius) Fr: 327 ← [PS: 498]
rufus (Mucor) N&B: 357 ← [PS: 200]
rufus (Polyporus) Fr: 379 ← [Schr: 172 (Boletus) ← Schrader apud GSN: 1435 (Boletus)]
rugosa (Clavaria) Fr: 473, M: 31, SA: 539 ← [BH: 206, pl. 448, fig. 2]
rugosa (Gemmularia) LD 18: 311 ← [Rafinesque-Schmalz, "J. Phys. Aug. 1810"]
rugosa (Ramaria) G: 655 ← [BH: 206, pl. 448, fig. 2 (Clavaria)]
rugosa (Sphaeria) P: 289 ← [Bolt: 123, pl. 123, fig. 2]
rugosa (Thelephora) Fr: 439 ← [PD: 30 (Stereum)]
rugosus (Boletus) P: 254 ← [S: p.f.p. 134† ← With: 321]
rugulosa (Sphaeria) Schl: 59 ← [PS: 65 (Sphaeria pomiformis var.)]
rupestre (Dematium) G: 558, Schl: 57 ← [PD: 43 (Racodium)]

rupestris (Byssus) SA: 526, M: 12 ← [DC 2: 592]
rupestris (Sphaeria) G: 528 ← [S: p.f.p. 371, fig. 2]
rupinicola (Tremella) Schl: 60, sp. nov.
russula (Agaricus) Fr: 38 ← [Scop: 435]
russulus (Gymnopus) G: 607 ← [Scop: 435 (Agaricus)]
rutila (Cortinaria) G: 629 ← [Sch 4: 24 (Agaricus)]
rutilans (Agaricus) Fr: 41 ← [Sch 4: 51]
rutilans (Agaricus gymnopus) Z: 94† ← [Sch 4: 51 (Agaricus)]
rutilans (Gymnopus) G: 605 ← [Sch 4: 51 (Agaricus)]
rutilis (Agaricus) Fr: 315 (As "A. Gomph[idius] _____") ← [Sch 4: 24 "rutilus"]
rutilus (Agaricus) H: 20, P: 400 ← [Sch 4: 24]

-- S --

sabinae (Tremella) LD 20: 140, H: 32, P: 510 ← [Dick 1: 14 (as alga)]
sacchari (Hydnum) Fr: 416 ("sachari" of index) ← [Sprengel, "Vetensk. Akad. Handl. 1820: 51"]
sagatus (Agaricus) Fr: 282, nom. nov.
saginus (Agaricus) Fr: 226, sp. nov.
sajor caju (Agaricus) Fr: 175†, nom. nov.
salicella (Sphaeria) FSS no. 188, sp. nov.: Fr 2: 377.
salicina (Thelephora) Fr: 442, sp. nov.
salicina (Thelephora) Schl: 60, sp. nov?
salicina (Tremella) Schl: 60, sp. nov.
salicinum (Astoma) G: 525 ← [S: p.f.p. 372, fig. 1 (Sphaeria)]
salicinum (Rhytisma) FSS no. 208, sp. nov.: Fr 2: 568.
salicinum (Sclerotium) SA: 618, M: 130 ← [DC 6: 114 ← "Persoon, in Mougeot & Nestler Exs. no. 386"]
salicinum (Xyloma) G: 545, P: 318, Schl: 61, H: 9, Spr: 279† ← [PD: 5]
salicinus (Agaricus) Fr: 202 ← [PIC: 9]
salicinus (Boletus) Re: 51, H: 27, N&B: 338, M: 42 ← [BH: 340, pl. 433, fig. 1]
salicinus (Daedalea) P: 247 ← [BH: 340, pl. 433, fig. 1 (Boletus)]
salicinus (Polyporus) Fr: 376 ← [Persoon apud GSN: 1437 (Boletus)]
salicis (Erysiphe) Schl: 57 ← [DC 2: 273]

saligna (Daedalea) Fr: 337 ← [FO 2: 241]
salignum (Xyloma) M: 150 ← [PS: 106 ← Ehrhardt, Pl. Crypto. Exs. Dec. 30, no. 299]
salignus (Agaricus) Fr: 183 ← [PS: 478]
sambuci (Peripherostoma) G: 515 ← [PS: 14 (Sphaeria)]
sambuci (Sphaeria) Re: 54, M: 140, Schl: 59 ← [PS: 14]
sambucinus (Agaricus) Fr: 257 ← ["FO 1: 8" (not found)]
sanguinea (Cortinaria) G: 629 ← [S: p.f.p. 43 ← WJ 2: 107 (Agaricus)]
sanguinea (Peziza) M: 20, Schl: 58, G: 665 ← [PD: 34]
sanguinea (Sphaeria) G: 526, LD 22: 386, Schl: 59, M: 145, P: 279 ← [Bolt: 121, pl. 121, fig. 1] Fr 2: 453
sanguinea (Typhoderma) G: 559 ← [Dillw[yn] (Conferva)]
sanguineus (Agaricus) Fr: 229 ← [WJ 2: 107]
sanguineus (Agaricus) SA: 562, M: 53 ← [BH: pl. 42 + index†]
sanguineus (Agaricus muscarius var.) P: 203, var. nov.
sanguineus (Boletus) P: 439, SA: 549 ← [LSpPl: 1646]
sanguineus (Polyporus) Fr: 371 ← [LSpPl: 1646 (Boletus)]
sanguinolenta (Thelephora) Fr: 440 ← [A&S: 274]
sanguinolentus (Agaricus) Fr: 149, not 145 ← [A&S: 196]
sanguinolentus (Polyporus) Fr: 383 ← [A&S: 257 (Boletus poria _____)]
sanguisorbe (Erysiphe) M: 134 ← [DC 6: 108]
saniosus (Agaricus) Fr: 232, sp. nov.
sapineus (Agaricus) Fr: 239, nom. nov.
sarcoides (Fistulina) SA: 547, sp. nov.
sarcoides (Octospora) G: 667 ← [With: 82 (Tremella) ← Dick 1: 21 (Helvella)]
sarcoides (Tremella) H: 32, P: 511 ← [With: 82 (Tremella) Dick 1: 21 (Helvella)]
sarmentosa (Tuberculariа) Schl: 60 ← [Fr[ies?]]
saturninus (Agaricus) Fr: 219, sp. nov.
scabellus (Agaricus) Fr: 259 ← [A&S: 189]
scaber (Agaricus) Fr: 255, P: 205 ← [S: p.f.p. 207 ← Müller, FD 14: pl. 832 + text]
scaber (Boletus) Fr: 393, nom. nov.
scaber (Boletus) N&B: 334, K: 28, Re: 52, SA: 555, M: 46, P: 242 ← [BH: 319, pls. 132, 489, fig. 1]
scabiosaecola (Sphaeria lichenoides var.) M: 136, var. nov.
scabra (Cortinaria) G: 630 ← [Müller, FD 14: pl. 832 + text (Agaricus)]

scabrosa (Sphaeria) LD 22: 386, M: 140, SA: 521 ← [DC 6: 288 ← BH: 180, pl. 468, fig. 5 (Hypoxylon)]
scabrosum (Hypoxylon) Re: 46 ← [BH: 180, pl. 468, fig. 5]
scabrum (Leccinum) G: 647 ← [BH: 319, pls. 132, 489, fig. 1 (Boletus)]
scandicis (Erysiphe) M: 133 ← [DC 6: 137]
scaurus (Agaricus) Fr: 223† ← [FO 2: 75]
schumacheri (Agaricus) Fr: 87 ← [FO 2: 109]
schweinitzii (Polyporus) Fr: 351, nom. nov.
sciophanus (Agaricus) Fr: 102, sp. nov.
scirpi (Hysterium) FSS no. 170 ← ["Funk"] Fr 2: 590
scirpicola (Sphaeria) FSS no. 150 ← [DC 2: 300]
scirpinum (Hypoderma) M: 152, LD 22: 370 ← [Persoon apud DC 6: 166]
scirpinum (Leptostroma) FSS no. 175, sp. nov.: Fr 2: 598
sclerotioides (Pistillaria) Fr: 497, not 297 ← [DC 6: 29 (Clavaria)]
scoria (Sphaeria) M: 139 ← [DC 2: 286]
scorodonius (Agaricus) Fr: 130 ← [FO 1: 29]
scrobiculatus (Agaricus) Fr: 62 ← [Scop: 450]
scutellata (Peziza) N&B: 349, M: 21, G: 665, SA: 531, L: 467, H: 33, P: 263 ← [LSP: 1181]
scutellatum (Engizostoma) G: 520 ← [PS: 37 (Sphaeria)]
scutellatum (Sclerotium) G: 591 ← [A&S: 74]
scutulatus (Agaricus) Fr: 211, sp. nov.
scyphoides (Agaricus) Fr: 163, nom. nov.
sector (Boletus) Spr: 310 ← [Ehor: 86]
sector (Polyporus) Fr: 505 ← [Ehor: 86 (Boletus)]
sedi (Ectostroma) FSS no. 177, sp. nov.: Fr 2: 602
segestrius (Agaricus) Fr: 262 ← [FO 2: 27]
sejunctus (Agaricus) Fr: 47 ← [S: p.f.p. 126]
semen (Sclerotium) M: 130 ← [TM 1: 4]
semiglobatus (Agaricus) Fr: 384†, H: 23 ← [BEFC 1: 141 "semi-globatus"]
semiglobatus (Agaricus) Fr: 237† ("semiglobosus" of index) ← [A&S: 169 "subglobosus"]
semiglobatus (Coprinus) G: 632 ← [BEFC 1: 141 [Agaricus "semi-globatus")]
semilibra (Morchella) M: 90 ← [DC 2: 212]
seminiforme (Sclerotium) G: 591 ← [TM 1: 4 "semen"]
semiorbicularis (Agaricus) N&B: 324 ← [BH: 467, pl. 422, fig. 1]
semi-orbicularis (Agaricus) SA: 569 ← [BH: 467, pl. 422, fig. 1 "semiorbicularis"]
semi orbicularis (Agaricus) M: 59† ← [BH: 467, pl. 422, fig. 1 "semiorbicularis"]
semiovatus (Agaricus) Fr: 300, H: 24, P: 223 ← [WBA: 394]

semiovatus (Agaricus coprinus) Z: 109† ← [WBA: 394 (Agaricus)]
semiovatus (Coprinus) G: 632 ← [WBA: 394 (Agaricus)]
semitalis (Agaricus) Fr: 117, sp. nov.
sepiaria (Daedalea) Fr: 333 ← [JColl 1: 339 (Agaricus)]
septentrionale (Hydnum) Fr: 414, sp. nov.
sereus (Hypochnus) LD 22: 368 ← [FO 2: 278 ← PS: 580 (Thelephora "sera")]
serialis (Polyporus) Fr: 370, sp. nov.
serialis (Thelephora) Fr: 445, sp. nov.
seriatum (Phacidium) FSS no. 161, sp. nov.: Fr 2: 185
sericellus (Agaricus) Fr: 196 ← [FO 2: 145 "sericeus" ← PS: 366 "sericeus"
BH: 576 "sericeus"]
sericeus (Agaricus) M: 78 ← [BH: 576, pl. 526, 413, fig. 2]
sericeus (Agaricus sericeus var.) M: 78 ← [BH: 576 (Agaricus _____)]
serifluus (Agaricus) Fr: 75 ← [DC 6: 45]
serotinus (Agaricus) Fr: 187 ← [PS: 479]
serpens (Daedalea) Fr: 340 ← [FO 2: 265 (Polyporus)]
serpens (Merulius) Fr: 327 ← [PS: 497 ← Tode, "Abh. Hall. Nat. Gesell. 1: 355"]
serpens (Nemania) G: 516 ← [PS: 20 (Sphaeria)]
serpens (Sphaeria) M: 141 ← [POM 1: 18]
serrulatus (Agaricus) Fr: 204 ← [PS: 463 "serrula"]
sessilis (Agaricus variabilis var.) M: 51 ← [BH: 383 (Agaricus _____)]
sessilis (Dasyscyphus) G: 671 ← [S: p.f.p. 389 (Peziza)]
sessilis (Peziza) P: 466 ← [S: p.f.p. 389]
setiformis (Rhizomorpha) M: 136, Ehren: 519, LD 22: 385 ← [Roth 1: 235]
setipes (Agaricus) Fr: 159 ← [FO 2: 162]
setosa (Clavaria) N&B: 345, sp. nov.
setosus (Rhizomorpha setiformis var. Lichen _____) M: 136†
sideroides (Agaricus) M: 62 ← [BH: 574, pl. 588]
simplex (Helmisporium) LD 20: 496 ← ["Kunze"]
sinensis (Polyporus) Fr: 345 (as "P. Fav[olus] _____"), nom. nov.
sinopicus (Agaricus) Fr: 83 ← [FO 2: 197 "hinopicus"]
sinuatus (Agaricus) Fr: 197†, M: 74 ← [BH: pl. 579, fig. 1†]
sinuosa (Daedalea) G: 638 ← [S: p.f.p. 194 (Boletus)]
sinuosus (Cantharellus) Fr: 319, nom. nov.
sinuosus (Polyporus) Fr: 381, sp. nov.

sipiarius (Agaricus) Fr: 261, sp. nov.
sistotrema (Boletus) Fr: 389 ← [FO 1: 120† "sistotremoides"]
sistratus (Agaricus) Fr: 24, sp. nov.
socialis (Agaricus) Fr: 251 ← [DC 6: 48]
solani (Xyloma) Schl: 61, sp. nov.
solenia (Peziza) M: 22 ← [PS: 676]
solida (Clavaria) G: 656, sp. nov.
solida (Sphaeria) P: 493 ← [S: p.f.p. 314]
solidum (Astoma) G: 524 ← [S: p.f.p. 314 (Sphaeria)]
solitaria (Sphaeria) G: 527 ← [S: p.f.p. 357, fig. 2]
solitarius (Agaricus) Fr: 17, SA: 587, M: 87, N&B: 307, L: 475, R: 50 [BH: 675, pls. 48, 593]
soloniensis (Polyporus) Fr: 365 ← [DC 6: 41 (Boletus) ← Duby, "Fl. Orl., 177" (Agaricus)]
sonchi (Erysiphe) Schl: 57, sp. nov.
sordarius (Agaricus gymnopus) Z: 96† ← [PS: 370 (Agaricus _____)]
sordidus (Agaricus) Fr: 51 ← [Sae: 341]
sordidus (Agaricus) P: 196 ← [Dick 1: 16]
sowerbii (Erysibe) G: 590, sp. nov.
sowerbii (Macroscyphus) G: 671 ← [PS: 642 (Peziza "sowerbea")]
spadicea (Daedalea) Fr: 505 ← [PID: 34 (Hydnum)]
spadicea (Helvella) LD 20: 512 ← [Sch 4: 112 (Elvela)]
spadicea (Vaginata) G: 601 ← [PD: 66 (Amanita)]
spadicea (Thelephora) Fr: 438 ← [PS: 568]
spadiceo-griseus (Agaricus) N&B: 324 ← [Sch 4: 59 "spadiceogriseus"]
spadiceus (Agaricus appendiculatus var.) M: 60 ← [Sch 4: 59 (Agaricus "spacideogriseus")]
sparteus (Agaricus) Fr: 266, sp. nov.
spathulatum (Hydnum) Fr: 423 ← [Schr: 178 "spatulatum"]
spathulatum (Xylaria polymorpha [var.]) G: 513, var. nov.
spathulatus (Agaricus) P: 430 ← [PS: 479]
spathulatus (Agaricus petaloides var.) M: 51 ← [PS: 479 (Agaricus _____)]
spatulata (Helvella) P: 452 ← [Dick 1: 21 (Clavaria)]
speciosus (Agaricus) Fr: 278 ← [FO 2: 1 (Amanita)]
speciosus (Agaricus) HFD 13: t. 1737 ← [Fr: 278]
speirea (Sphaeria) FSS no. 206, sp. nov.: Fr 2: 261

speireus (Agaricus) Fr: 159 ← [FO 1: 90]
spermoides (Sphaeria) Schl: 59, P: 282, H: 7, SA: 523 ← [PS: 75]
sphaerale (Sclerococcum) FSS no. 179, sp. nov.: Fr 3: 257
sphaeroides (Hysterium) FSS no. 168 ← [A&S 57] Fr 2: 588
sphaerosperma (Stilbospora) G: 545, M: 147 ← [POM 1: 31]
sphaleromorphus (Agaricus) M: 60 ← [BH: 629, pl. 540, fig. 2]
sphincteria (Sphaeria) SA: 523, LD 22: 386, M: 145 ← [BH: 168, pl. 444, fig. 1 (Hypoxylon)]
sphinctericum (Hypoxylon) Re: 46 ← [BH: 168, pl. 444, fig. 1]
sphalachnoides (Agaricus) Fr: 137 ← [Hornemann, FD 28: pl. 1678 + text]
spiculifera (Sphaeria) P: 494 ← ["Purton, Midl. Fl. no. 1106"]
spiculosa (Gyraria) G: 594 ← [POM 2: 99 (Tremella)]
spiculosa (Tremella) Schl: 60 ← [POM 2: 99]
spilomeus (Agaricus) Fr: 220 ← [FO 2: 83]
spinosa (Sphaeria) Schl: 59, M: 139 ← [PD: 3]
spinulosa (Clavaria) Fr: 468 ← [POM 2: 59]
spinulosa (Himantia) LD 21: 165 ← [FO 2: 285]
splendens (Agaricus) Fr: 84 ← [PS: 452]
spodoleucus (Agaricus) Fr: 182 ← [FO 1: 93]
spongiosa (Poria) G: 640 ← [PS: 543 (Boletus)]
spongiosus (Boletus) H: 27 ← [PS: 543]
spongiosus (Polyporus) Fr: 377 ← [PS: 543 ← "Bolton"]
spumeus (Agaricus) Fr: 252, nom. nov.
spumeus (Polyporus) Fr: 358 ← [S: p.f.p. 211 (Boletus)]
squalinum (Hydnum) Fr: 420, sp. nov.
squammosum (Hydnum) LD 22: 92 ← [BH: 310, pl. 409 "squamosum"]
squamosum (Hydnum) Re: 50, N&B: 341 ← [BH: 310, pl. 409]
squammosus (Agaricus) Fr: 284† ← [PS: 409]
squammosus (Agaricus) M: 84 ← [BH: 625, pl. 266 "squamosus"]
squamosus (Agaricus) P: 404, SA: 584 ← [BH: 625, pl. 266]
squamosus (Boletus) P: 441, H: 27 ← [Bolt: 77, pl. 77 ← "HFA: 626"]
squamosus (Polyporus) Fr: 343 (as "P. Fav[olus] _____") ← [Bolt: 77, pl. 77 "HFA: 626" (Boletus)]
squamula (Merulius) H: 25 ← [BEFC 1: 95 (Agaricus)]
squamulosus (Agaricus) Fr: 82 ← [PS: 449]
squarrosa (Lepiota) G: 602 ← [Willd: 380 ← BEF: 85]

squarrosus (Agaricus) Fr: 243 ← [PS: 268 ← Müller (polynomial) †]
squarrosus (Agaricus) M: 64 ← [BH: 463, pl. 535, fig. 3]
stabularis (Thelephora) Fr: 435, sp. nov.
stagninus (Agaricus) Fr: 268, sp. nov.
stalactiticus (Boletus (Apus) fomentarius var.) MNA: 238, var. nov.
stellare (Xyloma) Schl: 61 ← [POM 2: 100]
stellatus (Agaricus) Fr: 163 ← [FO 1: 85]
stellata (Fibrillaria) LD 21: 165 ← [S: p.f.p. 387]
stellulata (Sphaeria) LD 22: 401 ← [Ach[arius?]]
stercoraria (Peziza) P: 460, M: 22, SA: 532 ← [BH: 256, pl. 376, fig. 1, pl. 438, fig. 4]
stercoraria (Sphaeria) G: 527 ← [S: p.f.p. 357, fig. 1]
stercorareum (Sclerotium) FBR: 45 ← [DC 2: 277 "stercorarium"]
stercorarium (Sclerotium) M: 130, SA: 617 ← [DC 2: 277]
stercorarius (Agaricus) Fr: 291, P: 234, H: 23 ← [Scop: 427]
stercorarius (Agaricus) M: 57, L: 473, SA: 567, N&B: 320 [BH: 398, pl. 68]
stercorea (Hydrophora) LD 22: 261 ← [TM 2: 6]
stercorea (Peziza) Schl: 58, G: 665 ← [GSN: 1457 ← WH: 106]
stereoides (Polyporus) Fr: 369 ← [FO 2: 258]
sterilis (Thelephora) Fr: 454, sp. nov.
sterquilinus (Agaricus) Fr: 308 (as "A. COPR. _____"), nom. nov.
stigma (Nemania) G: 517 ← [HV 1: 7 (Sphaeria)]
stigma (Sphaeria) LD 22: 386, H: 5, Schl: 59, M: 141, SA: 522 ← [HV 1: 7]
stilostoma (Sphaeria) FSS no. 145, sp. nov.: Fr 2: 403
stipata (Sphaeria) FSS no. 199, sp. nov.: Fr 2: 558
stipatum (Hydnum) Fr: 425, sp. nov.
stipatus (Agaricus) Fr: 296† ← [PS: 423]
stipatus (Agaricus pratella) Z: 312† ← [PS: 423 (Agaricus _____)]
stipitarius (Agaricus) Fr: 137, sp. nov.
stipitata (Helvella) P: 258 ← [With: 346]
stipitata (Peziza) M: 24 ← [BH: 271, pl. 196, 457, fig. 2]
stipitata (Tremella) LD 22: 305 ← ["Bosc"]
stipitis (Agaricus) H: 20, P: 402 ← [With: 191]
stipticus (Agaricus) Fr: 188 ← [BH: 389, pls. 140, 557, fig. 1 "stypticus"]
stipticus (Polyporus) Fr: 359 ← [PS: 525 (Boletus)]
stipularis (Agaricus) Fr: 160, sp. nov.

stramineus (Agaricus muscarius var.) P: 203 ← [Scop: 418 (Agaricus)]
striaeforme (Hypoderma) M: 153 ← [PS: 32 (Sphaeria)]
striaeformis (Sphaeria) FSS no. 195, sp. nov.: Fr 2: 428
striaeformis (Sphaeria) H: 6 ← [PS: 32]
striata (Daedalea) Fr: 334 ← [SIN: 1920 (Boletus)]
striatulus (Agaricus) Fr: 193 ← [PS: 485]
striatus (Agaricus) Fr: 302, SA: 569, L: 473, M: 58 ← [BH: 433, pl. 552, fig. 2]
striatus (Coprinus desseminatus var.) G: 635 ← [BH: 433, pl. 552, fig. 2 (Agaricus _____)]
stricta (Clavaria) Fr: 468, K: 32 ← [PCS: 45]
stricta (Sphaeria) FSS: no. 148 ← [PS: 59] Fr 2: 474
strictum (Hysterium) LD 22: 401 ← [FO 1: 194 "stricticum"]
strigiceps (Agaricus) Fr: 270, sp. nov.
strigosum (Dematium) H: 34 ← [PS: 695 ← PD: 75]
strigosum (Hydnum) Fr: 414 ← [Swartz, "Vetensk. Akad. Handl. 1810: 250"]
strobilina (Mycena) G: 621 ← [PS: 393 (Agaricus)]
strobilina (Sphaeria) H: 8 ← [Mougeot & Nestler, Exs. no. 572]
strobilinus (Agaricus) Fr: 150 ← [PS: 393]
strobulina (Sphaeria) Schl: 59 ← ["Rafinesque-Schmalz"]
stuposum (Sporotrichum) G: 551 ← [LM 3: 12]
stylifera (Sphaeria) G: 530, sp. nov.
stylobates (Agaricus) Fr: 153+, M: 61 ← [PS: 390]
stypticus (Agaricus) N&B: 331, SA: 560, R: 25, M: 51 ← [BH: 389, pls. 140, 557, fig. 1]
stypticus (Crepidopus) G: 616 ← [BH: 389, pls. 140, 557, fig. 1 (Agaricus)]
suaveolens (Agaricus) Fr: 91 ("svaveolens" of index) ← [Sae: 337]
suaveolens (Boletus) R: 19, P: 443, SA: 551, G: 641, M: 42 ← [LSP: 1177]
suaveolens (Daedalea) Fr: 337 ("svaveolens" of index) ← [BH: 342 (Boletus)]
suaveolens (Daedalea) G: 639, P: 247 ← [LSP: 1177 (Boletus)]
suaveolens (Hydnum) Fr: 402 ("svaveolens" of index) ← [Scop: 472]
suaveolens (Hydnum) LD 22: 95 ← [Scop: 472]
suaveolens (Polyporus) Fr: 366 ("svaveolens" of index) ← [LSP: 1177 (Boletus)]
subalutaceus (Agaricus) Fr: 90 ← [BEFC 2: 27]
subcaerulea (Auricularia tremelloides var.) M: 34 ← [BH: 278]
subcantharellus (Agaricus) P: 183 ← [S: p.f.p. 413]
subcarnaceum (Hydnum) Fr: 418 ← [FO 2: 271]
subcavus (Agaricus) Fr: 28 ← [Sae: 262]

subconfluens (Sphaeria) P: 284 ← [S: p.f.p. 370, fig. 7]
subcorticale (Exormatostoma) G: 523 ← [S: p.f.p. 296 (Sphaeria)]
subcorticalis (Rhizomorpha) P: 305, N&B: 370 ← [PS: 704]
subcorticalis (Sphaeria) P: 285 ← [S: p.f.p. 296]
subdulcis (Agaricus) Fr: 70, M: 54, N&B: 325, R: 31 ← [PS: 433† "subdulcis" BH: pl. 224† "lactifluus dulcis"]
subdulcis (Lactarius) G: 625 ← [PS: 433† (Agaricus _____) ← BH: pl. 224† "lactifluus dulcis"]
suberosus (Boletus) M: 41, Re: 51, SA: 549, P: 252, H: 27 ← [BH: 354, pl. 482 ← LSP: 1176]
suberosus (Polyporus) Fr: 505 ← [WUPS: 457 (Boletus) ← LSP: 1176 (Boletus)]
subfarinaceus (Agaricus farinaceus var.) P: 214, var. nov.
subferrugineus (Agaricus) Fr: 234, not. 237 ← [FO 2: 62 ← BEFC 2: 7]
subimmersum (Exormatostoma) G: 523 ← [S: p.f.p. 372, fig. 8 (Sphaeria)]
sublamellosum (Hydnum) Re: 50, SA: 546 ← [BH: 306, pl. 453, fig. 1]
sublanatus (Agaricus) Fr: 214 ← [S: p.f.p. 224†]
subliquescens (Agaricus) Fr: 304 ← ["Bull" (of index) ← Sae: 358]
subliqvescens (Agaricus) HFD 12, t. 1732, fig. 2 ← [Fr: 304 ← Sae: 358]
subradians (Sphaeria) FSS no. 204, sp. nov.: Fr 2: 525
subreflexus (Agaricus) Fr: 271 ← [Otto, "Ag., 77"]
subspadiceus (Polyporus) Fr: 378 ← [FO 2: 263]
subsquamosum (Hydnum) Fr: 399 ← [BEF: 111]
subsquamosus (Polyporus) Fr: 346 ← [LSP: 1178 (Boletus]
subtile (Helotium) LD 20: 509 ← [FO 2: 310]
subtile (Sphaeronaema) FSS no. 160, sp. nov.: Fr 2: 539
subtilis (Agaricus) Fr: 302, sp. nov.
subtilis (Clavaria) Fr: 475 ← [PCC: 51]
subtilis (Polyporus) Fr: 506 (as "P. P[orothelium] _____") ← [Schr: 173 (Boletus)]
subtomentosum (Leccinum) G: 647 ← [LSP: 1178 (Boletus)]
subtomentosus (Boletus) Fr: 389, K: 29 ← [LSP: 1178]
subtomentosus (Boletus) P: 240 ← [LSP: 1178 "subtomentosus"]
subtortus (Agaricus) Fr: 222 ← [PS: 284]
subularis (Peziza) M: 23 ← [BH: 236, pl. 500, fig. 2] Fr 2: 118
subulata (Sphaeria) Spr: 279† ← [PS: 94 (Sphaeria)]
subulatum (Astoma) G: 523 ← [PS: 94 (Sphaeria)]

subulatum (Helmisporium) LD 20: 496 ← [Nees, "Nova Acta Cur. 9: pl. 5"]
suecica (Clavaria) Fr: 469 ← [FO 1: 156]
suffrutescens (Agaricus) Fr: 177 ← [Brot: 466]
suffulata (Erysibe) G: 589 ← [Rebentisch, "Fl. Neomont."]
suffultum (Erysiphe) Schl: 57 ← [Rebentisch, "Fl. Neomont."]
sulcata (Sphaeria) P: 492 ← [Bolt: 124, pl. 124]
sulfureus (Boletus) M: 42 ← [BH: 347, pl. 429 "sulphureus"]
sulphurea (Himantia) LD 21: 163 ← [POM 1: 38 (Corticium)]
sulphurea (Peziza) G: 665 ← [PD: 33]
sulphurea (Thelephora) Fr: 452 (as "T. H[imantia] _____") ← [PS: 703 (Himantia) ← POM 1: 38 (Corticium)]
sulphureus (Agaricus) Fr: 110, L: 474, P: 399, M: 74 ← [BH: 563, pl. 168, 545, fig. 2]
sulphureus (Agaricus gymnopus) Z: 94† ← [BH: 563, pls. 168, 545, fig. 2 (Agaricus _____)]
sulphureus (Boletus) HFL: pl. 132 + text, H: 28, P: 446 ← [BH: 347, pl. 429]
sulphureus (Gymnopus) G: 606 ← [BH: 563, pls. 168, 545, fig. 2 (Agaricus)]
sulphureus (Polyporus) Fr: 357 ← [BH: 347, pl. 429 (Boletus)]
supinus (Agaricus) Fr: 142, nom. nov.
supinus (Polyporus) Fr: 376 ← [SIN: 1926 (Boletus)]

tabacina (Auricularia) P: 260 ← [S: p.f.p. 25]
tabacina (Thelephora) Fr: 437 ← [S: p.f.p. 25 (Auricularia)]
tarda (Omphalia) G: 614 ← [PS: 461]
tardus (Agaricus omphalia) Z: 350† ← [PS: 461 (Agaricus _____)]
tecta (Sphaeria herbarum var.) Schl: 59 ← [POM 2: 69 (Sphaeria complanata var. _____)]
tecta (Sphaeria herbarum [var.]) H: 7 ← [POM 2: 69 (Sphaeria complanata var.)]
tegularis (Agaricus) Fr: 294 ← [Sae: 317]
temulentus (Agaricus) Fr: 268, sp. nov.
tenacella (Clavaria) Fr: 472 ← [PAH: 179]
tenacellus (Agaricus) Fr: 131 ← [PRNB: 104]
tenax (Agaricus) Fr: 290 ← [FO 1: 54]
tenella (Hydrophora) LD 22: 261 ← [TM 2: 6]
tenellus (Cantharellus) Fr: 325 ← [DC 2: 132 (Merulius)]
tenellus (Hymenoscyphus) G: 674 ← [BEFC 1: 215 (Peziza)]
tenellus (Merulius) M: 49 ← [DC 2: 132]
tener (Agaricus) Fr: 265, H: 22, P: 220 ← [Sch 4: 31, pl. 70]
tener (Agaricus mycena) Z: 104† ← [Sch: 4: 31, pl. 70 (Agaricus _____)]
tenera (Mycena) G: 620 ← [Sch 4: 31, pl. 70 (Agaricus "tener")]
tentacule (Agaricus) M: 65 ← [BH: 446, pl. 560, fig. 3]
tenuicaulis (Polyporus) Fr: 344 ← [POW: 12]
tenuis (Agaricus varius var.) P: 217 ← [S: p.f.p. 385, fig. 5 (Agaricus _____)]
tenuis (Clavaria) Schl: 56, sp. nov.
tenuis (Typhula) Fr: 495 ← [S: p.f.p. 386, fig. 5 (Clavaria)]
tenuissimum (Helmisporium) LD 20: 496 ← ["Kunze"]
tephroleucus (Agaricus) Fr: 34 ← [PS: 351]
tephroleucus (Polyporus) Fr: 360, sp. nov.
teres (Clavaria tomentosa var.) M: 33, var. nov.
teres (Rhizomorpha fragilis var.) M: 136, var. nov.
terginus (Agaricus) Fr: 128, sp. nov.
tergiversans (Agaricus) Fr: 303, sp. nov.
terrestre (Stachylidium) G: 553 ← [LM 3: 15]
terrestris (Polyporus) Fr: 383 ← [PIP 3: 35]
terrestris (Stictus) G: 664, sp. nov.

terrestris (Thelebolus) G: 531 ← [A&S: 71]
terrestris (Thelephora) Fr: 431 ← [PS: 566 ← "Ehrhardt, Pl. Crypto. Exs. Dec. 18, no. 178"]
terreus (Agaricus) P: 402 ← [Sch 4: 28, pl. 64]
tesellatum (Exormatostoma) G: 522 ← [PS: 48 (Sphaeria "tesella")]
tessella (Sphaeria) FSS no. 187 ← [PS: 48] Fr 2: 393
tesselatus (Agaricus) M: 52 ← [BH: 583, pl. 513, fig. 1]
tessulatus (Agaricus) Fr: 186 ← [BH: 583, pl. 513, fig. 1, "tesselatus"]
tessulatus (Polyporus) Fr: 342 ← [FO 2: 254]
testaceus (Agaricus) R: 30 ← ["Persoon"]
theiogalus (Agaricus) M: 53, R: 29, SA: 563 ← [BH: 495, pl. 567, fig. 2]
theiogalus (Lactarius) G: 624 ← [BH: 495, pl. 567, fig. 2 (Agaricus)]
thejagalus (Agaricus) Fr: 71 ← [BH: 495, pl. 567, fig. 2 "theiogalus"]
thelephorus (Agaricus) Fr: 252 ← [PS: 307, "telephorus"]
thrycopus (Agaricus butyraceus var.) M: 73 ← [PS: 308 (Agaricus "thrichopus")]
thunbergii (Daedalea) Fr: 335, nom. nov.
tigrina (Omphalia) G: 613 ← [S: p.f.p. 68 (Agaricus)]
tigrinus (Agaricus) Fr: 176, N&B: 329, M: 67, R: 35 ← [S: p.f.p. 68]
tiliaceum (Erineum) G: 555, N&B: 369, M: 17, P: 314 ← [POM 1: 25]
tiliae (Erineum) Schl: 57 ← [POM 1: 25, "tiliaceum"]
tiliae (Exormatostoma) G: 522 ← [PD: 3 (Sphaeria)]
tiliae (Exosporium) FSS no. 178 ← [LM 3: 10] Fr 3: 361
tiliae (Sphaeria) M: 145 ← [PD: 3]
tiphynum (Polystigma) M: 151 ← [DCM 3: 338]
tithymalinus (Agaricus) Fr: 71 ← [Scop: 452]
titubans (Agaricus) M: 58, P: 227 ← [S: p.f.p. 128]
titubans (Prunulus) G: 632 ← [S: p.f.p. 128 (Agaricus)]
todei (Typhula) Fr: 494 ← [FO 2: 298 (Typhula) ← FO 1: 160 (Mitrula)]
tofieldiae (Astoma) G: 525 ← [S: p.f.p. 370, fig. 3]
togularis (Agaricus) Fr: 241, N&B: 309 ← [BH: 639, pl. 595, fig. 2]
tomentosa (Clavaria) M: 33 ← [LEM 2: 38]
tomentosa (Conferva) Fodere: 249 ← [no author given]
tomentosa (Sphaeria) P: 287 ← [WSA: 383]
tomentosum (Hydnum) Fr: 405 ← [LSP: 1178]
tomentosum (Stilbum) M: 18 ← [Schrader, J. Bot. 2: 65] Fr 3: 301

tomentosus (Agaricus) M: 56, SA: 566 ← [BH: 402, pl. 138]
tomentosus (Agaricus congregatus var.) P: 235 ← [BH: 402, pl. 138 (Agaricus _____)]
tomentosus (Coprinus cinereus [var.]) G: 634 ← [BH: 402, pl. 138 (Agaricus _____)]
tomentosus (Polyporus) Fr: 351, sp. nov.
torminosus (Agaricus) Fr: 63, not 69, P: 396 ← [Sch 4: 7, pl. 12]
torminosus (Agaricus lactifluus) Z: 315† ← [Sch 4: 7, pl. 12 (Agaricus _____)]
torminosus (Lactarius) G: 623 ← [Sch 4: 7, pl. 12 (Agaricus)]
tornatus (Agaricus) Fr: 91, sp. nov.
torpens (Agaricus) Fr: 299, sp. nov.
torquatus (Agaricus) Fr: 153, nom. nov.
tortilis (Agaricus) L: 474, R: 35 ← [Bolt: 41, pl. 41A]
tortilis (Omphalia) G: 613 ← [Bolt: 41, pl. 41A (Agaricus)]
tortuosus (Agaricus) Fr: 235, sp. nov.
torulosus (Agaricus) Fr: 181 ← [PS: 475]
trabea (Daedalea) Fr: 335 ← [PS: xxix (Agaricus)]
trachelinus (Agaricus) Fr: 134 ← [FO 2: 165, "trachilinus"]
traganus (Agaricus) Fr: 217, nom. nov.
tragopogi (Albugo) G: 540 ← [LDC: 49 (Uredo)]
translucens (Agaricus) Fr: 274 ← [DC 6: 43]
tremelloidea (Peziza) M: 26, SA: 535 ← [BH: 240, pl. 410, fig. 1]
tremelloides (Auricularia) M: 34, P: 453 ← [BH: 278, pl. 290]
tremelloides (Morchella) M: 90, Schl: 58 ← [Ventenat, "Mem. l'Inst. 1: 509"] Fr 2: 10
tremelloides (Thelephora) L: 468, SA: 542 ← [BH: 278, pl. 290 (Auricularia)]
tremellosus (Merulius) Fr: 327, M: 49 ← [Schr: 139]
tremellosus (Meruleus [sic]) Schl: 58 ← [Schr: 139 (Merulius)]
tremula (Tremella) LD 22: 306 ← [Nees, "Trait. pl. 15, fig. 144b"]
tremulaecola (Sphaeria lichenoides var.) M: 146, var. nov.
tremulus (Agaricus) Fr: 191, P: 237 ← [Sch 4: 53, pl. 244]
tremulus (Crepidopus epigaeus [var.]) G: 617 ← [Sch 4: 53, pl. 224 (Agaricus _____)]
trichaeus (Agaricus) Fr: 108 ← [PS: 451]
trichella (Sphaeria) FSS no. 203 ← ["Fries"]
tricholoma (Agaricus) Fr: 270 ← [A&S: 188]
trichopus (Clavaria) Fr: 474 ← [PAH: 182, "thrichopus"]
tricolor (Agaricus) Fr: 166 ← [A&S: 224 (Agaricus omphaliae var.)]
tricolor (Agaricus) M: 50 ← [BH: 380, pl. 541, fig. 2]
tricolor (Dasyscyphus) G: 671 ← [S: p.f.p. 369, fig. 6 (Peziza)]

trivialis (Agaricus) Fr: 65 ← ["Krapf, Essb. Schw. 1: t. 5, figs. 1-3"]
trullaeformis (Agaricus) Fr: 184, sp. nov.
truncata (Sphaeria (Poronia)) FSS no. 182 ← [Bolt: 127, pl. 127A (Sphaeria)] Fr 2: 330
truncatum (Hysterium) Schl: 58 ← [PS: 98]
truncatus (Agaricus omphalia) Z: 349† ← [Sch 4: 66, pl. 251 (Agaricus)]
truncigena (Omphalia involuta [var.]) G: 611 ← [PS: 448]
truncigenus (Agaricus omphalia) Z: 350† ← [PS: 448 (Agaricus involutus var.)]
tubaeformis (Cantharellus) Fr: 319, G: 636 ← [PS: 489 (Merulius) BH: 294, pls. 208, 461 (Helvella)]
tubaeformis (Hymenoscyphus) G: 673 ← [Bolt: 106, pl. 106, fig. 1 (Peziza "tuba")]
tubaeformis (Sphaeria) H: 7 ← [TM 2: 51]
tuberaster (Polyporus) Fr: 347 ← [PS: 514 (Boletus) ← JColl: Supple. t. 8, 9†]
tuberculariа (Sphaeria) M: 144 ← [DC 2: 295]
tuberculatum (Trichoderma) G: 560 ← [POM 1: 12]
tuberculosa (Sphaeria) P: 488 ← ["Sibthorp"]
tuberculosum (Xyloma leucocreas var.) M: 149, var. nov.
tuberculosus (Agaricus) Fr: 244 ← [Sch 4: 34, pl. 79]
tuberculosus (Polyporus) Fr: 380 ← [DC 6: 40 ← POM 1: 14 (Poria)]
tuberosa (Agaricus typhoides var.) M: 55, var. nov.
tuberosa (Clavaria) Fr: 486 ← [S: p.f.p. 199]
tuberosa (Peziza) M: 24 ← [BH: 266, pl. 485, fig. 3]
tuberosa (Ramaria) G: 655 ← [S: p.f.p. 199 (Clavaria)]
tuberosum (Astoma) G: 524 ← [S: p.f.p. 393, fig. 2 (Sphaeria)]
tuberosus (Agaricus) Fr: 133, M: 72 ← [BH: 548, pls. 256, 522, fig. 4]
tuberosus (Agaricus hariolorum var.) M: 74 ← [BH: "pl. 585, fig. 2"]
tuberosus (Boletus rubeolarius var.) M: 44 ← [BH: 326, pl. 100 (Boletus _____)]
tuberosus (Gymnopus) G: 611 ← [BH: 548, pls. 256, 522, fig. 4 (Agaricus)]
tuberosus (Macroscyphus) G: 672 ← [Dick 2: 25 (Peziza)]
tuber regium (Agaricus) Fr: 174, sp. nov. ← ["Rumphius, Amboi."]
tubiforme (Exormatostoma) G: 522 ← [TM 2: 51 (Sphaeria "tubaeformis")]
tubiformis (Sphaeria) LD 22: 386 ← [TM 2: 51, "tubaeformis"]
tuboeformis (Merulius) M: 47 ← [PS: 62 ← BH: 294, pl. 208, 461 (Helvella "tubaeformis")]
tularostoma (Nemaspora) Spr: 310 ← [Ehor: 87]
tumidum (Hysterium) FSS no. 166 ← ["Fries"]
tumidus (Agaricus) Fr: 48 ← [PS: 350]
turbidus (Agaricus) Fr: 205, sp. nov.

turbinatus (Agaricus) Fr: 225, N&B: 311, R: 38 ← [BH: 645, pl. 110]
turbinatus ([Agaricus]) M: 81 ← [BH: 645, pl. 110]
turbinatus (Agaricus congregatus var.) P: 235, stat. nov.
turundus (Agaricus) Fr: 106 ← [FO 2: 199]
tylicolor (Agaricus) Fr: 132 ← [FO 2: 128]
typhina (Nemania) G: 516 ← [PID: 1: 21 (Sphaeria)]
typhina (Sphaeria) H: 6, N&B: 299, Schl: 59 ← [PID 1: 21]
typhoides (Agaricus) M: 55, N&B: 319, SA: 565 ← [BH: 405, pls. 16, 582, fig. 2]

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uda (Nemania) G: 516 ← [PD: 3 (Sphaeria)]
uda (Sphaeria) Schl: 59 ← [PD: 3] Fr 2: 358
udum (Hydnum) Fr: 422, sp. nov.
udus (Agaricus) Fr: 292 ← [PS: 414]
uliginosus (Merulius) Schl: 58, sp. nov.
ulmarius (Agaricus) Fr: 186, M: 52, P: 200, SA: 561 ← [BH: 582, pls. 216, 510]
ulmarius (Boletus) P: 242 ← [S: p.f.p. 88]
ulmarius (Pleuropus) G: 615 ← [BH: 582, pls. 216, 510 (Agaricus)]
ulmarius (Polyporus) Fr: 365 ← [S: p.f.p. 88 (Boletus)]
ulmi (Peripherostoma) G: 515 ← [S: p.f.p. 374, fig. 3 (Sphaeria)]
ulmi (Sphaeria) Schl: 59 ← [S: p.f.p. 374, fig. 3]
ulmi (Xyloma) P: 317, nom. nov.
umbellata (Botrytis) M: 14, SA: 528 ← [BH: 105, pl. 504, fig. 8 (Mucor)]
umbellatus (Boletus) K: 30 ← [PS: 519]
umbellatus (Polyporus) Fr: 354 ← [PS: 519 (Boletus)]
umbelliferarum (Hypoderma virgultorum var.) M: 152, var. nov.
umbelliferus (Agaricus) P: 222 ← [LSP: 1175]
umbelliferus (Merulius) H: 25 ← [LSP: 1175 (Agaricus)]
umbilicatum (Circinostoma) G: 521 ← [PS: 45 (Sphaeria)]
umbilicatus (Agaricus) M: 66, P: 412, SA: 573 ← [BH: 466, pl. 411, fig. 2]
umbonatum (Xyloma leucocreas var.) M: 149, var. nov.
umbonatus (Cantharellus) Fr: 317 ← [PD: 26]
umbratilis (Agaricus) Fr: 157, nom. nov.

umbrina (Amanita) G: 600, R: 40 ← [PD: 67]
umbrina (Scodellina) G: 668 ← [POM 2: 77 (Peziza)]
umbrinus (Agaricus lactifluus) Z: 318† ← [PS: 435†]
umbrosus (Agaricus) Fr: 200 ← [PIC 1: 8]
undulata (Sphaeria) H: 5 ← [PS: 21]
undulatus (Agaricus) M: 70 ← [BH: 462, pl. 535, fig. 2]
undulatus (Cantharellus) Fr: 321, G: 637 ← [PS: 492 (Merulius)]
undulatus (Merulius) M: 48, Re: 50 ← [PS: 492]
unguinosus (Agaricus) Fr: 101, sp. nov.
ungulatus (Boletus) G: 642, L: 470, M: 41, N&B: 338, SA: 550 ← [Sch 4: 88, pls. 137, 138]
unicolor (Boletus) L: 470, M: 40, P: 445†, SA: 548, Re: 50 ← [BH: 365, pls. 408, 501, fig. 3]
unicolor (Campsotrichum) Ehren: 519, Spr: 310 ← [Ehor: 83]
unicolor (Daedalea) Fr: 336, P: 247† ← [BH: 365, pls. 408, 501, fig. 3 (Boletus)]
uranius (Agaricus) Fr: 144 ← [FO 2: 156]
urbicus (Agaricus) Fr, index only†
urbus (Agaricus) Fr: 48, nom. nov. ← [?Sae: 333, "incurvus"]
urceolatus (Pilobolus) P: 323 ← [Dick 1: 25 (Mucor)]
urediniforme (Erineum) N&B: 369, sp. nov.
uredo (Stilbospora) M: 148, SA: 517† ← [DC 6: 152†]
urens (Agaricus) Fr: 232, M: 75, SA: 578 ← [BH: 577, pl. 528, fig. 1]
ursinus (Agaricus) Fr: 185, sp. nov.
ursinus (Polyporus) Fr: 361 ← [Link, "Diss.: 38" (Boletus)]
urticae (Rhytisma) FSS no. 209, sp. nov., Fr 2: 570
urticae (Tremella) FSS no. 217 ← ["Willd." ← PS: 628] Fr 2: 231
urticae (Tremella) M: 28, P: 176 ← [PS: 628]
ustalis (Agaricus) Fr: 37, not 34 ← ["FO 2: 119" not found]
ustulata (Gyraria) G: 594 ← [BH: 221, pl. 420, fig. 2 (Tremella)]
ustulata (Tremella) M: 28, SA: 535 ← [BH: 221, pl. 420, fig. 2]
uvidus (Agaricus) Fr: 66 ← [FO 2: 191]

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vaccinii (Sphaeria) G: 528 ← [S: p.f.p. 373, fig. 1]

vaccinus (Agaricus) Fr: 42 ← [Sch 4: 13, pl. 25]
vaga (Phlebia) Fr: 428, sp. nov.
vagans (Agaricus) Fr: 29, nom. nov.
vaginatus (Agaricus) Fr: 14, M: 89,N&B: 305, R: 50 ← [BH: 664, pls. 98, 512]
vahlii (Agaricus) Fr: 240 ← [Sae: 258]
vaillantii (Agaricus) Fr: 136, nom. nov.
vaillantii (Boletus) M: 39 ← [DC 6: 38]
vaillantii (Polyporus) Fr: 383 ← [DC 6: 38 (Boletus)]
valvatum (Hysterium) LD 22: 400 ← ["Nees, Trait. t. 59, fig. 299"]
vaporaria (Pratella campestris var.) G: 626 ← [PS: 418 (Agaricus _____ var. _____)]
vaporarium (Sclerotium) G: 590 ← [A&S: 73]
vaporarius (Polyporus) Fr: 382 ← [PAB: 11: 30 (Boletus)]
varia (Grifola) G: 644 ← [POM 1: 85 (Boletus)]
variabilis (Agaricus) Fr: 275, M: 51, SA: 560 ← [POM 2: 46]
variabilis (Crepidopus) G: 616 ← [POM 2: 46 (Agaricus)]
variecolor (Agaricus) Fr: 222 ← [PS: 280]
variegata (Auricularia reflexa var.) M: 34 ← [BH: 282, pl. 274]
variegata (Daedalea) Fr: 337 ← [FO 2: 240]
variegata (Mycena) G: 621 ← [PS: 391 (Agaricus)]
variegatus (Agaricus) Fr: 158 ← [PS: 391]
variegatus (Boletus) Fr: 388 ← [Swartz, "Vetensk. Akad. Handl. 1810: 8"]
varium (Erysiphe) FBR: 48 ← [FO 1: 206]
varium (Hysterium) LD 22: 401 ← [FO 1: 206 (Erysiphe)]
varium (Sclerotium) FBR: 42, G: 591 ← [PS: 122]
varium ([Sclerotium]) M: 131 ← [PS: 122]
varius (Agaricus) Fr: 225, P: 216 ← [Sch 4: 20, pl. 42]
varius (Polyporus) Fr: 352 ← [POM1: 85 (Boletus)]
varius (Prunulus) G: 631 ← [PS: 414 (Agaricus)]
vascipes (Agaricus) Fr: index only†
vastator (Merulius) Fr: 329, SA: 557 ← [Tode, "Abh. Hall. Naturf. Gesell. 1: 351"]
vatricosus (Agaricus) Fr: 259 ← [FO 2: 46]
vegetatum (Helicosporium) LD 20: 460 ← [NS: Uberbl. 19, "vegetum"]
vegetum (Helicosporium) G: 557 ← [NS: Uberbl.: 19]
velatus (Agaricus) P: 185 ← [With: 163]
vellereus (Agaricus) Fr: 76, nom. nov.

velutina (Peziza) SA: 531, sp. nov.
velutinum (Helmisporium) G: 557, LD 20: 495 ← [LM 3: 10]
velutinum (Hydnum) Fr: 404, nom. nov.
velutinus (Boletus) P: 447 ← [PAB: 11: 29]
velutinus (Coprinus) G: 633 ← [PS: 408 (Agaricus)]
velutinus (Polyporus) Fr: 368 ← [PAB 11: 29 (Boletus)]
velutipes (Agaricus) Fr: 119, K: 7, P: 196 ← [CFL 4: t. 70]
velutipes (Gymnopus) G: 605 ← [CFL 4: t. 70 + text (Agaricus)]
velutipes (Isaria) G: 562 ← [LM 3: 20]
venosum (Micromphale) G: 622 ← [PS: 467 (Agaricus)]
ventricosus (Agaricus) Fr: 294, M: 62, N&B: 317 ← [BH: 465, pl. 411, fig. 1]
vermicularis (Clavaria) Fr: 484 ← [Swartz, "Vetensk. Akad. Handl. 1811: 159"]
vermiculata (Clavaria) G: 657, H: 30, P: 471 ← [LFS: 1057 Scop: 483]
verna (Amanita) R: 47 ← [BH: index only† (Agaricus bulbosus _____)]
vernus (Agaricus) Fr: 13, L: 477, M: 89, SA: 590 ← [PS: 250 (Amanita) BH: index only† (Agaricus bulbosus _____)]
verrucaeformis (Sphaeria) N&B: 298, Schl: 59 ← [PS: 26 "Ehrh. Pl. Crypto. Exs. Dec. 28, no. 280"]
verrucosa (Amanita) R: 40, nom. nov.
verrucosus (Agaricus) M: 87, Re: 53, SA: 589 ← [BH: 672, pl. 316]
verrucosus (Agaricus) P: 202 ← [Bolt: 42, pl. 42]
versicolor (Agaricus) Fr: 286 ← [With: 166]
versicolor (Boletus) G: 642, H: 27, L: 470, M: 40, N&B: 339, P: 434, SA: 549, Schl: 56 [LSP: 1176]
versicolor (Hysterium) LD 22: 371 ← [WFL: 522]
versicolor (Polyporus) Fr: 368 ← [LSP: 1176 (Boletus)]
versicolor (Thelephora) Fr: 438 ← [SIN 3: 1934]
verticillatum (Acremonium) G: 550 ← [LM 3: 15]
vervacti (Agaricus) Fr: 263, sp. nov.
vesiculosa (Peziza) H: 33, N&B: 348, P: 461, SA: 534 ← [S: p.f.p. 4] Fr 2: 52
vesiculosa (Peziza) M: 25 ← [BH: 270, pls. 44, 457, fig. 1]
vesiculosa (Scodellina) G: 669 ← [S: p.f.p. 4 (Peziza)]
vespertinus (Agaricus) Fr: 233, sp. nov.
vibratilis (Agaricus) Fr: 227, sp. nov.
vietus (Agaricus) Fr: 66, nom. nov.

villosa (Typhula) Fr: 495 ← [Sae 2: 406 (Clavaria)]
villosum (Stilbum) M: 18 ← [BH: 110, pl. 504, fig. 15 (Mucor)]
villosus (Agaricus) M: 77 ← [BH: 572, pl. 214]
villosus (Polyporus) Fr: 344 ← [SIN 3: 1923 (Boletus)]
vincetoxici (Sphaeria punctiformis var.) Schl: 59, var. nov.
vinosus (Agaricus) M: 69 ← [BH: index only†, pl. 54]
vinosus (Agaricus nudus [var.]) SA: 582, var. nov.
violacea (Auricularia tremelloides var.) M: 34 ← [BH: 278, pl. 290]
violacea (Cortinaria) G: 628 ← [LSP: 1173 (Agaricus)]
violacea (Gyraria) G: 594 ← [Relh: 442 (Tremella)]
violacea (Peziza stercoraria var.) M: 22 ← [BH: 256, pl. 376]
violacea (Peziza stercoraria [var.]) SA: 532 ← [BH: 256, pl. 376]
violacea (Peziza tremelloidea var.) M: 26 ← [BH: 240, pl. 410]
violacea (Scodellina) G: 669 ← [BH: 256, pl. 376 (Peziza stercoraria var.)]
violacea (Thelactis) MNA: 508, sp. nov.
violacea (Tremella mesenteriformis var.) M: 28 ← [BH: 230, pl. 272]
violaceo-cinereus (Agaricus) Fr: 217 ← [PCS: 2]
violaceo-fulvus (Agaricus) Fr: 276 ← [BEF: 95]
violaceo lamellatus (Agaricus) M: 59† ← [DC 2: 153, "violaceo-lamellatus"]
violaceum (Dematium) H: 34 ← [PS: 697]
violaceum (Sistotrema) Schl: 59 ← [PS: 551]
violaceus (Agaricus) Fr: 217, H: 20, L: 475, P: 406 ← [LSP: 1173]
violaceus (Agaricus araneosus var.) M: 82, SA: 583 ← [BH: index only†, (Agaricus araneosus-violaceus)]
violaceus (Cantharellus) Fr: 319 ← [FO 2: 235 (Merulius)]
violaceus (Polyporus) Fr: 379 ← [FO 2: 263]
violae (Granularia) ← [S: p.f.p. 440]
violascens (Agaricus) Fr: 75 ← ["Otto: 34"]
violascens (Himantia) LD 21: 164 ← [FO 1: 211]
violascens (Hydnum) Fr: 401 ← [A&S: 265]
violascens (Thelephora) Fr: 451 ← [FO 1: 211 (Himantia)]
virens (Thelactis) MNA: 508, sp. nov.
virescens (Agaricus) N&B: 327 ← [Sch 4: 40, pl. 94]
virescens (Agaricus (russula)) K: 21† ← [Sch 4: 40, pl. 94 (Agaricus _____)]
virescens (Agaricus russula) Z: 352† ← [Sch 4: 40, pl. 94 (Agaricus _____)]
virescens (Aspergillus) G: 555 ← [LM 3: 16, "virens"]
virgae aureae (Xyloma) M: 150† ← [LDC: 65†]

virgata (Amanita) R: 50 ← [PS: 249 (Amanita) ← PD: 18 (Agaricus)]
virgata (Clavaria) Fr: 472, sp. nov.
virgata (Vaginata) G: 601 ← [PD: 18 (Agaricus)]
virgatus (Agaricus) Fr: 48 ← [FO 2: 113]
virginea (Omphalia) G: 613 ← [WJ 2: 104 (Agaricus)]
virginea (Peziza) H: 33 ← [BEF: 125]
virgineus (Agaricus) Fr: 100, not 200, R: 35 ← [WJ 2: 104]
virgineus (Agaricus omphalia) Z: 345† ← [WJ 2: 104 (Agaricus _____)]
virgineus (Dasyscyphus) G: 671 ← [BEF: 125 (Peziza)]
virgultorum (Hypoderma) SA: 515, LD 22: 370, M: 152 ← [DC 6: 165]
viride (Geoglossum) Fr: 489, G: 659 ← [PCC: 40]
viride (Hydnum) Fr: 421 ← [A&S: 262 (Sistotrema)]
viride (Trichoderma) G: 560 ← [PD: 12]
viridescens (Agaricus adonis var.) M: 64, var. nov.
viridis (Agaricus) Fr: 90, N&B: 306 ← [HUDS: 614, "viridis" ← Scop: 437, "virens"]
viridis (Amanita) R: 46 ← [PS: 251 ← PD: 67]
viridis (Gymnopus) G: 606 ← [HUDS: 614 (Agaricus) Scop: 437 (Agaricus "virens")]
viridis (Peziza callosa var.) M: 21 ← [BH: 252, pl. 376]
viridis (Sphaeria) G: 528 ← [S: p.f.p. 375, fig. 8]
virosus (Agaricus) P: 417, sp. nov.
viscida (Cortinaria) G: 629 ← [LSP: 1173 (Agaricus)]
viscosa (Clavaria) Fr: 486, not 488 ← [PRNB: 117]
viscosa (Thelephora) Fr: 448 ← [PS: 580 (Thelephora) ← POM 2: 18 (Corticium)]
viscosum (Geoglossum) Fr: 489 ← [PS: 609]
viscosus (Agaricus) P: 208, nom. nov.
vitellina (Russula) G: 618 ← [PS: 442 (Agaricus russula _____)]
vitellinum (Polyangium) G: 587 ← ["Ditmar in Sturm, Germ. 3: 2"]
vitis (Erineum) N&B: 368, M: 16, Schl: 57 ← [DC 6: 74 ← "Schrad. & Schleich., crypto. exs. no. 100"]
vitis (Hypoderma virgultorum var.) M: 152, var. nov.
vitis (Xyloma) Schl: 61, sp. nov.
vitreus (Agaricus) Fr: 146, sp. nov.
vitreus (Boletus) Schl: 56 ← [POM 1: 15]
vitreus (Polyporus) Fr: 381 ← [POM 1: 15 (Boletus)]
vitulinus (Gymnopus pratensis [var.]) G: 604 ← [PS: 305 (Agaricus _____ var. _____)]

vogesiaca (Clavaria) Schl: 56 ← ["P[ersoon?]"]
volemus (Agaricus) Fr: 69, nom. nov.
volvaceus (Agaricus) Fr: 278, HFD 12: t. 1731, M: 89 ← [S: p.f.p. 1]
vulgare (Auriscalpium) G: 650, nom. nov.
vulgare (Stilbum) G: 564, M: 18 ← [TM 1: 10] Fr 3: 305
vulgaris (Agaricus) Fr: 156 ← [PD: 24]
vulgaris (Ascophora) G: 561, nom. nov.
vulgaris (Cantharellus) G: 636, sp. nov.
vulgaris (Morchella) G: 662, nom. nov.
vulgaris (Mucor mucedo [var.]) H: 14, var. nov.
vulgaris (Polyactis) G: 553 ← [LM 3: 16]
vulgaris (Polyporus) Fr: 381, nom. nov.
vulgaris (Poria) G: 639, nom. nov.
vulgaris (Thelephora hirsuta [var.]) H: 29 ← [PS: 570]
vulgaris (Tubercularia) G: 547, H: 9, L: 484, M: 129, N&B: 302, SA: 615, Schl: 60 [TM 1: 18] Fr 3: 464
vulpinus (Agaricus) Fr: 273 ← [S: p.f.p. 361]
vulpinus (Polyporus) Fr: 361 ← [Link, "Diss.: 38" (Boletus)]

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xantha (Sphaeria) Schl: 59 ← ["Fries"]
xanthopus (Agaricus) Fr: 124, not 121 ← [FO 1: 12]
xanthopus (Polyporus) Fr: 350, not. 360 ← [FO 2: 255 (as "Polypdrus")]
xanthus (Polyporus) Fr: 379 ← [FO 1: 128]
xerampelinus (Agaricus) P: 210 ← [WBA 3: 331]
xilophilus (Agaricus) SA: 583 ← [BH: 642, pl. 530, fig. 2, "xylophilus"]
xylomoides (Hypoderma) G: 510, LD 22: 369, M: 151, Re: 54 ← [LDC: 64]
xylomoides (Sphaeria) FSS no. 144, sp. nov.: Fr 2: 555
xylomoides (Sphaeria) M: 140, N&B: 298 ← [DC 2: 288]
xylophilus (Agaricus) M: 82 ← [BH: 642, pl. 530, fig. 2, "xylophilus"]
xylophilus (Agaricus) P: 414 ← [BH: 642, pl. 530, fig. 2]
xylostei (Sphaeria) FSS no. 189 ← ["POM"] Fr 2: 487
xylostei (Xyloma) M: 149, SA: 518 ← [DC 6: 154]

zephirus (Agaricus) Fr: 147 ← [FO 2: 161]
zonarius (Agaricus) M: 53, P: 398, SA: 563 ← [BH: 491, pl. 104]
zonarius (Agaricus lactifluus) R: 29† ← [BH: 491, pl. 104 (Agaricus _____)]
zonatus (Polyporus) Fr: 368 ← [NS: Uberbl. 57 (Boletus apus _____)]

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AN ANNOTATED INDEX FOR BULLIARD'S "HISTOIRE DE CHAMPIGNONS."

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Summary

A nomenclatural index to the names in the "Histoire" is furnished, together with notes on the origination of these names and their "validity".

No shortage of biographical or bibliographical literature exists on Jean Baptiste Francois Bulliard (1752-1793) (cf. Stafleu & Cowan, 1976), but oddly, no comprehensive index to the fungus names in "Histoire des Champignons" (Bulliard, 1791) has ever appeared. Concordances attempting to correlate the names in the "Histoire" to more modern equivalents have been plentiful (cf. Stafleu & Cowan, 1976: 406).

Bulliard's influence on subsequent mycologists and, therefore, on mycological taxonomy was immense (Gilbert, 1952). His illustrations, carefully conceived and executed, often constituted the best representation of the taxa involved and surely were an improvement over preceding illustrated works. Although no aids (i.e. keys) for systematic classification were offered, taxa were grouped by genus in the text so reference to them was not difficult, and the descriptions of the fungi and their habits were unusually detailed. Nevertheless, several important aspects of this work have not been adequately discussed or summarized, and it is to these ends that this annotated index is offered. The points which have particularly engaged my attention are as follows:

1. Just at this time, our nomenclatural system of multiple starting points is under scrutiny. Two philosophies seem emergent, and one will surely be adopted as the *modus operandi* for the foreseeable future. The first (adopted in 1910) sets multiple starting points (ICBN, Art. 13, cf. Stafleu, et al.) for fungi with the majority dating valid publication from 1 January 1821. All pre-starting point names are "devalidated," or rendered invalid by the imposition of the later starting points. An alternative proposal (now under consideration by a subcommittee of the International Mycological Association

Nomenclature Commission) would adopt certain "sanctioning books" (Persoon's "Synopsis;" Fries's "Systema" and "Elenchus"), the names adopted therein to be preserved against all prior competitors, both taxonomic and nomenclatural. *Names not adopted in these books would revert to a starting point of 1 May 1753* (Linneaus's "Species Plantarum", ed. 1).

Because it is important to know the origin of the names in the starting point (and near-starting point) publications, a series of papers on names used in 1821 has already been produced (Petersen, 1975, etc.). In view of the alternative proposal outlined above, however, this is not enough, and it becomes equally important to know the history of pre-starting point names, especially those which *were not* adopted in the starting point books. Scrutiny of Bulliard's "Histoire" offers just such an opportunity.

2. Examination of the "Histoire" quickly increases confusion on the way toward restoring (or attaining) order. For example, the plates for the "Histoire" were all personally supervised by Bulliard, and were ready for distribution well in advance of the text. But there was no direct correlation between the order of taxa in the text and the number of corresponding plate (that is, the 23rd taxon of the text did not appear as plate 23, as arranged, for instance, by Sowerby), nor did the page numbers correspond with plate numbers, as they were made to do by Bolton. The possibility exists that the plates were issued piecemeal in order to correspond to the text for those taxa, although no record of such lack of order is to be found. What seems more likely, although less utilitarian, is that the subscriber often had to wait for an extended period before receiving the plates to accompany text already published, and received plates the text for which was not simultaneously forthcoming.

At the same time, Bulliard took on a partner in Étienne Pierre Ventenat (1757-1808, *teste* Pritzel), who coauthored a portion of the second volume of the "Histoire." When Bulliard died during the production of the publication, Ventenat became the sole author, although the preparation had been made by Bulliard and the plates already produced. Only certain names used in "Histoire" can be attributed to Bulliard; others must be cited as "Bulliard and Ventenant," and still others attributed to Ventenat alone, or more completely (but outside the ICBN) to "Bulliard *apud* Ventenat." Because names must be linked to the text, the following summary of author citations in "Histoire" may be followed:

pp. 1-368	(1791)	Bulliard
pp. 369-372	(1809)	Bulliard and Ventenat
pp. 373-508	(1792)	Bulliard
pp. 509-540	(1809)	Bulliard and Ventenat
pp. 541-700	(1812)	Bulliard apud Ventenat

3. By a quick count, I find 543 *new* names in the "Histoire." But examination of the text reveals that many of these names were not for "new" taxa, but only renamings of taxa with acceptable prior names. These prior names were listed as synonyms, some followed by "?", indicating a doubtful synonym. Nevertheless, when Bulliard and/or Ventenat *renamed* a taxon, the "Histoire" name was clearly superfluous. Again, a superficial count reveals 213 such names, or 40% of the total new names.

The literature available to Bulliard and Ventenat was apparently severely limited, if author citations are any measure. Perhaps most often cited was Schaeffer (cf. Petersen, 1976), followed by Bolton (cf. Petersen, 1977), Batsch, Hoffmann, and Linnaeus ("Species Plantarum," 2nd Ed - the edition of choice at that time). Two other authors, Bergeret and Pauli, were minor contributors, and I have been unable to locate the Pauli reference. Curtis, Jacquin, Withering, and Dickson are hardly mentioned, and such important authors as Scopoli (whose names were attributed to Schaeffer), Holmskjold, Hudson, Roth, Swartz, Tode, and Willdenow seem to have gone unnoticed.

4. It is apparent that Ventenat did not always agree with Bulliard's taxonomy, for in compiling the final index (to plates, and only then to taxa and pages), Ventenat took the opportunity to change many names used by Bulliard in earlier text and on the plates. Two problems occur, however. First; Ventenat's names are total substitutions for Bulliard's, and are therefore totally superfluous nomenclaturally (although not *nomina nuda*, for they refer directly to adequate descriptions by Bulliard). Second; most of these substitute names are really attributable to prior authors (Ventenat apparently was more conservative than Bulliard and wished to return to prior names), but were not so cited, forcing the attribution on Ventenat, not the prior author. In such cases, these names are later homonyms of the prior names.

5. By comparison of the "Histoire" names to the later starting point books ("Synopsis," "Systema," "Elenchus"), I conclude that 188 names originating in "Histoire" were adopted in starting point literature. These presumably will be preserved under any system now being considered. Of those names, however, 56 are based on *nomina superflua*, fully 30%.

On the contrary, for those names *not* adopted in later starting point books, nomenclatural history is equally important. Under the present system, most "Histoire" names *were* validated by one or more post-starting point authors. For example, especially Mérat, St. Amans, Léman, and Laterrade adopted "Histoire" names in 1821 (cf. Petersen, 1975, etc.). These names are "safe" under the present system of starting points. If such shelter is removed (alternative proposal under point 1 above) from pre-starting point names *not* adopted in starting point books, competition for validity will start on 1 May 1753, and all appropriate *nomina superflua* in the "Histoire" will become unsheltered, and will give way to prior names (see point 3 above). This number would be very substantial, perhaps as high as 150.

6. All of the above is simply nomenclatural, or bibliographic, not taxonomic. Aside from obligatory or nomenclatural synonyms based on substitute names, additional taxonomic synonymy may well be identified.

7. Were all the contemporary publications bolstered by herbaria, typification of names would secure them to taxonomic concepts. Neither Bulliard nor most of his predecessors were able to preserve specimens, however, and this vital link is virtually completely lacking. Synonymy must be based, therefore, on circumscriptions and illustrations, providing few of the characters necessary for modern taxonomy.

Briefly, the following can be stated. Late 18th century mycological taxonomists liberally supplied "new" names to taxa which had already been named, and the actual name-givers were few in number, making the sorting of these *names* a relatively simple task. Conversely, taxonomic perception had not been sharpened, and taxonomic concepts were extremely broad by modern standards. The answer ultimately will lie with neo-typification of these names, for which the ground rules have been clearly written, but imperfectly followed.

The Index

Column 1. Names are arranged alphabetically regardless of genus. The fungus name is followed by the correct author citation, whether originating in the "Histoire" or not. Accurate citations to originating literature for non- "Histoire" names are provided in the Notes to the Index, by number (i.e. *Peziza acetabulum* Linnaeus, note 1).

Column 2. Page number in the text where the fungus is named, although discussion may extend farther. "Index" indicates a Ventenat substitute included only in the "Histoire" index after vol. 2. No common names (which appear as the sole name on several plates) are indexed.

Column 3. Plates and figures in which the named taxon appear. Some taxa, especially varieties and subvarieties, are not clearly cited in the "Histoire" as illustrated, and these are so indicated.

Column 4. A key to self-explanatory notes which are included as an appendix. Liberature abbreviations in the notes are from Petersen (1975, etc.).

Column 5. Nomenclatural status of each name originating in the "Histoire". Pre-"Histoire" names are not judged. For superfluous names, the oldest name for the same taxon is included in the Notes to the Index, often along with additional synonyms.

Column 6. Names adopted in starting point books, as follows:

F = Fries: "Systema" and/or "Elenchus".
F* = Fries recombined the name in the starting point book.
P = Persoon: "Synopsis" (for Gasteromycetes).
P* = Persoon recombined the name.

Only fungi with later starting points are indicated (Myxomycetes start on 1 May 1753).

Name and Authority	Page	Plate	Note No.	Nom. Status	
abietinus (Agaricus) Bulliard & Ventenat	379	442, fig. 2; 541, fig. 1		sp. nov.	F*
acanthoides (Boletus) Bulliard	337	486		sp. nov.	F*
acerbus (Agaricus) Bulliard apud Ventenat	603	571, fig. 2		sp. nov.	F
acetabulum (Peziza) Linnaeus	267	485, fig. 4	1		
acicularis (Helvella) Bulliard	296	473, fig. 1	2	nom. superfl.	F*
acris (Agaricus) Bulliard	500	200; 538	3	nom. superfl.	
aculeiformis (Clavaria) Bulliard	214	463, fig. 4		sp. nov.	
adonis (Agaricus) Bulliard	445	560, fig. 2	4	nom. superfl.	F
aereus (Boletus) Bulliard	321	385		sp. nov.	F
agyraceus (Agaricus) Bulliard apud Ventenat	584	423, fig. 1	5	nom. superfl.	
aimatochelis (Agaricus) Bulliard apud Ventenat	660	527, fig. 1; 596, fig. 1			
aimatospermus (Agaricus) Bulliard apud Ventenat	638	595, fig. 1	281		F
alba (Auricularia papyrina var.) Bulliard	279	402		var. nov.	
alba (Clavaria coralloides var.) Bulliard	201	358, fig. C; 496, fig. L, M, P		var. nov.	
alba (Clavaria muscoides var.) Bulliard	203	358, fig. A		var. nov.	
albae (Helvella elastica var.) Bulliard	299	242, figs. A, B, D-G		var. nov.	
alba (Helvella mitra var.) Bulliard	298	190, figs. A-C, F; 466, fig. A		var. nov.	
alba (Peziza callosa var.) Bulliard	252	-----		var. nov.	
alba (Peziza cyathoidea var.) Bulliard	250	-----		var. nov.	
alba (Peziza fructigena var.) Bulliard	236	228, figs. C, D		var. nov.	
alba (Peziza imberbis var.) Bulliard	245	467, fig. 2		var. nov.	
alba (Peziza labellum var.) Bulliard	262	204		var. nov.	
alba (Peziza papillaris var.) Bulliard	244	-----		var. nov.	
alba (Peziza stipitata var.) Bulliard	271	457, fig. II, S, T, X, Z		var. nov.	
alba (Peziza vesiculosa var.) Bulliard	270	457, fig. I, E, F, H		var. nov.	

alba (Reticularia) Bull.	92	326		sp. nov.	
alba (Tremella cerebrina var.) Bulliard	221	386, fig. A		var. nov.	
album (Tuber) Bulliard	80	404		sp. nov.	F*
albus (Boletus suberosus var.) Bulliard	354	482, fig. F		var. nov.	
albus (Phallus esculentus var.) Bulliard	274	-----		var. nov.	
albus (Sphaerocarpus) Bulliard	137	407, fig. 3; 470, fig. 1	6	nom. superfl.	
alliaceus (Agaricus) "Schaeffer"	551	158; 524, fig. 1	7		
alneus (Agaricus) Linnaeus	381	346; 581, fig. 1	8		
amadelphus (Agaricus) Bulliard & Ventenat	537	550, fig. 3		sp. nov.	F
amarus (Agaricus) Bulliard	478	32; 178; 398; 562	9	nom. superfl.	
amethystea (Auricularia reflexa var.) Bulliard	282	483, fig. IA-F		var. nov.	
amethystea (Clavaria) Bulliard	200	496, fig. 2	10	nom. superfl.	F
amethystea (Tremella) Bulliard	229	499, fig. 5	11	nom. superfl.	
amethysteus (Agaricus) "Bolton"	559	198; 570, fig. 1	12		
androsaceus (Agaricus) Linnaeus	544	64; 569, fig. 3	20		
annularius (Agaricus) Bulliard apud Ventenat	626	92; 377; 540, fig. 3; 543		nom. superfl.	
annularius (Boletus) Bulliard	316	332	14	nom. superfl.	
anthocephala (Clavaria) Bulliard	197	452, fig. 1		sp. nov.	
antiades (Sphaerocarpus) Bulliard	127	368, fig. 2		sp. nov.	
appendiculatus (Agaricus) Bulliard	442	392		sp. nov.	
aquosus (Agaricus) Ventenat	index	17	15	nom. superfl.	F
araneosa (Peziza) Bulliard	264	280		sp. nov.	F
araneosus (Agaricus) Bulliard apud Ventenat	cf. note	cf. note	16		
araneosus-violaceus (Agaricus) Ventenat	index	250	17		
arcuatus (Agaricus) Bulliard apud Ventenat	595	443; 589, fig. 1		sp. nov.	F
ardosiacea (Peziza callosa var.) Bulliard	252	416, fig. 1		var. nov.	
ardosiaceum (Lycoperdon) Bulliard	146	192	18	nom. superfl.	
ardosiaceus (Agaricus) Bulliard	472	348		sp. nov.	F
argyraceus (Agaricus) Bulliard apud Ventenat	584	513, fig. 2		sp. nov.	

argyrospermus (Agaricus) Bulliard apud Ventenat	604	602		sp. nov.	
articulatus (Mucor) Bulliard	110	504, fig. 14		sp. nov.	F*
arundinaceus (Agaricus) Bulliard	458	403, fig. A		sp. nov.	
aspergillus (Mucor) Bulliard	106	504, fig. 10		sp. nov.	
atramentarius (Agaricus) Bulliard	413	164		sp. nov.	
atro-virens (Tremella) Bulliard	225	184	19	nom. superfl.	
aurantiaca (Clavaria muscoides var.) Bulliard	203	358, fig. A		var. nov.	
aurantiaca (Peziza) Ventenat	index	10	21	nom. superfl.	
aurantiacus (Agaricus) Bulliard apud Ventenat	666	120	22	nom. superfl.	
aurantiacus (Boletus) Bulliard	320	236; 489, fig. 2		sp. nov.	
aurantium (Lycoperdon) Linnaeus	158	270	23		
aurantius (Mucor) Bulliard	103	504, fig. 5		sp. nov.	F*
aurantius (Sphaerocarpus) Bulliard	133	484, fig. 2		sp. nov.	
aureus (Agaricus) Ventenat	index	92	24	nom. superfl.	F
auricula-judae (Auricularia) Bulliard	241	[410]	25	nom. superfl.	
auricula-judae (Peziza) Ventenat	index	427, fig. 2	26	nom. superfl.	
auricula-judae (Tremella) Bulliard	224	427, fig. 2	27	nom. superfl.	F*
auriscalpium (Hydnum) Linnaeus	303	481, fig. 3	28		
axifera (Trichia) Bulliard	118	477, fig. 1	29	nom. superfl.	
azonites (Agaricus) Bulliard	497	559, fig. 1; 567, fig. 3		sp. nov.	

- B -

barba-jobi (Hydnum) Bulliard	303	481, fig. 2		sp. nov.	F
betulinus (Boletus) Bulliard	348	312		sp. nov.	F*
biennis (Boletus) Bulliard	333	449, fig. 1		sp. nov.	F*
bifidus (Agaricus) Ventenat	index	26	30	nom. superfl.	
bifurca (Clavaria) Bulliard	207	264	31	nom. superfl.	
bovista (Lycoperdon) Linnaeus	154	447	32		
brevipes (Agaricus) Bulliard apud Ventenat	594	521, fig. 2		sp. nov.	

buglossoides (Fistulina) Bulliard	314	74; 464; 497	33	nom. superfl.	
bulbosus (Agaricus) Schaeffer	670	2; 108; 577	34		
bullaceus (Agaricus) Bulliard	421	566, fig. 2		sp. nov.	F
butyraceus (Agaricus) Bulliard and Ventenat	615	572		sp. nov.	F
byssoides (Clavaria) Bulliard	209	415, fig. 2	35	nom. superfl.	

- C -

caelatum (Lycoperdon) Bulliard	156	430	36	nom. superfl.	
calceolus (Boletus) Bulliard	338	46; 360; fig. 2		sp. nov.	
callosa (Peziza) Bulliard	252	376, fig. 4, 416, fig. 1	37	nom. superfl.	
cameleon (Agaricus) Bulliard & Ventenat	562	545, fig. 1	38	nom. superfl.	
campanulatus (Agaricus) Linnaeus	431	552, fig. 1	39		F
camphoratus (Agaricus) Bulliard	493	224; 567, fig. 1	40	nom. superfl.	
cantharelloides (Agaricus) Bulliard	507	505, fig. 2		sp. nov.	
cantharelloides (Helvella) Bulliard	297	473, fig. 3	41	nom. superfl.	
cantharellus (Agaricus) Linnaeus	505	62; 505, fig. 1	42		
capniocephalus (Agaricus) Bulliard apud Ventenat	570	547, fig. 2		sp. nov.	
capsulifer (Sphaerocarpus) Bulliard	139	470, fig. 2	43	nom. superfl.	
caput-medusae (Clavaria) Bulliard	210	412		sp. nov.	
carneus (Agaricus) Bulliard apud Ventenat	555	533, fig. 1		sp. nov.	F
carnosa (Reticularia) Bulliard	85	424, fig. 1		sp. nov.	
cartilaginosus (Agaricus) Bulliard apud Ventenat	596	589, fig. 2	282	sp. nov.	F
caryophyllea (Auricularia) (Schaeffer) Bulliard	284	278; 483, figs. 6-7	44		
castaneus (Agaricus) Bulliard apud Ventenat	658	268; 527, fig. 2		sp. nov.	F
castaneus (Boletus) Bulliard	324	328		sp. nov.	F
caulicinalis (Agaricus) Bulliard apud Ventenat	545	522, fig. 1		sp. nov.	

cepaeforme (Lycoperdon) Ventenat	index	435, fig. 2	45	nom. superfl.	
cepaeforme (Lycoperdon proteus var.) Bulliard	148	435, fig. 2		var. nov.	
ceratosperma (Variolaria) Bulliard	184	432, fig. 1		sp. nov.	
cerea (Peziza) Ventenat	index	44	46	nom. superfl.	
cerebrina (Tremella) Bulliard	221	386	47	nom. superfl.	F
chrysenteron (Agaricus) Bulliard apud Ventenat	565	556, fig. 1		sp. nov.	
chrysenteron (Boletus) Bulliard	328	4; 393; 490, fig. 3	48	nom. superfl.	F
chrysocoma (Peziza) Bulliard	254	376, fig. 2		sp. nov.	F
chrysocoma (Tremella) Ventenat	index	174	49	nom. superfl.	
chrysosperma (Reticularia) (Bulliard) Ventenat	index	476	50		
chrysospermus (Mucor) Bulliard	99	504, fig. 1		sp. nov.	F*
chrysopermus (Sphaerocarpus) Bulliard	131	417, fig. 4	51	nom. superfl.	
cibarium (Tuber) Bulliard	74	356		sp. nov.	
ciliare (Hypoxylon) Bulliard	173	468, fig. 1		sp. nov.	F*
ciliata (Peziza) Bulliard	257	438, fig. 2	52	sp. nov.	
cinerea (Auricularia caryophyllea var.) Bulliard	284	483, fig. VII		var. nov.	
cinerea (Auricularia papyrina var.) Bulliard	280	-----		var. nov.	
cinerea (Auricularia reflexa var.) Bulliard	282	483, fig. IV		var. nov.	
cinerea (Clavaria) Bulliard	204	354		sp. nov.	F
cinerea (Peziza imberbis var.) Bulliard	245	-----		var. nov.	
cinerea (Peziza papillaris var.) Bulliard	244	467, fig. I		var. nov.	
cinerea (Trichia) Bulliard	120	477, fig. 3		sp. nov.	
cinereo-fuliginea (Tremella vesicaria var.) Bulliard	224	427, fig. 3		var. nov.	
cinereseens (Agaricus) Bulliard apud Ventenat	598	428, fig. 2		sp. nov.	
cinereum (Hydnum) Bulliard	309	419	53	nom. superfl.	F
cinereus (Agaricus) Ventenat	index	88	54	nom. superfl.	F

cinereus (Phallus esculentus var.) Bulliard	274	218, fig. A-D, G		var. nov.	
cinnabaris (Trichia) Bulliard	121	502, fig. 1	55	nom. superfl.	
cinnabarina (Tremella) Bulliard	218	455, fig. 2		sp. nov.	F
cirratum (Hypoxylon) (Hoffm.) Bulliard	172	487, fig. 4	56	comb. nov.	
clandestina (Peziza) Bulliard	251	416, fig. 5		sp. nov.	
clavatum (Hypoxylon) Bulliard	171	444, fig. 5		sp. nov.	
clavus (Agaricus) Linnaeus	541	148; 569, fig. 1	57		
clypeolarius (Agaricus) Bulliard	482	405; 506, fig. 2		sp. nov.	F
coccinea (Peziza) Jacquin	269	474	58		
coccinea (Trichia cinnabaris var.) Bulliard	121	502, fig. 1		var. nov.	
coccineum (Hypoxylon) Bulliard	174	495, fig. 2		sp. nov.	
coccineus (Agaricus) Schaeffer	560	202; 570, fig. 2	59		
coccineus (Boletus) Bulliard	364	501, fig. 1		sp. nov.	
coccineus (Sphaerocarpus) Bulliard	126	368, fig. 1	60	nom. superfl.	
cochleata (Peziza) (Wulf. in Jacq.) Bulliard	268	154	61		
colubrinus (Agaricus) Bulliard	484	78; 583	62	nom. superfl.	
columbarius (Agaricus) Bulliard apud Ventenat	575	413, fig. 1	63	nom. superfl.	
communis (Boletus) Ventenat	index	393	64	nom. superfl.	
conchatus (Agaricus) Ventenat	index	298	65	nom. superfl.	F
congregatus (Agaricus) Ventenat	index	94	66	nom. superfl.	
conocephallus (Agaricus) Bulliard	449	563, fig. 1	67	nom. superfl.	F
contiguus (Agaricus) Bulliard & Ventenat	518	54; 240; 576, fig. 2	68	nom. superfl.	
contortus (Agaricus) Ventenat	index	36	69	nom. superfl.	F
coprophilus (Agaricus) Bulliard	423	566, fig. 3		sp. nov.	F
coralloides (Clavaria) Linnaeus	201	222; 358, figs. B-E; 496, fig. 3	70		
coralloides-cinerea (Clavaria) Ventenat	index	354	71	nom. superfl.	
coriacea (Clavaria) Bulliard	198	452, fig. 2		sp. nov.	
coriacea (Peziza) Bulliard	258	438, fig. 1		sp. nov.	F*

coriaceus (Agaricus) Bulliard	373	394; 414; 537	72	nom. superfl.	
coriaceus (Boletus) Scopoli	334	28; 449, fig. 2	73		
cornucopioides (Agaricus) Ventenat	index	208	74	nom. superfl.	
cornucopioides (Helvella) (Linnaeus) Bulliard	291	150; 498, fig. 3	75	comb. nov.	
cornucopioides (Peziza) Linnaeus	index	150	76		
cornuta (Clavaria) Bulliard	193	180	77	nom. superfl.	
coronata (Peziza) Bulliard	251	416, fig. 4	78	nom. superfl.	F
coronilla (Agaricus) Bulliard apud Ventenat	633	597, fig. 1	79	nom. superfl.	F
corrugata (Variolaria) Bulliard	187	432, fig. 4		sp. nov.	
corticalis (Agaricus) Bulliard	475	519, fig. 1		sp. nov.	F
crenata (Peziza) Bulliard	261	396, fig. 3	80	nom. superfl.	
cretaceus (Agaricus) Bulliard apud Ventenat	636	374		sp. nov.	F
crinata (Peziza) Bulliard	249	416, fig. 2		sp. nov.	F
crispa (Helvella) Bulliard	293	465, fig. 1	81	nom. superfl.	
croceus (Agaricus) Bulliard & Ventenat	553	50; 524, fig. 3	82	nom. superfl.	
crustaceus (Mucor) Bulliard	100	504, fig. 2		sp. nov.	
crustuliniformis (Agaricus) Bulliard apud Ventenat	589	308; 546	83	nom. superfl.	
cryptarum (Boletus) Bulliard	350	478		sp. nov.	F*
cupularis (Agaricus) Bulliard & Ventenat	529	554, fig. 2		sp. nov.	F
cuticularis (Boletus) Bulliard	350	462		sp. nov.	F*
cyanescens (Boletus) Bulliard	329	369		sp. nov.	F
cyaneus (Agaricus) Bolton	641	170; 530, fig. 1	84		
cyathiforme (Hydnum) Schaeffer	308	156	85		
cyathiformis (Agaricus) Bulliard & Ventenat	512	248; 568, fig. 1 575	86	nom. superfl.	F
cyathiformis (Cellularia) Ventenat	index	414	87	nom. superfl.	
cyathoides (Peziza) Bulliard	250	416, fig. 3	88	nom. superfl.	F
cylindrica (Clavaria) Bulliard	212	463, fig. 1	89	nom. superfl.	
cylindricus (Sphaerocarpus) Bulliard	140	470, fig. 3		sp. nov.	

- D -

dasypodius (Agaricus) Bulliard apud Ventenat	648	96	90	nom. superfl.	
deliquescens (Agaricus) Bulliard	409	437, fig. 2; 558	91	nom. superfl.	F
deliquescens (Tremella) Bulliard	219	455, fig. 3		sp. nov.	
dendroides (Mucor) Bulliard	105	504, fig. 9		sp. nov.	F*
digitaliformis (Agaricus) Bulliard	435	22; 525, fig. 1	92	nom. superfl.	
digitata (Clavaria) Linnaeus	192	220	93		
dimidiata (Helvella) Bulliard	290	288; 498, fig. 2		sp. nov.	
dimidiatus (Agaricus) Schaeffer	385	298; 508; 517	94		
dryophilus (Agaricus) Bulliard	470	17; 434		sp. nov.	F
dycmogalus (Agaricus) Bulliard	503	584	95	nom. superfl.	F

- E -

eburneus (Agaricus) Bolton	524	118; 551, fig. 2	96		F
echinophila (Peziza) Bulliard	235	500, fig. 1		sp. nov.	F
edulis (Agaricus) Bulliard apud Ventenat	630	134; 514	97	nom. superfl.	
edulis (Boletus) Bulliard	322	60; 494	98	nom. superfl.	F
elastica (Helvella) Bulliard	299	242	99	nom. superfl.	F
elegans (Boletus) Ventenat	index	46	100	nom. superfl.	
ellipsosperma (Variolaria) Bulliard	183	492, fig. 3		sp. nov.	
ephemeroides (Agaricus) Bulliard	403	582, fig. 1		sp. nov.	F
ephemerus (Agaricus) Bulliard	394	128; 542, fig. 1	101	nom. superfl.	F
epidendra (Peziza) Bulliard	246	467, fig. 3	102	nom. superfl.	
epidendrum (Lycoperdon) Linnaeus	145	503	103		
epiphyllus (Agaricus) Bulliard	543	569, fig. 2	104	nom. superfl.	
epixylon (Agaricus) Bulliard	382	581, fig. 2	105	nom. superfl.	
epixylon (Reticularia) Bulliard	90	472, fig. 1		sp. nov.	F*
ericetorum (Agaricus) Ventenat	index	551, fig. 1	106	nom. superfl.	
ericeus (Agaricus) Bulliard & Ventenat	523	188; 551, fig. 1	107	nom. superfl.	
erinaceus (Hydnum) Bulliard	304	34		sp. nov.	F
esculentus (Phallus) Linnaeus	274	218	108		

excipuliforme (Lycoperdon) Ventenat	index	450, fig. 2	109	nom. superfl.	P
extinctorius (Agaricus) Linnaeus	408	437, fig. 2	110		
fastigiata (Clavaria) Ventenat	index	358, figs. D, E	111	nom. superfl.	
favus (Boletus) Linnaeus	363	421	112		
felleus (Boletus) Bulliard	325	379		sp. nov.	F
ferruginea (Auricularia) Bulliard	281	378	113	nom. superfl.	
ferruginea (Clavaria pistillaris var.) Bulliard	211	-----		var. nov.	
ferruginea (Peziza cyathoidea var.)	250	-----		var. nov.	
ferruginea (Peziza tremelloidea var.) Bulliard	240	410, fig. IA		var. nov.	
ferrugineus (Mucor) Bulliard	108	504, fig. 12	114	nom. superfl.	
fibula (Agaricus) Bulliard & Ventenat	534	186; 550, fig. 1		sp. nov.	F
ficoides (Agaricus) Bulliard & Ventenat	526	587, fig. 1		sp. nov.	
ficoides (Sphaerocarpus) Bulliard	130	417, fig. 3	115	nom. superfl.	
filiformis (Clavaria) Bulliard	205	448, fig. 1	116	nom. superfl.	F*
filopes (Agaricus) Ventenat	index	320	117	nom. superfl.	F
fimbriatus (Agaricus) Bulliard	450	563, fig. 2		sp. nov.	
fimbriatus (Boletus) Bulliard	332	254	118	nom. superfl.	
fimi-putris (Agaricus) Bulliard	430	66		sp. nov.	F
fistulosa (Clavaria) Bulliard	213	463, fig. 2		sp. nov.	
fistulosus (Agaricus) Bulliard	454	320; 395; 518; 563, fig. 4	119	nom. superfl.	
floriformis (Sphaerocarpus) Bulliard	142	371		sp. nov.	
foraminulosus (Agaricus) Bulliard	460	403, figs. B, C; 535, fig. 1		sp. nov.	
fraxineus (Boletus) Bulliard	341	433, fig. 2		sp. nov.	F*
fragiformis (Sphaerocarpus) Bulliard	141	384		sp. nov.	
fructigena (Peziza) Bulliard	236	228	120	nom. superfl.	F
frumentaceus (Agaricus) Bulliard apud enat	602	571, fig. 1		sp. nov.	
fugax (Variolaria) Bulliard	187	432, fig. 5	121	nom. superfl.	F*
fuliginea (Auricularia reflexa var.) Bulliard	282	483, fig. III		var. nov.	

fuliginea (Clavaria pistillaris var.) Bulliard	211	-----		var. nov.	
fulva (Helvella crispa var.) Bulliard	293	190, figs. A, D, E		var. nov.	
fulva (Helvella mitra var.) Bulliard	298	466		var. nov.	
fulva (Helvella tubaeformis var.) Bulliard	294	208, figs. A, B; 461, figs. B, D		var. nov.	
fulvus (Agaricus) Bulliard apud Ventenat	608	555, fig. 2; 574, fig. 1		sp. nov.	
fulvus (Boletus suberosus var.) Bulliard	354	482, fig. A, B		var. nov.	
furfuraceus (Agaricus) Bulliard apud Ventenat	621	532, fig. 1		sp. nov.	
fusca (Auricularia caryophyllea var.) Bulliard	284	278		var. nov.	
fusca (Auricularia reflexa var.) Bulliard	282	482, fig. II		var. nov.	
fusca (Auricularia tremelloides var.) Bulliard	278	-----		var. nov.	
fusca (Clavaria coriacea var.) Bulliard	198	452, fig. II		var. nov.	
fusca (Helvella crispa var.) Bulliard	293	190, fig. B, C		var. nov.	
fusca (Helvella elastica var.) Bulliard	299	242, fig. C		var. nov.	
fusca (Helvella mitra var.) Bulliard	298	190, figs. D, E; 466, fig. B		var. nov.	
fusca (Peziza labellum var.) Bulliard	262	204		var. nov.	
fusca (Peziza stipitata var.) Bulliard	271	196, figs. A-C		var. nov.	
fuscus (Phallus esculentus var.) Bulliard	274	218, figs. E, F, H		var. nov.	
fusiformis (Agaricus) Ventenat	index	76	122	nom. superfl.	
fusipes (Agaricus) Bulliard apud Ventenat	612	36; 106; 516, fig. 2	123	nom. superfl.	F
		- G -			
gelatinosa (Helvella) Bulliard	296	473, fig. 2	124	nom. superfl.	
gelatinosa (Peziza) Bulliard	239	460, fig. 2		sp. nov.	
geophilus (Agaricus) Bulliard apud	546	522, fig. 2	283	sp. nov.	F

geotropius (Agaricus) Bulliard &	521	400; 573, fig. 2	125	nom. superfl.	
glabra (Nidularia laevis var.) Bulliard	165	40, fig. C; 488, fig. 2		var. nov.	
glandulosa (Tremella) Bulliard	220	420, fig. 1	126	nom. superfl.	F*
glandulosa (Tremella nigricans var.) Bulliard	217	455, figs. E, F	126	var. nov.	
glandulosus (Agaricus) Bulliard & Ventenat	388	426		sp. nov.	F
glaucus (Agaricus) Bulliard apud Ventenat	593	521, fig. 1		sp. nov.	
globulare (Hypoxylon) Bulliard	169	444, fig. 2	127	nom. superfl.	
globulifer (Sphaerocarpus) Bulliard	134	484, fig. 3		sp. nov.	
glomerulatum (Hypoxylon) Bulliard	178	468, fig. 3		sp. nov.	
glomerulosus (Mucor) Bulliard	101	504, fig. 3		sp. nov.	F*
glutinosus (Agaricus) Batsch	527	258; 539; 587, fig. 2	128		
gnaphaliocephalus (Agaricus) Bulliard & Ventenat	517	576, fig. 1		sp. nov.	
gossypium (Lycoperdon) Bulliard	147	435, fig. 1	287	sp. nov.	P
gossypinus (Agaricus) Bulliard	419	425, fig. 2		sp. nov.	F
grammocephalus (Agaricus) Bulliard apud Ventenat	616	594		sp. nov.	
grammopodius (Agaricus) Bulliard apud Ventenat	617	548; 585, fig. 1	129	nom. superfl.	F
granulata (Peziza) Bulliard	258	438, fig. 3		sp. nov.	F
granulosa (Clavaria) Bulliard	199	496, fig. 1	130	nom. superfl.	
granulosa (Tremella) Bulliard	227	499, fig. 2		sp. nov.	
granulosum (Hypoxylon) Bulliard	176	487, fig. 2		sp. nov.	
granulosus (Mucor) Bulliard	109	504, fig. 13		sp. nov.	
grymmopodius (Agaricus) Bulliard & Ventenat	531	601, fig. 1		sp. nov.	

hariolorum (Agaricus) Bulliard apud Ventenat	618	56; 585, fig. 2		sp. nov.	F
helvelloides (Agaricus) Bulliard & Ventenat	533	601, fig. 3		sp. nov.	
helveolus (Agaricus) Bulliard apud Ventenat	653	431; 531, fig. 1		sp. nov.	
hemisphaerica (Reticularia) Bulliard	93	446, fig. 1		sp. nov.	
hepaticus (Boletus) Ventenat	index	74	132	nom. superfl.	
hiemale (Lycoperdon) Ventenat	index	72	133	nom. superfl.	
hirtum (Lycoperdon) Ventenat	index	340	134	nom. superfl.	
hirtum (Lycoperdon proteus var.) Bulliard	149	340; 475, figs. A-D, F-I, M		var. nov.	P*
hirtus (Boletus) Ventenat	index	493	135	nom. superfl.	
hispidus (Boletus) Bulliard	351	210; 493		sp. nov.	F*
horizontalis (Agaricus) Bulliard apud Ventenat	573	324		sp. nov.	
hortensis (Reticularia) Bulliard	86	424, fig. 2	136	nom. superfl.	
hybrida (Clavaria) Bulliard	194	440, fig. 1		sp. nov.	
hybridum (Hydnum) Bulliard	307	453, fig. 2	137	nom. superfl.	
hybridus (Agaricus) Ventenat	index	398	138	nom. superfl.	
hydrogrammus (Agaricus) Bulliard & Ventenat	515	564		sp. nov.	
hydrophilus (Agaricus) Bulliard	440	112; 511	139	nom. superfl.	
hydrophorus (Agaricus) Bulliard	491	558, fig. 2		sp. nov.	
hydrophorus (Peziza) Bulliard	243	410, fig. 2		sp. nov.	
hyemale (Lycoperdon proteus var.)	148	72; 475, fig. E		var. nov.	P*

igniarius (Boletus) Linnaeus	361	82; 454	140		
ileopodius (Agaricus) Bulliard apud Ventenat	656	578; 586, fig. 2; 592	141	sp. nov.	
imberbis (Peziza) Bulliard	339	445, fig. 1		sp. nov.	

imberbis (Peziza) Bulliard	245	467, fig. 2	142	nom. superfl.	
imbricatus (Boletus) Bulliard	349	366		sp. nov.	F*
impudicus (Phallus) Linnaeus	276	182	143		
infundibuliformis (Agaricus) Bulliard & Ventenat	510	286; 553	144	nom. superfl.	
inodorus (Agaricus) Bulliard apud Ventenat	552	524, fig. 2		sp. nov.	
ionides (Agaricus) Bulliard apud Ventenat	557	533, fig. 3		sp. nov.	F

- J -

juglandis (Boletus) Schaeffer	344	19	145		

- L -

labellum (Peziza) Bulliard	262	204	146	nom. superfl.	
labyrinthiformis (Agaricus) Bulliard &	377	352; 442, fig. 1	147	nom. superfl.	
labyrinthiformis (Boletus) Bulliard	357	491, fig. 1		sp. nov.	
laciniata (Clavaria) Schaeffer	208	415, fig. 1	148		
laciniata (Tremella) Bulliard	226	499, fig. 1		sp. nov.	
lacrymabundus (Agaricus) Bulliard	438	194; 525, fig. 3		sp. nov.	F
lactea (Peziza) Bulliard	253	376, fig. 3	149	nom. superfl.	
lacteus (Agaricus) Bulliard & Ventenat	532	601, fig. 2	150	nom. superfl.	
lactifluus acris (Agaricus) Ventenat	index	200	151	nom. illeg. & superfl.	
lactifluus dulcis (Agaricus) Ventenat	index	224	152	nom. illeg. & superfl.	
lactifluus-plumbeus (Agaricus) Ventenat	index	282	153	nom. superfl.	
lactifluus zonarius (Agaricus) Ventenat	index	104	154	nom. superfl.	
lacunosum (Lycoperdon) Ventenat	index	52	155	nom. superfl.	
lacunosum (Lycoperdon proteus var.) Bulliard	149	52		var. nov.	P*

laeve (Lycoperdon bovista var.) Bulliard	154	-----		var. nov.	
laevis (Nidularia) Bulliard	165	488, fig. 2	156	nom. superfl.	
laevi (Tremella nigricans var.) Bulliard	217	-----	157	var. nov.	
lamprocephalus (Agaricus) Bulliard apud Ventenat	652	544, fig. 2	158	nom. superfl.	
lanuginosa (Peziza) Bulliard	260	396, fig. 2	159	nom. superfl.	
lanuginosus (Agaricus) Bulliard apud Ventenat	657	370	160	nom. superfl.	F
laricis (Boletus) Rubel in Jacquin	353	296	161		
lateritia (Auricularia caryophyllea var.) Bulliard	284	483, fig. VI		var. nov.	
lateritia (Peziza vesiculosa var.) Bulliard	270	557, figs. G, I		var. nov.	
lenticularis (Peziza) Bulliard	248	300		sp. nov.	F
lentifera (Peziza) Ventenat	index	40	162	nom. superfl.	
leucocephalus (Agaricus) Bulliard apud Ventenat	597	428, fig. 1; 536	163	nom. superfl.	
leucopodia (Trichia) Bulliard	121	502, fig. 2		sp. nov.	
leucopodius (Agaricus) Bulliard apud Ventenat	556	533, fig. 2		sp. nov.	F
lignatilis (Agaricus) Bulliard & Ventenat	528	554, fig. 1		sp. nov.	
lignifragus (Mucor) Bulliard	103	504, fig. 6		sp. nov.	
ligularis (Tremella) Bulliard	223	427, fig. 1		sp. nov.	
lineatus (Agaricus) Bulliard apud Ventenat	547	522, fig. 3	164	nom. superfl.	F
livida (Tremella mesenteriformis var.) Bulliard	230	406, fig. Aa; 499, fig. T		var. nov.	
lividus (Agaricus) Ventenat	index	382	165	nom. superfl.	
lividus (Boletus) Bulliard	327	490, fig. 2		sp. nov.	F
loculiferum (Hypoxylon) Bulliard	174	495, fig. 1		sp. nov.	
longipes (Agaricus) Bulliard apud Ventenat	613	232, 575		sp. nov.	
lutea (Auricularia reflexa var.) Bulliard	281	278, figs. A-D		var. nov.	

lutea (Clavaria coralloides var.) Bulliard Bulliard	201	222; 358, figs. B, D, E; 496 figs. O, Q		var. nov.	
lutea (Clavaria cylindrica var.) Bulliard	212	463, fig. 1B, N, O		var. nov.	
lutea (Helvella tubaeformis var.) Bulliard	294	461, figs. A, C		var. nov.	
lutea (Peziza cyathoidea var.) Bulliard	250	416		var. nov.	
lutea (Peziza fructigena var.) Bulliard	236	228, figs. A, B, E		var. nov.	
lutea (Peziza stercoraria var.) Bulliard	256	376, fig. I		var. nov.	
lutea (Reticularia) Bulliard	87	380, fig. 1	166	nom. superfl.	
lutea (Tremella cerebrina var.) Bulliard	221	386, fig. B		var. nov.	
lutea (Tremella mesenteriformis var.)	230	406, figs. B, D; 499, Fig. VI, u, v		var. nov.	
luteus (Boletus) Ventenat	index	4	167	nom. superfl.	
luteus (Boletus hispidus var.) Bulliard	351	493, figs. A-D		var. nov.	
luteus (Sphaerocarpus) Bulliard	136	407, fig. 2		sp. nov.	
lycoperdon (Reticularia) Bulliard	95	446, fig. 4; 475, figs. 1-3	168	nom. superfl.	
lycoperdonoides (Agaricus) Bulliard apud Ventenat	610	166; 516, fig. 1	169	nom. superfl.	

- M -

melanospermus (Agaricus) Bulliard apud Ventenat	628	540, fig. 1		sp. nov.	
melinoides (Agaricus) Bulliard	444	560, fig. 1	170	nom. superfl.	
melogramma (Variolaria) Bulliard	182	492, fig. 1		sp. nov.	
membranaceum (Hydnum) Bulliard	302	481, fig. 1		sp. nov.	F
mesenteriformis (Tremella) Jacquin	230	406; 499, fig. 6	171		
mesomorphus (Agaricus) Bulliard	481	506, fig. 1		sp. nov.	F
micaceus (Agaricus) Bulliard	415	94' 346' 565	172	nom. superfl.	F
miliaceum (Hypoxylon) Bulliard	170	444, fig. 3		sp. nov.	

mitra (Helvella) Linnaeus	298	190; 466	173		
molibdocephalus (Agaricus) Bulliard apud Ventenat	620	523	284	sp. nov.	F
mollis (Agaricus) Ventenat	index	38	174	nom. superfl.	
momentaceus (Agaricus) Ventenat	index	128	175	nom. superfl.	
moschatum (Tuber) St. Amans apud Bulliard	79	479	176	sp. nov.	F
mouceron (Agaricus) Bulliard apud Ventenat	580	142		sp. nov.	
mucoroides (Tremella) Bulliard	228	499, fig. 4		sp. nov.	
mucosus (Agaricus) Bulliard apud Ventenat	661	549; 596, fig. 2	177	nom. superfl.	
murinaceus (Agaricus) Bulliard apud Ventenat	588	520		sp. nov.	F
muscigenus (Agaricus) Ventenat	index	288	178	nom. superfl.	F*
muscoides (Clavaria) Linnaeus	203	358 Fig. A	179		

- N -

necator (Agaricus) Bulliard	489	14' 529, fig. 2	180	nom. superfl.	
nigra (Clavaria coriacea var.) Bulliard	198	-----		var. nov.	
nigra (Peziza) Bulliard	238	116; 460, fig. 1	181	nom. superfl.	
nigra (Reticularia) Bulliard	88	380, fig. 2		sp. nov.	
nigra (Tremella cerebrina var.) Bulliard	221	386, fig. C		var. nov.	
nigricans (Tremella) Bulliard	217	455, fig. 1	182	nom. superfl.	F*
nigrescens (Agaricus) Bulliard apud Ventenat	587	212; 579, fig. 2	183	sp. nov.	
nigripes (Agaricus) Bulliard	476	344; 519, fig. 2	184	nom. superfl.	
nigrum (Tuber) Ventenat	index	356	185	nom. superfl.	
nitens (Agaricus) Bulliard	424	84; 566, fig. 4	186	nom. superfl.	
nivea (Clavaria cylindrica var.) Bulliard	212	463, fig. 1A, L, M		var. nov.	
nudus (Agaricus) Bulliard apud Ventenat	605	439	187	nom. superfl.	F
nummularium (Hypoxylon) Bulliard	179	468, fig. 3		sp. nov.	F*
nummularius (Boletus) Bulliard	335	124		sp. nov.	

nutans (Trichia) Bulliard	122	502, fig. 3		sp. nov.	

- O -

obliquatus (Boletus) Bulliard	335	7; 459	188	nom. superfl.	
ochraceus (Agaricus) Bulliard apud Ventenat	644	362' 530, fig. 3	189	nom. superfl.	
odorus (Agaricus) Bulliard apud Ventenat	567	176; 556, fig. 3		sp. nov.	F
omphaloides (Peziza) Bulliard	264	485, fig. 1		sp. nov.	F
operculatum (Hypoxylon) Bulliard	177	468, fig. 2	190	nom. superfl.	
ophioglossoides (Clavaria) Linnaeus	196	372	191		
orcella (Agaricus) Bulliard & Ventenat	519	573, fig. 1; 591	192	nom. superfl.	F
ostraceum (Hypoxylon) Bulliard	170	444, fig. 4		sp. nov.	
ovinus (Agaricus) Bulliard apud Ventenat	592	580		sp. nov.	F
ovoides (Agaricus) Bulliard apud Ventenat	668	364		sp. nov.	F
ovoideum (Lycoperdon) Ventenat	index	435, fig. 2, 3	193	nom. superfl.	
ovoideum (Lycoperdon proteus var.) Bulliard	148	435, fig. III; 475, figs. B-D, M-N		var. nov.	

- P -

palmatus (Agaricus) Ventenat	index	216	194	nom. superfl.	F
papillaris (Peziza) Bulliard	244	467, fig. 1	195	nom. superfl.	F
papillionaceus (Agaricus) Bulliard	428	58; 561, fig. 2		sp. nov.	F
papyrina (Auricularia) Bulliard	279	402		sp. nov.	
parasiticum (Tuber) Bulliard	81	456		sp. nov.	
parasiticus (Agaricus) Bulliard apud Ventenat	609	574, fig. 2	196	nom. superfl.	F
parasiticus (Boletus) Bulliard	317	451, fig. 1		sp. nov.	F
pectinaceus (Agaricus) Bulliard apud Ventenat	599	509	197	nom. superfl.	

pediculatum (Lycoperdon) Bulliard	161	471, fig. 2		sp. nov.	
pedunculatum (Lycoperdon) Linnaeus	161	294	198		
pelloporus (Boletus) Bulliard & Ventenat	365	501, fig. 2		sp. nov.	
pellospermus (Agaricus) Bulliard	426	561, fig. 1	199	nom. superfl.	
pellucidus (Agaricus) Bulliard & Ventenat	536	550, fig. 2		sp. nov.	F
penicillata (Clavaria) Bulliard	207	448, fig. 3		sp. nov.	F*
penicillatus (Mucor) Bulliard	107	504, fig. 11	200	nom. superfl.	
perpendicularis (Agaricus) Bulliard	469	422, fig. 2		sp. nov.	
persistens (Tremella) Bulliard	223	304		sp. nov.	
petalodes (Agaricus) Bulliard	391	226; 557, fig. 2	201	nom. superfl.	F
phaiocephalus (Agaricus) Bulliard apud Ventenat	607	555, fig. 1	202	nom. superfl.	F
phaiopodius (Agaricus) Bulliard apud Ventenat	622	532, fig. 2		sp. nov.	F
phalloides (Clavaria) Bulliard	214	463, fig. 3		sp. nov.	
phoeniceum (Hypoxylon) Bulliard	171	487, fig. 3	203	nom. superfl.	
phoeniceus (Agaricus) Bulliard apud	647	598, fig. 1		sp. nov.	
phonospermus (Agaricus) Bulliard apud	568	534; 547, fig. 1; 590	204	nom. superfl.	
phylacteris (Auricularia) Bulliard	286	436, fig. 2		sp. nov.	
physaloides (Agaricus) Bulliard	420	566, fig. 1		sp. nov.	
picaceus (Agaricus) Bulliard	407	206		sp. nov.	F
pigmaeus (Agaricus) Bulliard	437	525, fig. 2	205	sp. nov.	
pileolarius (Agaricus) Ventenat	index	400	206	nom. superfl.	
piluliformis (Agaricus) Ventenat	index	112	207	nom. superfl.	
pinguis (Peziza) Ventenat	index	396, fig. 1			
piperatus (Agaricus) Bulliard apud Ventenat	601	292	208	sp. nov.	
piperatus (Boletus) Bulliard	318	451, fig. 2	223	nom. superfl.	
piriforme (Lycoperdon proteus var.) Bulliard	148	32; 340; 475, figs. B, D, M		var. nov.	
pistillaris (Clavaria) Linnaeus	211	244	209		
pleopodius (Agaricus) Bulliard apud Ventenat	566	556, fig. 2		sp. nov.	F

plicatus (Agaricus) Ventenat	index	80	210	nom. superfl.	
plumbeus (Agaricus) Bulliard	498	282; 559, fig. 2		sp. nov.	F
polygrammus (Agaricus) Ventenat	index	395	211	nom. superfl.	F
polymorphus (Boletus) Ventenat	index	114	212	nom. superfl.	
polyporus (Boletus) Bulliard	331	469		sp. nov.	
proteus (Agaricus) Bulliard apud	650	600	213	nom. superfl.	
proteus (Lycoperdon) Bulliard	148	340; 435, figs. 2-3; 450, fig. 2; 475	214	nom. superfl.	
psammocephalus (Agaricus) Bulliard apud	655	531, fig. 2; 586, fig. 1		sp. nov.	
pseudo-androsaceus (Agaricus) Bulliard & Ventenat	539	276	215	nom. superfl.	
pseudo-aurantiacus (Agaricus) Bulliard apud Ventenat	673	122	216	nom. superfl.	
pseudo-igniarius (Boletus) Bulliard	356	458		sp. nov.	
pseudo-mouceron (Agaricus) Bulliard apud Ventenat	578	144' 528, fig. 2	217	nom. superfl.	
pudicus (Agaricus) Bulliard apud Ventenat	635	597, fig. 2		sp. nov.	
pulverulentus (Agaricus) Ventenat	index	178	218	nom. superfl.	
pumilis (Agaricus) Bulliard	452	260; 563, fig. 3		sp. nov.	
punctata (Peziza) Linnaeus	259	252	219		
punctata (Variolaria) Bulliard	185	432, fig. 2	220	nom. superfl.	
purpurea (Tremella) Linnaeus	216	284	221		
pyriforme (Lycoperdon) Ventenat	index	32	222	nom. superfl.	P
pyriformis (Sphaerocarpus) Bulliard	129	417, fig. 2		sp. nov.	
pyrogalus (Agaricus) Bulliard	487	529, fig. 1		sp. nov.	F
pyrrospermus (Agaricus) Bulliard apud Ventenat	571	547, fig. 3		sp. nov.	
pyxidatus (Agaricus) Bulliard & Ventenat	514	568, fig. 2	224	nom. superfl.	F

- R -

racemosus (Mucor) Bulliard	104	504, fig. 7	225	nom. superfl.	F
radicosa (Clavaria) Bulliard	195	440, fig. 2		sp. nov.	

radicosus (Agaricus) Bulliard apud Ventenat	637	160		sp. nov.	F
ramealis (Agaricus) Bulliard & Ventenat	538	336	226	nom. superfl.	F
ramentaceus (Agaricus) Bulliard apud Ventenat	640	595, fig. 3		sp. nov.	F
ramosum (Hydnum) Bulliard	305	390	227	nom. superfl.	
ramosus (Agaricus) Bulliard apud Ventenat	591	102		sp. nov.	F
ramosus (Boletus) Bulliard	349	418		sp. nov.	
ramosus (Mucor) Bulliard	116	480, fig. 3		sp. nov.	F
rapulum (Peziza) Bulliard	265	485, fig. 2		sp. nov.	F
reflexa (Auricularia) Bulliard	281	274; 483, figs. 1-5	228	nom. superfl.	
repandum (Hydnum) Linnaeus	311	172	229		
repandus (Agaricus) Bulliard apud Ventenat	586	423, fig. 2; 579, fig. 1		sp. nov.	F
repens (Agaricus) Ventenat	index	90	230	nom. superfl.	
retiruga (Helvella) Bulliard	289	498, fig. 1		sp. nov.	F*
rimosus (Agaricus) Withering	558	388; 599	231		F
roseus (Agaricus) Bulliard	473	162; 507	232	nom. superfl.	
roseus (Mucor) Bulliard	102	504, fig. 4		sp. nov.	F*
rubeolarius (Boletus) Bulliard	326	100; 490, fig. 1	233	nom. superfl.	
ruber (Boletus hispidus var.) Bulliard	351	210		var. nov.	
rubra (Auricularia papyrina var.) Bulliard	280	-----		var. nov.	
rufida (Clavaria pistillaris var.) Bulliard	211	244, figs. A-F		var. nov.	
rugosa (Clavaria) Bulliard	206	448, fig. 2	234	nom. superfl.	F
rutilus (Boletus suberosus var.) Bulliard	354	482, figs. C-E, G		var. nov.	

- S -

salicinus (Boletus) Bulliard	340	433, fig. 1		sp. nov.	
sanguineus (Agaricus) Ventenat	index	42	235	nom. superfl.	
scaber (Boletus) Bulliard	319	132; 489, fig. 1	236	nom. superfl.	F
scabrosum (Hypoxylon) Bulliard	180	468, fig. 5		sp. nov.	F*
scutellata (Peziza) Linnaeus	247	10	237		

segetum (Reticularia) Bulliard	90	472, fig. 2		sp. nov.	
semiorbicularis (Agaricus) Bulliard	467	422, fig. 1	238	nom. superfl.	
semi-trichoides (Sphaerocarpus) Bulliard	125	387, fig. 1	239	nom. superfl.	
sericeus (Agaricus) Bulliard apud Ventenat	576	413, fig. 2; 526		sp. nov.	
sessilis (Agaricus) Bulliard	383	152; 581, fig. 3	240	nom. superfl.	
sessilis (Sphaerocarpus) Bulliard	132	417, fig. 5		sp. nov.	
sideroides (Agaricus) Bulliard apud Ventenat	574	588		sp. nov.	
simplex (Variolaria) Bulliard	186	432, fig. 3	241	nom. superfl.	
sinuosa (Reticularia) Bulliard	94	446, fig. 3		sp. nov.	
solitarius (Agaricus) Bulliard apud Ventenat	675	48; 593		sp. nov.	F
sordide viridis (Tremella vesicaria var.)	224	-----		nom. illeg. (polynomial)	
sphaerocephalus (Mucor) Bulliard	112	480, fig. 2	242	nom. superfl.	
sphaeroidalis (Reticularia) Bulliard	94	446, fig. 2		sp. nov.	
sphaerosperma (Variolaria) Bulliard	183	492, fig. 2		sp. nov.	
sphaleromorphus (Agaricus) Bulliard apud Ventenat	629	540, fig. 2		sp. nov.	F
sphincterium (Hypoxylon) Bulliard	168	444, fig. 1		sp. nov.	F
squamosum (Hydnum) Bulliard	310	409	243	nom. superfl.	
squamosum (Lycoperdon aurantium var.) Bulliard	158	-----		var. nov.	
squamosus (Agaricus) Bulliard apud Ventenat	625	266	244	nom. superfl.	
squarrosus (Agaricus) Bulliard	463	535, fig. 3		sp. nov.	
stellatum (Lycoperdon) Linnaeus	160	238; 471, fig. 1	245		
stercoraria (Peziza) Bulliard	256	376, fig. 1; 438, fig. 4		sp. nov.	
stercorarius (Agaricus) Bulliard	398	68; 542, fig. 2	246	nom. superfl.	
stipitata (Peziza) Bulliard	271	196; 457, fig. 2	247	nom. superfl.	
stipitata (Reticularia) Bulliard	89	380, fig. 3		sp. nov.	
striata (Nidularia) (Hoffmann) Bulliard	166	40	248	comb. nov., nom. superfl.	

striatus (Agaricus) Bulliard	433	80; 552, fig. 2	249	nom. superfl.	
stypticus (Agaricus) Bulliard & Ventenat	389	140; 557, fig. 1	250	nom. superfl.	F
suaveolens (Boletus) Linnaeus	342	310	251		F*
subcaerulea (Auricularia tremelloides var.) Bulliard	278	-----		var. nov.	
suberosus (Boletus) Bulliard	354	482		sp. nov.	
subfuliginea (Peziza stercoraria var. lutea subvar.) Bulliard	256	376, fig. 1		subvar. nov.	
sublamellosum (Hydnum) Bulliard	306	453, fig. 1		sp. nov.	
sublanatum (Lycoperdon bovista var.)	154	-----		var. nov.	
sub-lateritio-fusca (Peziza vesiculosa var. Lateritia subvar.) Bulliard	270	557, fig. R		subvar. nov.	
subularis (Peziza) Bulliard	236	500, fig. 2		sp. nov.	F
sulphureus (Agaricus) Bulliard apud Ventenat	563	168; 545, fig. 2		sp. nov.	F
sulphureus (Boletus) Bulliard	347	429		sp. nov.	F*

- T -

tentacula (Agaricus) Bulliard	447	560, fig. 3		sp. nov.	
tesselatus (Agaricus) Bulliard apud Ventenat	583	513, fig. 1	285	sp. nov.	F
theiogalus (Agaricus) Bulliard & Ventenat	495	567, fig. 2	286	sp. nov.	F
tigrinus (Agaricus) Bulliard	508	38	252	nom. superfl.	F
titubans (Agaricus) Bulliard	417	425, fig. 1		sp. nov.	F
togularius (Agaricus) Bulliard apud Ventenat	639	595, fig. 2	253	nom. superfl.	F
tomentosa (Nidularia laevis var.) Bulliard	165	40, fig. B	254	var. nov.	
tomentosus (Agaricus) Bulliard	402	138		sp. nov.	
tremelloidea (Peziza) Bulliard	240	410, fig. 1	255	nom. superfl.	
tremelloides (Auricularia) Bulliard	278	290		sp. nov.	
trichoides (Sphaerocarpus) Bulliard	124	387, fig. 2	256	nom. superfl.	
tricolor (Agaricus) Bulliard	380	541, fig. 2		sp. nov.	
tubaeformis (Helvella) Bulliard	294	208; 461		sp. nov.	F*

tuberosa (Peziza) Bulliard	266	485, fig. 3		sp. nov.	F
tuberosus (Agaricus) Bulliard apud Ventenat	548	256; 522, fig. 4	257	nom. superfl.	F
tuberosus (Boletus) Ventenat	index	100	258	nom. superfl.	
turbinatus (Agaricus) Bulliard apud Ventenat	645	110	259	nom. superfl.	F
turbinatus (Sphaerocarpus) Bulliard	132	484, fig. 1		sp. nov.	
typhoides (Agaricus) Bulliard	405	16; 582, fig. 2	260	nom. superfl.	
typhoides (Trichia) Bulliard	119	477, fig. 2		sp. nov.	

- U -

ulmarius (Agaricus) Bulliard apud	582	510		sp. nov.	
umbellatus (Mucor) Bulliard	105	504, fig. 8		sp. nov.	F*
umbilicatus (Agaricus) Bulliard	466	411, fig. 2		sp. nov.	
undulatus (Agaricus) Bulliard	462	535, fig. 2		sp. nov.	
ungulatus (Boletus) Schaeffer	357	401; 491, fig. 2	261		
unicolor (Boletus) Bulliard	365	408; 501, fig. 3		sp. nov.	F*
urceolatus (Mucor) Dickson	111	480, fig. 1	262		
ureus (Agaricus) Bulliard apud Ventenat	577	528, fig. 1	263	nom. superfl.	
ustulata (Tremella) Bulliard	221	420, fig. 2		sp. nov.	
ustulatum (Hypoxylon) Bulliard	176	487, fig. 1	264	nom. superfl.	
utricularis (Sphaerocarpus) Bulliard	128	417, fig. 1		sp. nov.	
utriforme (Lycoperdon) Bulliard	153	450, fig. 1		sp. nov.	P

- V -

vaginatus (Agaricus) Bulliard apud Ventenat	664	98; 512	265	nom. superfl.	F
ventricosus (Agaricus) Bulliard	465	411, fig. 1		sp. nov.	F
variegata (Auricularia reflexa var.) Bulliard	282	483, fig. VI, m		var. nov.	
vernicosa (Nidularia) Bulliard	164	488, fig. 1	266	nom. superfl.	
verrucosum (Lycoperdon) Bulliard	157	24		sp. nov.	P*

verrucosum (Lycoerpdon aurantiacum var.) Bulliard	158	-----	267	var. nov.	
verrucosus (Agaricus) Curtis	672	316	268		
versicolor (Boletus) Ventenat	index	86	269	nom. superfl.	
verticalis (Tremella) Ventenat	index	272	270	nom. superfl.	
vesicaria (Tremella) Bulliard	224	427, fig. 3	271	sp. nov.	
vesiculosa (Peziza) Bulliard	270	44; 457, fig. 1	272	nom. superfl.	F
villosus (Agaricus) Bulliard apud Ventenat	572	214		sp. nov.	
villosus (Mucor) Bulliard	110	504, fig. 15		sp. nov.	
vinoso-subfusca (Trichia cinnabaris var.) Bulliard	121	502, fig. 1D	273	var. nov.	
vinosus (Agaricus) Ventenat	index	54	274	nom. superfl.	
violacea (Auricularia tremelloides var.) Bulliard	278	290		var. nov.	
violacea (Peziza stercoraria var.) Bulliard	256	438, fig. IV		var. nov.	
violacea (Peziza tremelloidea var.) Bulliard	240	410, fig. IB, C		var. nov.	
violacea (Tremella mesenteriformis var.) Bulliard	230	272, fig. VI; 499		var. nov.	
violaceus (Agaricus) Linnaeus	649	598, fig. 2	275		
viridis (Peziza) Ventenat	index	376, fig. 4	276	nom. superfl.	
viridis (Sphaerocarpus) Bulliard	135	407, fig. 1		sp. nov.	
viridis (Peziza callosa var.) Bulliard	252	376, fig. IV		var. nov.	
volvaceus (Agaricus) Bulliard apud	663	262; 330	277	nom. superfl.	F
volvaceus (Clathrus) Bulliard	190	441	278	nom. superfl.	
volvaceus-minor (Agaricus) Ventenat	index	330	279	nom. superfl.	

- X -

xylophilus (Agaricus) Bulliard apud Ventenat	642	530, fig. 2		sp. nov.	

zonarius (Agaricus) Bulliard	491	104	280	nom. superfl.

Appendix

Notes On the Index

1. LSpPl: 1650.
2. New name for *Helvella agariciformia* Bolton (Bolt: 98, fig. 1.
3. New name for *Agaricus piperatus* Linn. (LSpPl: 1641).
4. New name for *Agaricus campanulatus* Schaeffer (Sch 4: 28, pl. 63)
5. New name for *Agaricus fuliginatus* Batsch (BEF: 81)
6. New name for *Trichia sphaerocephala* Hoffmann (HV 2: 15, t. 4, fig. 2)
7. *Agaricus "alliatus"* Schaeffer (Sch 4: 43, pl. 99)
8. LSP: 1176. Also cited is Pauli, Joach. "Nom. Fung." I do not know this reference, and would appreciate information about it.
9. A new name used for the conglomerate of several Schaeffer species, including *A. pulverulentus, A. croceus, A. mutabilis, A. flavidus,* etc.
10. New name for *Clavaria purpurea* Schaeffer (Sch 4: 117, pl. 172) "Amethystina" of Fries (Fr 1: 472).
11. New name for *Elvela purpurea* Schaeffer (Sch 4: 114, pls. 323, 324)
12. New name for *A. rosellus* Batsch (BEFC 1: 121); the name probably was an adaptation of *A. amethystinus* Bolton (Bolt: 63).
13. New name for *A. obscurus* Schaeffer (Sch 4: 32, pl. 74; the name may have been an adaptation of *A. subannulatus* Batsch (BEFC 1: 75).
14. New name for *B. luteus* Linnaeus (LSP: 1177), attributed to Schaeffer (Sch 4: 81).
15. A name substitution by Ventenat for *A. dryophilus* q.v.
16. *Agaricus araneosus* was used by Bulliard, but Ventenat did not recognize the name. In its place were the following:

Page	Plate	Name
648	96	*A. dasypodius*, q.v.
649	250; 598, fig. 2	*A. violaceus*, q.v.
659	600	*A. proteus*, q.v.
653	431	*A. helveolus*, q.v.
index (698)	-----	----

17. The text lists only *A. violaceus* (q.v.), while the index lists both *A. araneosus* and *A. araneosus-violaceus.*
18. New name for *L. arrhizon* Batsch (BEFC 1: 239)
19. New name for *Tremella nostoc* Hoffmann (HV 1: 41; "nostos" of index).
20. LSP: 1175.
21. Ventenat's name for *Peziza scutellata*, q.v.
22. New name for *Agaricus caesareus* Scopoli (Scop: 419), attributed by Bulliard to Schaeffer (Sch 4: 64, 69).
23. LSP: 1184.

24. Ventenat's name for *Agaricus annularius*, q.v.
25. New name for *Tremella auricula* Linnaeus (LSpPl: 1625).
26. Ventenat's name for *Tremella auricula-judae*, q.v.
27. New name for *Tremella auricula* Linnaeus (LSpPl: 1625), but note that Linnaeus's name also appears as a synonym of *Auricularia auricula-judae*, q.v.
28. LSP: 1178
29. New name for *Embolus lactea* Hoffmann (HV 2: 8). Jacquin is also given as author, but the name is not to be found in WJ 1: 137, as directed by Bulliard.
30. Ventenat's name for *Agaricus pectinaceus*, q.v.
31. New name for *Clavaria lutea* Bergeret (Berg 1: t. 167), an earlier homonym of *C. lutea* Vittadini.
32. LSP: 1183.
33. New name for *Boletus hepaticus* Schaeffer (Sch 4: 82, pls. 116-120).
34. Sch 4: 21, pl. 241.
35. New name for *Clavaria puccinia* Batsch (BEF: 139).
36. New name for aggregate of *L. gemmatum* Schaeffer (Sch 4: 130, pl. 189) and *L. echinatum* Schaeffer (Sch 4: 128, pl. 186).
37. New name for the aggregate of Batsch's *P. schenkii* (dubious; BEF: 125), *P. grisea* (BEF: 117) and *P. olivacea* (BEF: 127).
38. New name for *A. dentatus* Linnaeus (LSP: 1172).
39. LSP: 1175; LSpPl: 1643. Fries adopted Bulliard's name as separate from Linnaeus's.
40. New name for the aggregate of *A. lactifluus* Linnaeus (LSP: 1172, attributed to Schaeffer) *A. rubescens* Scopoli (Scop: 451, attributed to Schaeffer) and *A. fuscus* Schaeffer (Sch 4: 58, pl. 235).
41. New name for *Agaricus incurvus* Schaeffer (Sch 4: 29, pl. 65).
42. LSP: 1171; LSpPl: 1639.
43. New name for *Lycoperdon cinereum* Batsch (BEF: 155; BEFC 1: 249).
44. New combination of *Elvela caryophyllea* Schaeffer (Sch 4: 115, pl. 325).
45. Ventenat's new name for part of *L. proteus*, q.v.
46. Ventenat's name for part of *P. vesiculosa*, q.v.
47. New name for *Elvela mesenterica* Schaeffer (Sch 4: 108, pl. 168)
48. New name for the aggregate of Schaeffer's *B. cupreus* (Sch 4: 86, pl. 133) and *B. reticulatus* (Sch 4: 78, pl. 108). "Chrysenterus" of Fries (Fr 1: 126).
49. Ventenat's name for *Tremella mesenteriformis*, q.v.
50. Ventenat's new combination of *Mucor chrysospermus*, q.v.
51. New name for Mucor granulatus Schaeffer (Sch 4: 133, pl. 196).
52. "celiata" of index.
53. New name for *H. suberosum* Batsch (BEF: 113).
54. Ventenat's name for *Agaricus stercorarius*, q.v.
55. New name for *Clathrus denudatus* Linnaeus (LSP: 1179).
56. New combination of *Sphaeria cirrata* Hoffmann (HV 1: 27),
57. LSP: 1175. Fries accepted Bulliard's name as separate from Linnaeus's.

58. JFA 2; Sch 4: 100.
59. Sch 4: 70, pl. 302.
60. New name for *Trichia graniformis* Hoffman (HV 2: 3).
61. New combination for *Elvela cochleata* Wulfen *in* Jacquin (WJ 2: 112).
62. New name for *A. procerus* Scopoli (Scop: 418), attributed to Schaeffer (Sch 4: 12). *Agaricus clypeatus* Linnaeus (LSP: 1174) is listed as a doubtful synonym.
63. New name for *A. purpureus* Bolton (Bolt: 41, pl. 41B).
64. Ventenat's name for part of *Boletus chrysenteron*, q.v.
65. Ventenat's name for *Agaricus dimidiatus*, q.v.
66. Ventenat's name for *Agaricus micaceus*, q.v. A withering name, but not so cited by Ventenat.
67. New name for *Agaricus campanulatus* Schaeffer (Sch 4: 28, pl. 63).
68. New name for three prior names, the oldest of which is *Agaricus lateralis* Schaeffer (Sch 4: 31, pls. 71, 72).
69. Ventenat's name for *Agaricus fusipes*, q.v.
70. LSP: 1182; LSpPl: 1652.
71. Ventenat's name for *Clavaria cinerea*, q.v.
72. New name for the aggregate of *Agaricus quercinus* Linn. (LSP: 1176) and *Boletus versicolor* Linn. (LSP: 1176).
73. Scop: 465, attributed to Schaeffer (Sch 4: 84).
74. Ventenat's name for *Helvella tubaeformis*, q.v.
75. New combination for *Peziza cornucopioides* Linn. (LSP: 1181).
76. A return by Ventenat to the basionym of *Helvella cornucopioides*, q.v.
77. New name for *Clavaria hypoxilon* Linn. (LSP: 1182), attributed to Bergeret.
78. New name for *Peziza inflecta* Bolton (Bolt: 106, pl. 106, fig. 2).
79. "coronillus" of index. New name for *Agaricus horizontalis* Pauli.
80. New name for *Peziza cupularis* Linnaeus (LSP: 1181) and *P. serrata* Hoffmann (HV 2: 26).
81. New name for *Elvela floriformes* Schaeffer (Sch 4: 110; pl. 278).
82. New name for *Agaricus conicus* Scopoli (Scop: 443), attributed to Schaeffer (Sch 4: 2).
83. New name for *Agaricus lateritius* Batsch (BEF: 41). *Agaricus punctatus* Schaeffer (Sch 4: 19) is listed as a doubtful synonym.
84. Bolt: 143, pl. 143.
85. Sch 4: 93, pl. 139. Fries accepted Bulliard's name as separate from Schaeffer's.
86. New name for *Agaricus umbilicatus* Scopoli (Scop: 431), attributed to Schaeffer (Sch 4: 46).
87. Ventenat's name for *Agaricus coriaceus*, q.v.
88. New name for *Peziza calyculus* Batsch (BEF: 123). "Cyathoidea" of Fries (Fr 2: 124).
89. New name for *Clavaria pistillaris* Linnaeus (LSP: 1182, LSpPl: 1651).
90. New name for *Agaricus varius* Schaeffer (Sch 4: 20, pl 42).

91. New name for several prior names, the oldest of which is *Agaricus lacer* Schaeffer (Sch 4: 68, pl. 257).
92. New name for the aggregate of *A. minutulus* Schaeffer (Sch 4: 72, pl. 308) and *A. umbelliferus* Linnaeus (LSP: 1175), attributed to Schaeffer.
93. LSP: 1182; LSpPl: 1652.
94. Sch 4: 57, pl. 233. Also cited is Jacquin (JFA 2: 3, pl. 104), but this leads to *Agaricus ostreatus*.
95. New name for *Agaricus ichoratus* Batsch (BEFC 1: 37).
96. Fries accepted Bulliard's name as separate from Bolton's.
97. New name for *Agaricus campestris* Linnaeus (LSP: 1173; LSpPl: 1641).
98. New name for three old names, the oldest of which is *Boletus bovinus* Linnaeus (LSP: 1177; LSpPl: 1646).
99. New name for *Elvela fuliginosa* Schaeffer (Sch 4: 113, pl. 320).
100. Ventenat's name for *Boletus calceolus*, q.v.
101. New name for *Agaricus radiatus* Bolton (Bolt: 39, pl. 39C).
102. New name for *Peziza coccinea* Bolton (Bolt: 104, pl. 104, figs. A-C).
103. LSP: 1184; LSpPl: 1654.
104. New name for *Agaricus umbelliferus* Linnaeus (LSP: 1175), and *A. clavus* Linnaeus (LSP: 1175).
105. New name for *Agaricus applicatus* Batsch (BEFC 1: 171).
106. Ventenat's name for *Agaricus ericeus*, q.v.
107. New name for aggregate of *A. niveus* Scopoli (Scop: 430), attributed to Schaeffer, and *A. clavaeformis* Schaeffer (Sch 4: 72, pl. 307).
108. LSP: 1178; LSpPl: 1648.
109. Ventenat's name for *Lycoperdon proteus*, q.v. Persoon cites the author as Scopoli, but Ventenat gives no credit.
110. LSP: 1174; LSpPl: 1643, listed as doubtful.
111. Ventenat's name for *Clavaria coralloides*, q.v.
112. LSpPl: 1645.
113. New name for *Boletus auriformis* Bolton (Bolt: 82, pl. 82).
114. New name for *Mucor erysiphe* Linnaeus (LSP: 1186; LSpPl: 1676).
115. New name for *Lycoperdon fragile* Dickson (Dick 1: t. III, fig. 5); listed as doubtful.
116. New name for *Clavaria gyrans* Bolton (Bolt: 112, pl. 112, fig. 1).
117. Ventenat's name for *Agaricus fistulosus*, q.v.
118. New name for *Boletus subtomentosus* Bolton (Bolt: 87, pl. 87).
119. New name for several older names, the oldest of which is *A. alliaceus* Jacquin (JFA 1: 52), and several of Schaeffer.
120. New name for *Peziza carpini* Batsch (BEFC 1: 217).
121. New name for *Sphaeria pustulata* Hoffmann (HV 1: 26).
122. Ventenat's name for *Agaricus fusipes*, q.v.
123. New name for aggregate of *A. crassipes* Schaeffer (Sch 4: 38) and *A. oedematopus* Schaeffer (Sch 4: 69).
124. New name for *Helvella lutea* Bergeret (Berg. I: 151).

125. New name for *Agaricus mollis* Bolton (Bolt: 40); *A. albellus* Schaeffer is also listed as doubtful.
126. New name for *Tremella arborea* Hoffmann (HV 1: 37).
127. Bulliard himself questioned the rank of this taxon, so the name is dubious.
128. New name for *Sphaeria bombardica* Bolton (Bolt: 122).
129. BEFC 1: 61 (non Curtis).
130. New name for *Agaricus placenta* Batsch (BEF: 79); *A. cervinus* Pauli is also listed, but I do not know its date.
131. "Glanulosa" of index; new name for *Clavaria militaris* Linnaeus (LSP: 1182; LSpPl: 1652).
132. Ventenat's name for *Fistulina buglossoides*, q.v.
133. Ventenat's name for *Lycoperdon proteus*, p.p., q.v.
134. Ventenat's name for *Lycoperdon proteus*, p.p., q.v.
135. Ventenat's name for *Boletus hispidus*, q.v.
136. New name for *Mucor septicus* Linnaeus (LSpPl: 1656).
137. New name for Hydnum floriforme Schaeffer (Sch 4: 97) *H. striatum* Schaeffer (Sch 4: 98).
138. Ventenat's name for *Agaricus amarus*, q.v.
139. New name for *Agaricus collinus* Scopoli (Scop: 432), attributed to Schaeffer, and for two Schaeffer species.
140. LSP: 1176; LSpPlL 645.
141. Ventenat apparently thought of the fungi depicted in these plates as three separate taxa, but questioned his own judgement.
142. New name for *Peziza nivea* Batsch (BEF: 117).
143. LSP: 1179; LSpPl: 1648.
144. New name for Agaricus fimbriatus Bolton (Bolt: 61); listed also are names by Batsch (1789, and therefore a year after Bolton's) and Dickson.
145. Sch 4: 75, as "iuglandis."
146. New name for *Elvela albida* Schaeffer (Sch 4: 101).
147. New name for *Agaricus dubius* Schaeffer (Sch 4: 56).
148. Sch 4: 122.
149. New name for *Peziza nivea* Batsch (BEF: 117).
150. New name for aggregate of *A. saccharinus* Batsch (BEFC 1: 93) and *A. squamula* Batsch (BEFC 1: 95).
151. Trinomial, illegitimate: Ventenat's name for *A. acris*, q.v.
152. Trinomial, illegitimate: Ventenat's name for *A. camphoratus*, q.v.
153. Ventenat's name for *A. plumbeus*, q.v.
154. Trionomial, illegitimate: Ventenat's name for *A. zonarius*, q.v.
155. Ventenat's name for *Lycoperdon proteus, pro parte*, q.v.
156. New name for *Peziza crucibuliformis* Scopoli (Scop: 486), attributed to Schaeffer.
157. Nomen illegitimum.
158. New name for *Agaricus cinnamomeus* Linnaeus (LSP: 1173).
159. New name for *Elvela ochracea* Schaeffer (Sch 4: 103, pl. 155).
160. New name for *Agaricus hispidus* Batsch (BEF: 81).
161. "Larycis" of index; Rubel in Jacquin, *Ed.* Misc. Austr. 1: 172.

162. Ventenat's name for *Nidularia striata*, q.v., but not attributed to Linnaeus.
163. New name for *Agaricus albus* Schaeffer (Sch 4: 68, pl. 256).
164. New name for *Agaricus tintinnabulum* Batsch (BEF: 67).
165. Ventenat's name for *Agaricus phonospermus*, q.v.
166. New name for *Mucro septicus* Bolton (Bolt: 134).
167. New name for aggregate of Schaeffer's *B. reticulatus* (Sch 4: 78) and *B. cupreus* (Sch: 4: 86); "luteus" not attributed to Linnaeus.
168. New name for *Mucor lycogalus* Bolton (Bolt: 133, pl. 133a).
169. New name for *Elvela clavata* Schaeffer (Sch 4: 100), cited by Bulliard as *Elvela "clavus."*
170. New name for the aggregate of Schaeffer's *A. acicula* (Sch 4: 52), *A. pyramidatus* (Sch 4: 56), and *A. griseus* (Sch 4: 236).
171. Jacquin *in* Jacquin, *Ed.* Miscell. Austr. 1: 142; also *Elvela mesenterica* Schaeffer (Sch 4: 108).
172. New name for the aggregate of Scopoli's *A. truncorum* (Scop: 426) and *A. lignorum* (Scop: 427), both attributed to Schaeffer. Also cited are Schaeffer's *A. fuscescens* and *A. spadiceogriseus*.
173. LSP: 1180, as *Elvela*.
174. Ventenat's name for *Agaricus tigrinus*, q.v.
175. Ventenat's name for *Agaricus ephemerus*, q.v.
176. Bulliard reported that St. Amans was disinterested in his discovery and passed it on to Bulliard.
177. New name for the aggregate of Schaeffer's *A. glutinosus* (Sch 4: 17) and *A. limacinus* (Sch 4: 74).
178. Ventenat's name for *Helvella dimidiata*, q.v.
179. LSP: 1183.
180. New name for Scopoli's *Agaricus scrobiculatus* (Scop: 450), attributed to Schaeffer. Also cited are Schaeffer's *A. torminosus* and *A. crinitus*.
181. New name for the aggregate of Schaeffer's *Elvela inflata* (Sch 4: 102) and *E. pulla* (Sch 4: 104).
182. New name for *Tremella purpurea* Hoffmann (HV: 28).
183. "Nigricans" of index.
184. New name for *Agaricus sphynx* Batsch (BEFC 1: 145).
185. Ventenat's name for *Tuber cibarium*, q.v.
186. New name for *Agaricus semi-globatus* Batsch (BEFC 1: 141). The species appears as *A. "niteus"* of index.
187. New name for *Agaricus bulbosus* Bolton (Bolt: 147).
188. New name for *Agaricus pseudo-boletus* Jacquin (JFA 1: 26, pl. 41).
189. New name for *Agaricus flavo-floccosus* Batsch (BEFC 1: 117).
190. New name for *Sphaeria stigma* Hoffmann (HV 1: 7, pl. II, fig. 2).
191. LSP: 1182; LSpPl: 1652.
192. New name for *Agaricus neptuneus* Batsch (BEFC 1: 161).
193. Ventenat's name for *Lycoperdon proteus, pro parte*, q.v.
194. Ventenat's name for *Agaricus ulmarius*, q.v.
195. New name for *Peziza cinerea* Batsch (BEFC 1: 197, but listed as doubtful).
196. New name for *Agaricus amanitae* Batsch (BEFC 1: 109, pl. 18).

197. New name for several previously named taxonomic concepts, the oldest of which is *Agaricus integer* Linnaeus (LSP: 1171).
198. LSP: 1184; LSpPl: 1654.
199. New name for *Agaricus helvolus* Schaeffer (Sch 4: 48, pl. 210).
200. New name for *Mucor caespitosus* Bolton (Bolt: 132, pl 132, fig. 2).
201. New name for *Agaricus tremulus* Schaeffer (Sch 4: 53, pl. 224, but listed as doubtful). "Petaloides" of Fries (Fr 1: 184).
202. New name for *Agaricus cervinus* Schaeffer (Sch 4: 6, pl. 10).
203. New name for *Sphaeria sanguinea* Bolton (Bolt: 131, pl. 131, fig. 1).
204. New name for *Agaricus atricapillus* Batsch (BEFC 1: 77).
205. "Pygmeus" of index.
206. Ventenat's name for *Agaricus geotropius*, q.v.
207. Ventenat's name for *Agaricus hydrophilus*, q.v.
208. Not to be confused with *A. piperatus* under *A. acris*.
209. LSP: 1182; LSpPl: 1651.
210. Ventanta's name for *Agaricus striatus*, q.v.
211. Ventenat's name for *Agaricus fistulosus*, q.v.
212. Ventenat's name for *Boletus juglandis*, q.v.
213. New name for the aggregate of Schaeffer's *Agaricus armeniacus* (Sch 4: 35) and *A. incertus* (Sch 4: 28).
214. New name for *Lycoperdon bovista* Linnaeus (LSP: 1183), as well as several Schaeffer taxa.
215. New name for *Agaricus ericetorum* Persoon (POM 1: 50).
216. New name for *Agaricus muscarius* Linnaeus (LSP: 1172).
217. New name for *Agaricus oreades* Bolton (Bolt: 151).
218. Ventenat's name for *Agaricus amarus*, q.v.
219. LSP: 1180; LSpPl: 1650.
220. New name for the aggregate of Hoffmann's *Sphaeria disciformis* (HV 1: 15) and *S. bullata* (HV 1: 5, listed as doubtful).
221. LSpPl: 1625.
222. Ventenat's name for *Lycoperdon proteus, pro parte*, q.v. Persoon attributes the name to Willdenow and Schaeffer, but Ventenat gives no such indication.
223. New name for *Boletus ferruginatus* Batsch (BEFC 1: 179).
224. New name for *Agaricus subhepaticus* Batsch (BEFC 2: 77).
225. New name for *Mucor botrytis* Bolton (Bolt: 132, pl. 132, fig. 2).
226. New name for *Agaricus candidus* Bolton (Bolt: 39).
227. New name for *Hydnum coralloides* Scopoli (Scop: 472), attributed to Schaeffer.
228. New name for *Boletus auriformis* Bolton (Bolt: 82, pl. 82).
229. LSP: 1178; LSpPl: 1647.
230. Ventenat's name for *Agaricus dryophilus*, q.v.
231. This name is attributed to Withering (British Plants), but I have not seen the reference. Fries attributed the name to Bulliard.
232. New name for *Agaricus ianthinus* Batsch (BEF: 79); also listed is *A. rubens* Bolton.

233. New name for the aggregate of Schaeffer's *Boletus olivaceus* (Sch 4: 77, pl. 105) and *B. luridus* (Sch 4: 78, pl. 107).
234. New name for *Clavaria elegans* Bolton (Bolt: 115, pl. 115).
235. Ventenat's name for *Agaricus pectinaceus*, q.v.
236. New name for *Boletus rufus* Schaeffer (Sch 4: 75, pl. 103).
237. LSP: 1181; LSpPl: 1651.
238. New name for the aggregate of Schaeffer's *Agaricus melleus* (Sch 4: 20, pl. 45), and *A. pusillus* (Sch 4: 45, pl. 203).
239. New name for *Trichia rufa* Hoffmann (HV 2: 10, as doubtful).
240. New name for Jacquin's *Agaricus niveus* (JFA 3: 48, pl. 288); also listed are *A. depluens* Batsch and *A. flabellatus* Bolton.
241. New name for *Sphaeria mammiformis* Hoffmann (HV 1: 13, pl. 3, fig. 2).
242. New name for *Mucor mucedo* Linnaeus (LSP: 1185).
243. New name for *Hydnum imbricatum* Linnaeus (LSP: 1178).
244. New name for the aggregate of Schaeffer's *A. floccosus* (Sch 4: 27) and *A. pilosus* (Sch 4: 34, pl. 80).
245. LSP: 1184; LSpPl: 1653.
246. A new name for several older named concepts, the oldest of which (but listed as doubtful) is *Agaricus fimetarius* Linnaeus (LSP: 1174). Others listed are Schaeffer's *A. cinereus* (Sch 4: 43, pl. 100), *A. rufocandidus* (Sch 4: 44, pl. 201) and *A. margaritaceus* (Sch 4: 50, pl. 216).
247. New name for the aggregate of Schaeffer's *Elvela hypocrateriformis* (Sch 4: 102, pl. 152) and *E. hispida* (Sch 4: 108, pl. 167).
248. New combination of *Cyathus striata* Hoffmann (HV 2: 33, pl. 8, fig. 3). An older name also listed, however, is *Peziza lentifera* Linnaeus (LSP: 1180). Cf. note 266.
249. New name for *Agaricus plicatus* Schaeffer (Sch 4: 15, pl. 31, as doubtful).
250. New name for *Agaricus semipetiolatus* Schaeffer (Sch 4: 47, pl. 208, as doubtful). "Stipticus" of Fries (Fr 1: 188).
251. LSP: 1177; LSpPl: 1646.
252. New name for *Agaricus atro-squamosus* Batsch (BEF: 81, pl. 6, fig. 27).
253. New name for the aggregate of Schaeffer's *Agaricus cereolus* (Sch 4: 22, pl. 51) and *A. candicans* (Sch 4: 50, pl. 217, as doubtful).
254. The name appears without a description, and is therefore a *nomen nudum*.
255. New name for *Lichen sarcoides* Jacquin (*in* Misc. Austriaca II: 378, pl. 22, as doubtful). The oldest name listed without doubt is *Peziza porphyrea* Batsch (BEF: 127).
256. New name for *Mucor cancellatus* Batsch (BEFC 2: 135). Two polynomial varieties are also listed.
257. New name for *Agaricus alumnus* Bolton (Bolt: 155).

258. Ventenat's name for *Boletus rubeolarius, pro parte*, q.v.
259. New name for *Agaricus sericeus* Schaeffer (Sch 4: 12, pl. 24).
260. New name for *Agaricus ovatus* Scopoli (Scop: 425), attributed to Schaeffer. Also listed are *A. cylindricus* (Sch 4: 5, pl. 8) and *A. porcellaneus* (Sch 4: 21, pls. 46, 47).
261. Sch 4: 88, pls. 137, 138.
262. Dick 1: 25.
263. New name for *Agaricus senescens* Batsch (BEFC 2: 35, pl. 32, fig. 187, as doubtful).
264. New name for *Sphaeria deusta* Hoffmann (HV 1: 3, pl. 1, fig. 2).
265. New name for *Agaricus plumbeus* Schaeffer (Sch 4: 37, pls. 85, 86) without doubt. Also listed as doubtful are *A. fulvus* (Sch 4: 41, pl. 95), *A. hyalinus* (Sch 4: 63, pl. 244) and *A. badius* (Sch 4: 63, pl. 245).
266. New name for *Peziza lentifera* Linnaeus (LSP: 1180). Note also that this name is listed as synonymous with *Nidularia striata*, q.v.
267. This name is listed without description, and is therefore a *nomen nudum*.
268. CFL 5: pl. 312 + text.
269. Ventenat's name for *Agaricus coriaceus*, q.v.
270. Ventenat's name for *Tremella mesenteriformis*, q.v.
271. "Vessicaria" of index.
272. New name for *Peziza cochleata* Linnaeus (LSP: 1181), attributed to Bolton.
273. Name listed without description, and therefore, a *nomen nudum*.
274. Ventenat's name for *Agaricus contiguus*, q.v.
275. LSP: 1173.
276. Ventenat's name for *Peziza callosa*, q.v.
277. New name for *Agaricus pulvinatus* Bolton (Bolt: 49).
278. New name for *Clathrus cancellatus* Linnaeus (LSP: 1179).
279. Ventenat's name for *Agaricus volvaceus*, q.v.
280. New name for *Agaricus fuscus* Schaeffer (Sch 4: 58, pl. 235, figs. 2, 3, 6, as doubtful).
281. "Haematospermus" of Fries (Fr 1: 282).
282. "Cartilagineus" of Fries (Fr 1: 46).
283. "Geophyllus" of Fries (Fr 1: 258).
284. "Molybdinus" of Fries (Fr 1: 49).
285. "Tessulatus" of Fries (Fr 1: 186).
286. "Thejogalus" of Fries (Fr 1: 71).
287. "Gossypinum" of Index and of Persoon (PS: 150)

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GILLETIELLA CHUSQUEAE AND ANTENNULARIA CHUSQUEAE

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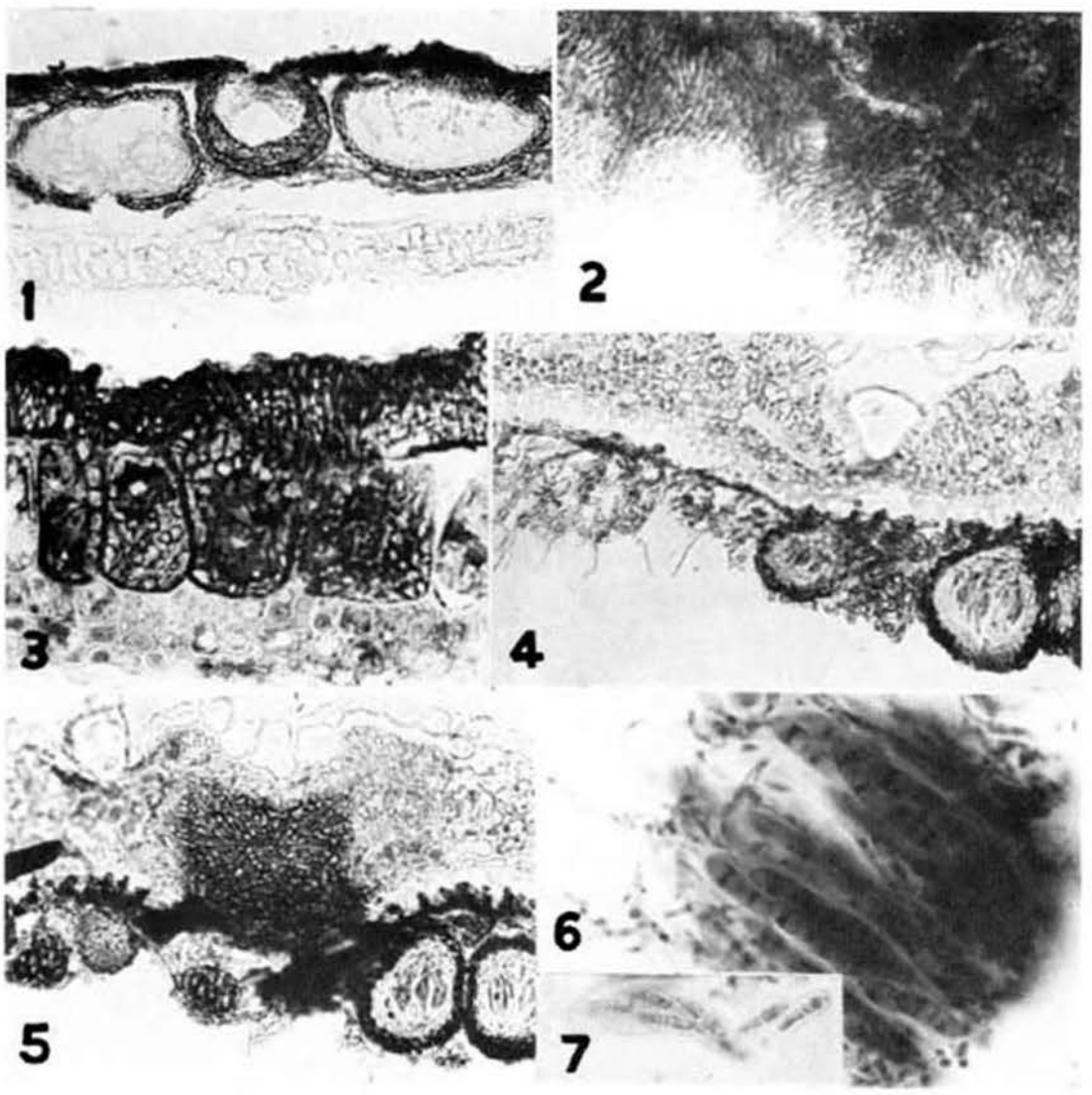
In an earlier paper (Farr, 1966) *Antennularia chusqueae* (Rehm) Farr was shown to consist of a perfect state variously described by earlier authors as *Asteridium chusqueae* Rehm, *Dimerina negeriana* (Henn.) Theissen, and *D. allogena* Sydow, an imperfect state *(Isaria acaricida* Pat.), and a hypostroma. The genus *Antennularia* Reichenb. is currently recognized and classified in the Stigmateaceae Theissen by Arx & Müller (1975). These authors, in the same publication, indicate that *A. chusqueae* is identical with *Gilletiella chusqueae* (Pat.) Sacc. & Sydow.

A reexamination of *Antennularia chusqueae* and comparison with the type and another collection (Sydow Fgi. Exot. Exs. 1202) of *Gilletiella chusqueae* shows that these taxa represent two distinct fungi. Although superficially they appear similar, these fungi differ as follows: The mycelium of the *Gilletiella* is compacted into a flat, shield-shaped crust under which the ascocarps are located, so that the latter are not visible from above - only in sectioned material (FIG. 1). Toward the periphery the stroma consists of closely packed, radially oriented hyphae usually paler at the extremities (FIG. 2). Through a hand lens a colony of this fungus appears as a flat, compact crust slightly raised above the ascomata or locules, with a smooth, sometimes paler margin. Patouillard (in Patouillard & Lagerheim, 1895) and Hansford (1946, in key) considered *G. chusqueae* as microthyriaceous. Theissen & Sydow (1915) present a concise description and illustrations. Patouillard's original diagnosis (Patouillard & Lagerheim, 1895) mentions simple, ovoid "stylospores", and Arx & Müller

(1975) list an *Ascochyta* state; neither Theissen & Sydow (1915) nor Sydow (1939) refer to any imperfect state and I also did not notice any. The hypostroma is relatively shallow and effuse, well-developed only in the upper epidermis (FIG. 3).

In *Antennularia chusqueae* the ascocarps are superficial on a subiculum (FIGS. 4, 5) which consists of hyphae similar to those of *Gilletiella chusqueae* but partly fascicled in strands and elsewhere irregularly interwoven. The colonies thus appear rather "ragged" with frayed margins, and with the centrally located groups of fruiting bodies distinctly visible from above. In well-developed material of the two fungi these structural differences are plainly discernible under low magnifications. On some colonies and microscope slides of the *Antennularia*, the conidial (*Isaria*) apparatus is clearly evident (FIG. 4). The hypostroma forms a central column, penetrating deeply into the mesophyll (FIG. 5). For additional detailed illustrations of *A. chusqueae* see Farr, 1966, FIGS. 1-10.

The fruiting bodies, asci, and ascospores of the *Gilletiella* are larger than those of the *Antennularia* (TABLE 1). The asci are abundantly mixed with sterile filaments (?pseudoparaphyses), while those of the *Antennularia* appear to be aparaphysate, at least at maturity. Sydow (1939) described the spores of the *Gilletiella* as having one septum and often "a delicate partition of the contents of each half, which may be interpreted as a rudimentary septum" [translation from the German]. Actually the ascospores of both fungi have at one time or another been depicted as two- to four-celled (Rehm, 1896; Arx & Müller, 1975). Young spores of the *Antennularia* frequently are four-guttulate, but in the *Gilletiella* even apparently ripe, free spores sometimes appear distinctly four-celled under the 40X interference contrast, dry objective. However, observations under oil immersion, using interference and phase microscopy, revealed the presence of only one true septum per spore. Any divisions of the protoplasm within the halves of the spore were indeed rudimentary. The differences between the *Gilletiella* and the *Antennularia* are summarized in TABLE 1.



FIGS. 1-3. Gilletiella chusqueae, Sydow 1202. 1. Longisection through colony, showing fruiting bodies underneath compact stromatal layer, X200. 2. Edge of stroma, X370. 3. Longisection through stroma and hypostroma, X370. Figs. 4-5. Antennularia chusqueae, Sydow 441. 4. Longisection through colony, showing fruiting bodies on mycelium, and several Isaria conidiophores (left half of picture), X200. 5. Longisection through center of colony, showing hypostroma, X200. Fig. 6. Gilletiella chusqueae. Portion of hymenium (stained), X700. Fig. 7. Antennularia chusqueae, Rehm 1399 (as Dimerina negeriana). Asci and ascospores, X700.

TABLE 1.

Differences between *Gilletiella chusqueae* and *Antennularia chusqueae*

Fungus	Habit	Fruiting Bodies (diam.)	Asci	Ascospores	Conidia
Gilletiella chusqueae	Epiphyllous; fruiting bodies immersed in stroma; hypostroma shallow, effuse.	Ca. 135-160µm	Slender, narrowly oblong-ellipsoid, densely ?pseudoparaphysate; 50-55 X 10-13µm (80 X 10µm, fide Pat.; 70-80 X 10µm, fide Theissen & Sydow).	15-16 X 4-5µm (11-15.5 X 5-6µm, fide Sydow; 20 X 5-6µm, fide Pat.	See text.
Antennularia chusqueae	Hypophyllous; fruiting bodies superficial on subiculum; hypostroma central, deep.	Ca. 45-90µm	Obclavate to ellipsoid, ± expanded below, apparently aparaphysate at maturity; 23-45 X 8-12µm.	7-14 X 2-3.5µm	*Isaria acaricida* Pat.

Antennularia chusqueae is not congeneric with *Gilletiella chusqueae*; its taxonomic position, however, is still uncertain. As previously pointed out (Farr, 1966) it differs in several characteristics from other species of *Antennularia* sensu Müller & Arx (1962). Furthermore, according to Hughes (1970), *Antennularia* is an ambiguous name and, following this disposition, the genus was partly dismantled by Barr (1971) who transferred the venturiaceous species to *Protoventuria* Berl. & Sacc. Possibly *A. chusqueae* could be accommodated in *Protoventuria* subgen. *Capnoda* (Barr) Barr. *Gilletiella* on the other hand, because of its subcuticular ascocarps with radiate wall structure, may belong in the Munkiellaceae, as suggested by M. E. Barr (personal communication).

I thank E. Horak (ZT) and D. H. Pfister (FH) for lending me type material of *Gilletiella chusqueae* for study, and M. E. Barr Bigelow for critically reading the manuscript.

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HYPOXYLON TERRICOLA MILLER DANS LE MIDI DE LA FRANCE, ESPÈCE NOUVELLE POUR L'EUROPE

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SUMMARY

Hypoxylon terricola, known previously from a single collection in Michigan, has been found in three sites in southern France, in each instance under *Cedrus atlantica*.

Au cours des excursions mycologiques dans les Basses Alpes, lors du VIème Congrés Européen des Mycologie (Avignon 19-27 Octobre 1974) nous récoltons pour la première fois sous *Cedrus atlantica* un *Hypoxlyon* aciculicole que nous avons identifié comme *Hypoxylon terricola* Miller.

A la suite de nos recherches en Europe, aux Etats Unis, et en Nouvelle Zélande, il ne nous a pas été possible de trouver trace d'aucune autre récolte d'*Hypoxylon terricola* si ce n'est celle de Smith, 1932, à Whitmore Lake Michigan, laquelle constitue la récolte-type dans l'herbier Julian H. Miller de l'Université de Georgie.

Avec cette dernière nous avons pu faire une confrontation de nos récoltes et confirmer notre détermination: *Hypoxylon terricola* Miller (in Miller, "A Monograph of the World Species of Hypoxylon," Univ. of Georgia Press, Athens, Georgia, 1961).

STROMA superficiellement gris-clair, puis devenant brun foncé une fois mûr, avec ostiole proéminente noire, agglomérant les aiguilles de cèdre et les brindilles en s'étendant de 3 à 15 mm environ de large sur 1,3 mm d'épaisseur (FIGS. 1, 2, 4). PÉRITHÈCES de forme irrégulière, plus ou moins compressés et confluents (300 à 500 µm de diamètre). A la

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coupe (FIG. 1) les parois de 150 µm d'épaisseur environ sont noires et permettent de voir les périthèces plus ou moins immergés dans la chaire du stroma qui demure blanche. ASQUES 140-165 χ 9,5-11 µm (FIGS. 3, 6, 7). SPORES 14-17,5 × 6,5-7,5 µm, obliquement unisériées, fusiformes, entourées d'une enveloppe gélatineuse qui disparait à maturité (FIGS. 3, 5-7). PARAPHYSES septées certaines rameuses de 6-9 µm de large (FIGS. 6, 7). HYPHES brunes du mycélium environ 6 µm de diamètre. HABITAT sur le sol, dans les aiguilles, sous *Cedrus atlantica:* Revest du Bion (800m alt.), Basse Alpes, dept. 18, 20-10-74. Petit Lubéron (1000m alt.), Basse Alpes, le 23-10-74. Forêt des Ecrivains Combattants (1000m alt.), Bédarieux, Hérault, le 16-10-76 et le 4-1-77 (récoltes F. Candoussau).

DISCUSSION

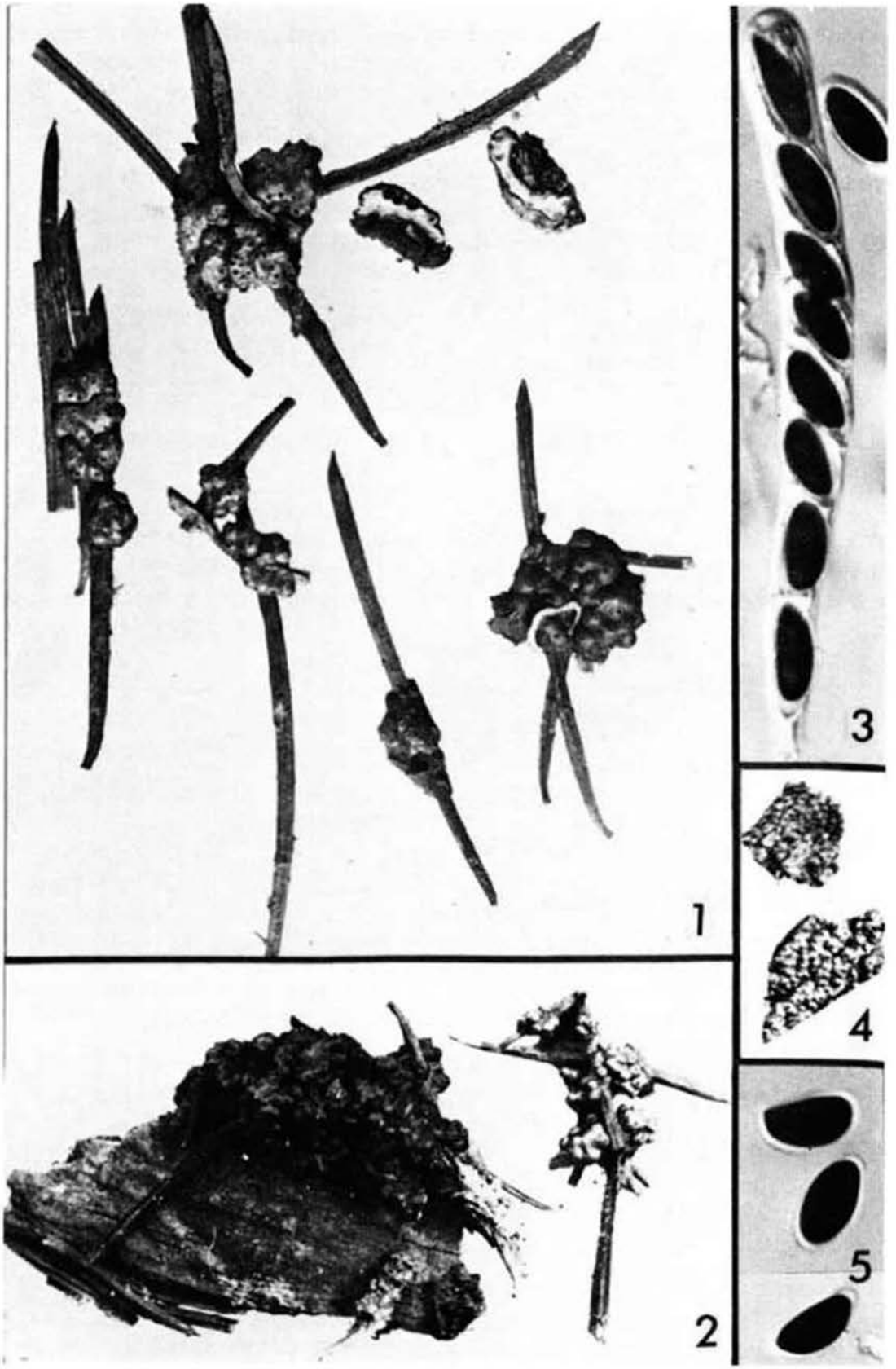
Bien qu'un rapprochement soit à faire avec *Hypoxylon diathrauston* Rehm, en raison de son habitat sur conifères et de ses spores jeunes avec enveloppe gélatineuse, *H. terricola* s'en distingue par son stroma qui épouse les irrégularités du substratum et n'est jamais enforcé ni érumpant, ainsi que par la mensuration de ses spores: 14-17,5 × 6,5-7,5 µm contre 20-36 × 12-18 µm pour *H. diathrauston.*

Si nous comparons nos récoltes françaises avec la récolte type du Michigan, nous les trouvons macroscopiquement identiques. Microscopiquement, la variation des asques en longeur n'étant pas à considérer, nos récoltes s'identifient bien à celle de Smith. En ce qui concerne les paraphyses, Miller les décrit comme "filiforme" nous les avons vues d'un diamètre minimum de 6 µm sur la récolte de Smith comme sur les nôtres. Cette dimension nous paraît trop importante pour la qualifier de "filiforme."

Simplement les récoltes françaises diffèrent légèrement en ce qui concerne *l'habitat* et *l'époque:*

* les conifères de la récolte de Smith dans le Michigan ne sont pas des cèdres, mais semblent être des conifères á aguilles plus courtes;
* aucune de nos récoltes n'ont été faites sur place à feu, comme l'était la récolte de Smith (d'où le nom terricola donné par Miller);
* les trois stations sont en basse altitude 800-1000m a-

FIGS. 1-5, *Hypoxylon terricola,* stromata, ascus et ascospores. 1-3, récolte Françoise Candoussau, 4-1-77, CUP 54957 (= Herb. Candoussau 5285). 1, ×3.5. 2, ×2. 3, ×625. 4-5, récolte Smith, 20 Mai 1932, GAM-Miller 2337. 4, ×2. 5, ×625.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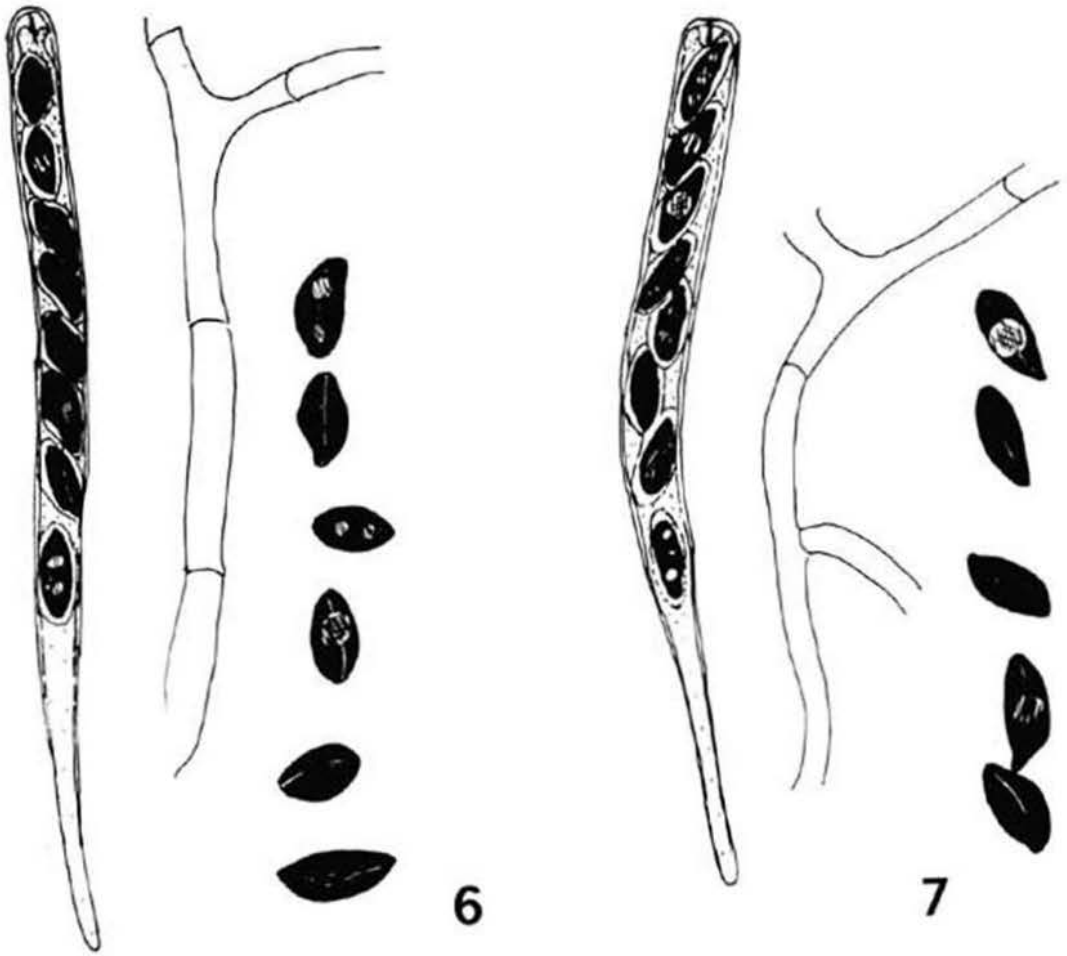

FIGS. 6-7. *Hypoxlyon terricola*, thèques avec huit spores et leur enveloppe gélatineuse-hyaline, portions de paraphyses rameuses, spores mûres, ×625. 6, CUP 54957. 7, GAM 2337.

lors que la station américaine n'est qu'à 270m;

* nos récoltes sont quasi hivernales et récoltés plus tôt les carpophores ne sont pas entièrement murs.

Au sujet de la distribution géographique de cet *Hypoxylon terricola*, nous avons montré notre récolte de Bédarieux au Pr J. A. von Arx qui l'a identifié à *H. terricola* Miller, nous a signalé que le Dr H. A. van der Aa l'avait lui aussi récolté au Petit Lubéron le 23-10-74 durant le VIème Congrés Européen de Mycologie (in litt. 26-11-76) et pensent qu'il s'agit de la première récolte en Europe.

Le Pr Hennebert a également fait une récolte de cet *Hypoxylon* dans les deux localités du Revest du Bion et au Petit Lubéron lors du VIème Congrés Européen de Mycologie (in litt. 17-4-77).

Monsieur G. Malençon ne connait pas *Hypoxylon terricola* en Afrique du Nord ni en Europe (in litt. 23-11-76).

Le Dr Hanlin de l'Université de Georgie nous a répondu: "So far as I am aware, this (the collection of Smith) is the only collection of this species from North America."

Dr Gary Samuels de Nouvelle Zélande, D.S.I.R. Auckland, nous a écrit: "Nous n'avons pas *H. terricola* Miller ici, au moins sous ce nom" (in litt. 5-3-77).

Dr Jack Rogers de Washington State University nous écrit: "As far as I know, *H. terricola* Miller has not been reported in North America since Smith collected it. *However it is very possible that it has been collected and placed in a herbarium without being recorded.*" Pour cette raison nous ne pouvons affirmer qu'il s'agit d'une première récolte depuis la récolte type de 1932.

En conclusion *Hypoxylon terricola* semble largement répandu dans le Midi de la France sous *Cedrus atlantica* où nous l'avons récolté abondamment et un peu partout dans les trois stations citées.

Nous remercions vivement le Dr Jack Rogers, Washington State University et le Dr G. L. Hennebert, Université de Louvain d'avoir lu notre manuscrit et de nous avoir fait part de leurs suggestions.

Nous remercions également le Dr R. T. Hanlin pour le prêt de la récolte type, le Dr. J. A. von Arx pour avoir confirmé notre détermination, le Dr G. Durrieu, Université Paul Sabatier, Toulouse, et Mr H. Lyon, Cornell University, Ithaca, N.Y. de s'être occupés des photographies.

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A NEW SPECIES OF PSORA (LICHENES: LECIDEACEAE) FROM TEXAS AND MEXICO

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SUMMARY

Psora texana, a calcicole saxicolous species characterized by its spherical spores and distinctive, complex chemistry, is described from central Texas, U. S. A., its greater range extending far into Mexico.

PSORA TEXANA W. A. Weber, *sp. nov.*

Thallus senatus interdum flavescens vel viridiflavus vel flavobrunnescens mutabilis, squamulosus, rosulatus, usque ad 3-4 cm diam, squamulis marginalibus usque ad 5 mm diam, planis vel concavis vel convexo-undulatis, marginibus adscendentibus liberis; squamulis interioribus bullatis rugosis inflatis arcte affixis, 2-3 mm diam ("*Thalloedemam*" revocans), subtus pallidis et flavescentibus. Cortex pseudoparenchymaticus, 30-50µm crassus, strato amorpho nullo vel usque ad 5µm crasso, K+ violascens, C+ persistente rufescens, P-, UV-, strato algarum continuo. Medulla flava, compacta, interdum excavata, hyphis 3-4µm diam, C+ ex parte rufescentia, P+ cinnabarina, UV-. Apothecium atropurpureum, sessili, convexi, base plus minusve constricti, margine inconspicuo mox excluso; epihymenio gelatinoso, nec granuloso nec pigmentifero, hymenio rubro-violaceo, 40-50µm alti, I+ vinoso-rubescenti, K-, hypothecio vitreo, hyphis conglutinatis luminibus angustis, ascis clavatis brevibus, usque ad 20x7µm, paraphyses cylindricis, non capitatis, 2-3µm crassis, matrice gelatinoso, sporis 8-nis, unicellularis, hyalinis, sphaericis, 3-4µm diam. Pycnidia punctiformia, depressa, margine ostiolorum aurantiaco, pycnoconidiis rectis vel plus minusve curvatis, 6-7x1µm. Ad saxa calcarea.

Thallus the color of raw sienna, varying toward yellow, reddish, greenish-yellow and yellow-brown, squamulose, forming rosettes up to 3-4 cm diam; marginal squamules up to 5 mm diam, plane, convex-undulate to rarely concave, ascending with free margins; interior squamules bullate, rugose, inflated, tightly affixed, 2-3 mm diam (recalling "*Thalloedema*"), lower corticated surface pale yellowish; upper cortex pseudoparenchymatous, 30-50µm thick, K+ violet, C+ reddish persistent, P-, UV-, amorphous layer lacking or up to 5µm thick; algal layer continuous; medulla yellowish, compact (in very large squamules becoming excavated, the hyphae 3-4µm diam, C+ reddish-brown in spots, P+ cinnabar, UV-. Apothecium black to purplish-black, sessile, highly convex, somewhat constricted at the base, the margin inconspicuous, soon excluded; epihymenium gelatinous, neither granular nor pigmented; hymenium reddish-violet, 40-50µm high, I+ vinose-red, K-; hypothecium of conglutinated vitreous hyphae with very narrow lumina; asci clavate, unitunicate, slightly thickened apically, lacking amyloid fine structures, short, up to 20x7µm; paraphyses stout, cylindrical, not capitate, grading into the vertically oriented tissues of the hypothecium, 2-3µm thick, in a gelatinous matrix; spores 8/ascus, one-celled, colorless, spherical, 3-4µm diam. Pycnidia punctiform, depressed, the ostiolar margin orange or reddish; pycnoconidia straight or slightly curved, 6-7x1µm. Saxicolous, on limestone.

TYPE COLLECTION. Texas, U. S. A. Llano County: Guadalupe River Canyon along Highway 39, 14 mi SW of Ingram on road to Leakey; limestone rimrock along ridge, *Juniperus-Quercus* woodland; forming rosettes on vertical faces of limestone cliffs, 29 April 1974, *W. A. Weber, Lich. Exsicc. COLO No. 448* (Holotype COLO, 59 isotypes distributed).

ADDITIONAL RECORDS. Mexico. Coahuila: on Sierra de San Marcos opposite Los Fresnos, above Cuatro Cienegas Basin, 4 April 1969, *D. K. Pinkava 6162* (ASU, COLO); San Luis Potosi: Canoas, on rocks, 3000 ft. alt., 16 July 1890, *C. G. Pringle 268* (COLO); Tamaulipas: road from Ejido to Casa Piedra near Rancho del Cielo above Gomez Farias, on open surface of a boulder, August 1974, *A. J. Sharp 8720* (ASU, UT); Chiapas: road to El Suspiro, 5-7 km N of Berriozabal, on rocks in scrubby deciduous pasture, mist forest, 920 m, 22 March 1960, *M. E. Hale & T. R. Soderstrom 20.125* (US).

This unique species has been studied independently by several lichenologists including Prof. Rolf Santesson, Mason Hale, Prof. Hannes Hertel and G. Schneider (all unpublished). Dr. Chicita Culberson analyzed the type material and reported (*in litt.*) that "this lichen has an extremely complex chemistry. There are 12 or 13 compounds present in quantities easily detectable by TLC. I am not able to identify any of these compounds with certainty.... Most of them give visible spots on the chromatograms and are probably pigments." Huneck and Follmann (1976) reported this collection to contain Fragilin, Parietin and unidentified anthraquinones.

The rich sienna coloration and discrete squamulose rosettes of this species, its extraordinary chemistry and its spherical spores make *Psora texana* unique. Hertel (*in litt.*) suggests that as the collective genus *Lecidea* becomes better understood, this species may prove to be better classified as a monotypic genus.

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NEW TAXA OF CLITOCYBE

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In the study of specimens for a monograph of the genus *Clitocybe* in North America, a few species have been encountered which do not fit satisfactorily into the established infrageneric taxa of the genus. Thus it has become necessary to erect two new subgenera to accommodate the following new species.

Clitocybe subgenus *Mutabiles* Bigelow, subgenus novum

Pileus violaceo-brunneus ad vinaceo-brunneus, hygrophanus, pallescens. Lamellae violaceo-griseae ad violaceo-brunneae vel vinaceo-brunneae. Stipes concolores pileus vel lamellae. Sporae amyloideae, leves, in cumulo candidae. Hyphis fibulatae. Terricolae.

Typus: *Clitocybe mutabilis* Bigelow

Clitocybe mutabilis Bigelow, species novum

Pileus 1-3(-4.5) cm latus, primum convexus, margine incurvatus, demum planus, saepe striatus, depressus, glaber vel fibrillosus vel furfuraceus, hygrophanus vel subhygrophanus, vinaceo-brunneus, demum pallescens ut opacus. Odor et sapor nulles. Lamellae adnatae tum decurrentes, angustae vel moderate latae, plerumque subdistantes, arcuatae, primum lilacinae dein vinaceo-brunneae, pallescens et plus incarnatae in vetustate. Stipes 2-3(-5.5) cm longus, 2-6 mm crassus, farctus mox cavus, tenax, glaber tum fibrillosus ad furfuraceus vel pruinosus, cum lamellis concolor vel purpureo-griseus, brunnescens. Sporae (6.5-)7-9(-11) x 4-5.5(-6) μm, levis, plerumque amyloideis; hyphis fibulatis. Holotypus legit A. H. Smith, n. 64893, Boulder Lake, Valley Co., Idaho, 17 June 1962 (MICH).

Pileus 1-3(-4.5) cm broad, convex at first with the margin incurved, becoming plane, margin often striate, disc often shallowly depressed, in age the margin sometimes uplifted and the disc more deeply depressed, surface glabrous appearing when moist, fibrillose or sometimes furfuraceous when faded, hygrophanous, shades of brown to vinaceous brown or violaceous when moist, paler when faded or in age (dingy buff to alutaceous or "wood brown"[1] and then opaque); context thin, pliant, concolorous with pileus. Odor and taste not distinctive.

Lamellae broadly adnate at first, becoming short decurrent to long decurrent, narrow to moderately broad (up to 3.5 mm), usually subdistant, arched, forked and intervenose at times, violaceous young ("deep dull lavender"), then violaceous brown to vinaceous brown ("light brownish drab" to "vinaceous drab"), finally paler and more flesh tinged ("light vinaceous fawn"), sometimes darkening in age ("snuff brown").

Stipe 2-3(-5.5) cm long, 2-6 mm thick, equal or either end slightly enlarged, fluted and curved at times, tough, stuffed soon hollow, surface glabrous when moist, later fibrillose to scurfy or pruinose, upper portion concolorous with lamellae or darker ("purple drab," "dark purple drab") brown near base or overall in age, base sometimes with pale lilac mycelium and a few white rhizomorphs.

Spores (6.5-)7-9(-11) x 4-5.5(-6) μm, elliptic to broadly elliptic, sometimes obovate, smooth, amyloid, deposit white. Basidia 33-51 x 6-9 μm, mostly 4-spored, sometimes 1- or 2-spored. Pileus surface subgelatinous appearing in KOH, brownish in KOH at first soon fading to dull vinaceous or brownish pink, finally yellowish, pigment in cell contents or at times very finely encrusted, cutis hyphae cylindric, 1.5-5.5 μm diam, end cells protruding at times; context hyphae cylindric, 3-10 μm diam. Hymenophoral trama of undulate-subparallel hyphae, mostly cylindric, 2-7 μm diam. Oleiferous hyphae occasionally present. Clamp connections present.

Scattered to gregarious. On soil and needles under conifers, occasionally in mountain meadows or at edges of snow banks. June and July, September and October.

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[1]Colors in quotation marks are from Ridgway (1912).

Material examined: Idaho: Bigelow 1950, 1953; Miller 5206, 5309; Smith 5481, 64893 (type), 64983, 65054, 65200, 69100, 71243. Oregon: Smith 18106, 28114. Utah: McKnight F1169. Washington: Bigelow 2086; Imshaug 214. Wyoming: Smith 34304, 34305, 34321, 34332, 34401, 34443, 34448, 34449 (all MICH).

Discussion: *Clitocybe mutabilis* is closely related to *C. cokeri* Hesler which also belongs to subgenus Mutabiles. Both species have very similar colors as well as amyloid spores and clamp connections. From *C. cokeri*, *C. mutabilis* differs by the lack of a farinaceous odor and taste. *Clitocybe mutabilis* is generally a smaller species and does not have a silvery white coating of fibrils on the stipe like *C. cokeri*. On present records of distribution, the two appear to be isolated geographically as *C. cokeri* is known only from Tennessee.

Pseudoclitocybe bacillaris (Pers.) Singer was compared because of its violaceous gills and amyloid spores, but, according to Singer's (1961) examination of the type, Persoon's species has no clamp connections, no encrusting pigments, possibly cheilocystidia, and a long slender stipe. These features are too diverse from *C. mutabilis* to make identity at all likely. *Clitocybe violaceifolia* Murrill was another possibility, but this has nonamyloid spores and was collected on wood.

Clitocybe subgenus *Lazulinae* Bigelow, subgenus novum

Pileus et stipes lazulinus. Lamellae cremeae, interdum marginatae. Pigmentum incrustatum. Sporae leves, inamyloideae. Hyphis fibulatis. Terricolae.

Typus: *Clitocybe lazulina* Bigelow

Clitocybe lazulina Bigelow, species novum

Pileus usque ad 7 cm latus, late convexus ad plus minusve flabellatus, fibrillosus vel ad centrum velutinum, lazulinus. Lamellae decurrentes, angustae vel sublatae, confertae vel confertissimae, cremeae, interdum lazulino-marginatae. Stipes usque ad 7.5 cm longus, 5-12 mm crassus, subclavatus, eccentricus, superficies sursum diffractus, deorsum fibrillosus, lazulinus. Sporae 6.5-8.5 x 5.5-6(-7)

μm, ellipticae ad subglobosae, leves, inamyloideis. Hyphis fibulatis. Carpophoria subcaespitosa apparenter, in foliis putridis in sylvis praecipue quercines montibusque. Holotypus legit Ruth McVaugh (n. 700), 2 Nov 1960, prope Amacueca, Jalisco, Mexico (MICH).

Pileus up to 7 cm broad, convex with a broadly recurved margin to more or less flabelliform, radiate fibrillose on the margin and inward but disc with a few erect fibrillose points under a lens, grey blue (dried: margin "neutral gray" to "gray, n. 6"; darker grey blue inward, "slate gray," "slate color"), disc blackish blue (dried: "blackish slate"). Odor and taste not known.

Lamellae long decurrent, narrow to moderately broad, close to crowded, forked, not intervenose, probably cream color fresh but drying to "warm buff," edges dark blue marginate in places.

Stipe up to 7.5 cm long, apex to 5 mm thick, base subclavate and 12 mm thick, eccentric, surface diffracted scaly at apex, base matted fibrillose, grey blue (dried: "neutral gray" to "slate gray"), apparently solid or stuffed within although presently damaged by larval activity.

Spores 6.5-8.5 x 5.5-6(-7) μm (excluding apiculus), elliptic to broadly elliptic, sometimes subglobose, smooth, walls thickened at times, inamyloid, acyanophilous. Basidia 29-35 x 6-7.5 μm, 4-spored, siderophilous granules absent, some basidia with rod-shaped incrustations at base, sterigmata up to 8 μm long, somewhat ampullaceous. Cystidia absent. Pileus cutis blue in KOH and water, pigment as scattered granules and rods on surface of cutis hyphae when mounted in Melzer's, cotton blue or water. (In KOH the incrustations dissolve or disperse; walls then appear smooth and pale blue.) Cutis hyphae cylindric or slightly inflated, 6-12.5 μm diam, protruding as groups of end cells in places; context hyaline to pale dingy yellowish in KOH, hyphae cylindric or inflated, 2.5-18 μm diam, walls thin or thickened up to 1 μm, smooth. Hymenophoral trama of undulate-subparallel hyphae, cylindric or slightly inflated, 3.5-14 μm diam, walls thin or thickened, some lamellae with blue areas from incrusted pigment on base of basidia and short adjacent hyphae, subhymenium ± dextrinoid. Oleiferous hyphae short, scattered in pileus context and hymenophoral trama.

Subcespitose in humus (presently, one clump of three basidiocarps and two single ones). Known only from the type collection.

Discussion: While it is usually not desirable to describe an agaric from dried specimens, the unusual color of this species seems to justify an exception. The only field notes by the collector are "beautiful grey blue, darker at center of cap top;" the other field characters of the basidiocarp have been determined by observations on the herbarium material. Undoubtedly the dimensions of the pileus and stipe would be larger in fresh specimens than stated in the description.

A search of the literature for a blue *Clitocybe* or *Pleurotus* has not revealed any species at all close to *C. lazulina*. The colors of *C. lazulina* recall *Nolanea* or *Entoloma* as do the marginate lamellae, but there was no indication of angularity or ornamentation to the spores.

ACKNOWLEDGMENTS

I am indebted to Dr. Ruth McVaugh, Dr. Alexander H. Smith, and Dr. Robert L. Shaffer, Director, University of Michigan Herbarium, for the opportunity of studying the specimens which provide the basis of this paper. Dr. Smith also kindly loaned me his notes on *Clitocybe mutabilis*. I would like to thank Dr. L. R. Hesler for his kindness in loaning me specimens of *Clitocybe cokeri*.

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A NON-LICHENIZED SPECIES OF RAMONIA

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Ramonia Stiz. is presently circumscribed to include twelve species of crustose lichens (Vežda, 1966; 1967; 1973), and is characterized by immersed to erumpent apothecia, thin-walled, unitunicate asci lacking iodine reactions, true paraphyses, a margin lined on the inner face with periphysoids, and colorless spores which are either unicellular or septate with uniformly thickened walls and cylindrical cell lumen. Recent opinion (Vežda, 1966; Hale and Culberson, 1970; Poelt, 1973; Sherwood, 1977) favors placing the genus in the Ostropales. *Ramonia* shares a number of morphological features with *Stictis* Pers., differing principally in the lack of crystalline inclusions in the margin, the presence of a distinct lichen thallus, shorter, few-septate, sheathed spores, and the polysporous asci of many of the species.

An erumpent Ascomycete on dry weathered wood, tentatively identified by A. Vežda as "*Ramonia* non lichenisata" is a well-developed and abundantly-fruiting collection which lacks all traces of a lichen thallus but is otherwise referrable to the lichen genus *Ramonia*. The species, which has no name in *Ramonia* and could not be identified from the mycological literature, is here described as a new species, *Ramonia athallina*.

RAMONIA ATHALLINA Sherwood, spec. nov.

Figure 1

Ascocarpi primum immersi, profunde cupulati, 0.3-0.5 mm diam., margine integro, nigro, disco brunneo. Margo in sectione transversali 100 µm crassus, siccus ab hymenio se abrumpens, hypharum pariete 2-4 µm diam., brunneo. Stratum crystallinum abest. Periphysoidea 5-10 x 1.5-2 µm, non ramosae. Paraphyses filiformes, non ramosae, achromae, in iodo non caerulescentes. Asci 70-90 x 10-15 µm, apice non incrassatae, 16-spori. Sporae 65-85 x 1.2-2.0 µm, cellulis 7-12 µm longis, ad septa se disjungentibus et articulos 1-septatis formantibus.

HOLOTYPUS: CUP 55860, Bulgaria, Montes Pirin, sub hospitem Vichren, alt. 1000 m. Ad lignum Pini peuce, A. Vežda, VIII.1966; ISOTYPUS: Herb. Vežda.

Apothecia at first immersed in bleached and decorticated wood, not associated with a lichen thallus, 0.3-0.5 mm diam., becoming partially erumpent, globose, opening by a pore, deeply urceolate, the disc brown, splitting away from the

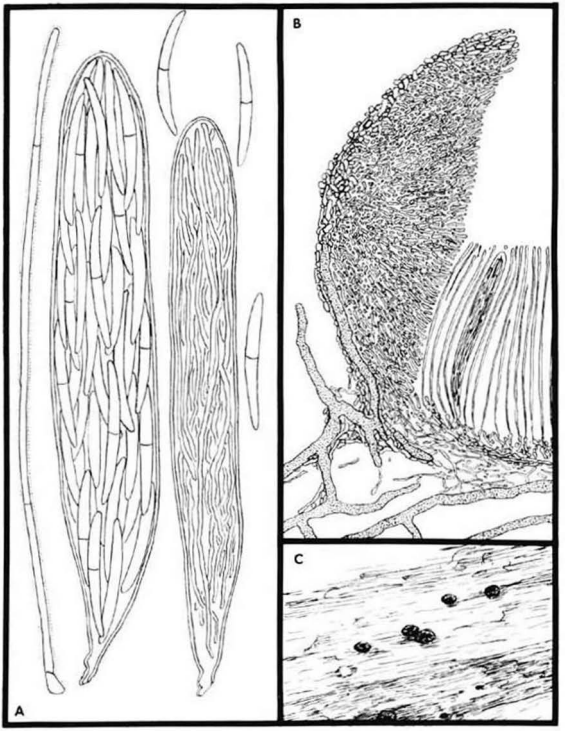

FIGURE 1. *Ramonia athallina*. A. Asci, paraphyses, spores, and part-spores, x1500. B. Cross section of margin, x375. C. Habit sketch, x7.5. Drawn from the holotype.

margin when dry, the margin entire, striate, black and shining, not pruinose.

Margin in cross section ca. 100 µm thick, without any crystalline inclusions, the outermost layer 10-20 µm thick, of thick-walled, dark, more or less isodiametric cells 2-4 µm diam., intermingled with brown amorphous material, not continuing beneath the subhymenium. The remainder of the margin consists of colorless, somewhat gelatinous hyphae 1.5-2.0 µm diam., interwoven, oriented more or less perpendicularly to the surface of the ascocarp and ending in a fringe of unbranched periphysoids 5-10 x 1.5-2 µm. Asci 70-90 x 10-15 µm, clavate, short-stalked, uniformly thin-walled, without an obvious apical mechanism, J-, initially 16-spored. Spores 65-85 x 1.2-2.0 µm, at first three-septate, disarticulating at the septa to form part-spores 16-25 x 1.2-2.0 µm, these eventually becoming 1-septate. Paraphyses numerous, filiform, 1.0 µm broad, barely enlarged above, obscurely sheathed, J-. On decorticated pine wood, Bulgaria.

Ramonia athallina differs in several respects from *R. valenzueliana* (Mont.) Stiz., the holotype of *Ramonia*, and from Vezda's (1966) emended description of the genus. In addition to lacking a lichen thallus, *R. athallina* is anomalous in lacking the J+ reaction of the hymenial gel, and in having unsheathed spores.

Initially polysporous asci exclude *R. athallina* from *Stictis* and *Melittosporiella* Höhn. As nearly as I can determine from light microscope investigations of *R. valenzueliana* (See Sherwood, 1977) and an isotype of *R. micrococca* Vežda, the asci of these two species are also initially polysporous.

ACKNOWLEDGEMENTS

The author wishes to thank A. Vežda for loaning her the specimens of *R. athallina* and *R. micrococca*. William Dress assisted in preparing the Latin diagnosis.

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REDETERMINATION OF THE INDIAN COLLECTIONS OF PLICARIA TRACHYCARPA

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The genus *Plicaria* Fuck. emend. Boud. (Pezizales) is well represented in India. *Plicaria papillosa* Batra, *P. pseudoplanchonis* Batra (Batra, 1960) and *P. himalayensis* Thind & Waraitch (1971) have been well described as new species from this country. *P. trachycarpa* (Curr.) Boud. and *P. carbonaria* (Fuck.) Fuck. have variously been described as *Lamprospora trachycarpa* (Curr.) Seaver and *L. trachycarpa* var. *ferruginea* (Fuck.) Thind & Sethi (1957). The identity of *P. trachycarpa* and *P. carbonaria* has been confused by the Indian workers (Thind & Sethi, 1957; Batra & Batra, 1963) and Indian collections have often been wrongly classified. In fact, all previously described Indian collections belong to *P. carbonaria*, and none represents *P. trachycarpa*.

P. carbonaria and *P. trachycarpa* are quite similar species but the former differs in having much larger warts on the ascospores. The other details in both species, such as colour, measurements of different constituents and anatomical characters resemble each other. This is the reason why various Indian collections have been misidentified. The Indian collections have been restudied, however, and their exact position ascertained.

There are 6 Indian collections in the herbarium of the Botany Department, Panjab University, Chandigarh, India, which have been variously accommodated in *Lamprospora trachycarpa* and *L. trachycarpa* var. *ferruginea*. All 6 collections have been restudied. The two collections from the Mussoorie Hills (Herb. Nos. 135 and 135-A) were placed in *L. trachycarpa* and var. *ferruginea*, respectively, by Thind & Sethi (1957). The variety was said to possess "large and more densely pustulate apothecia" than the typical species. In this, they followed Edith K. Cash (*pers. comm.* with Prof. K. S. Thind) who keeps var. *ferruginea* (Boudier: Icon. Mycol., pl. 306) separate from typical *Plicaria trachycarpa* (Boudier: Icon. Mycol., pl. 305). However, reexamination of both these collections reveals that there is no clear-cut difference in the number or size of tubercules on the external surface of the apothecia. These tubercules are rather prominent and large in both collections. Moreover, the apothecia of Herb. No. 135 are mostly immature, and the apothecia of Herb. No. 135-A are

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bigger otherwise. So it is evident that both the collections are one and the same, a species or a variety. However, due to the bigger size warts of the ascospores, both belong to *P. trachycarpa* var. *muricata* Grelet (= *P. carbonaria*). Further, collection No. CUP-IN 122 (= L.R.B. 114) put by Batra and Batra (1963) under *P. trachycarpa*, along with Herb. No. 135 of Thind and Sethi (1957), should automatically belong to *P. carbonaria* as Herb. No. 135 is *P. carbonaria* and not *P. trachycarpa*. Collection No. 83, also from the Mussoorie Hills, evidently belongs to *P. carbonaria* due to its spore characters.

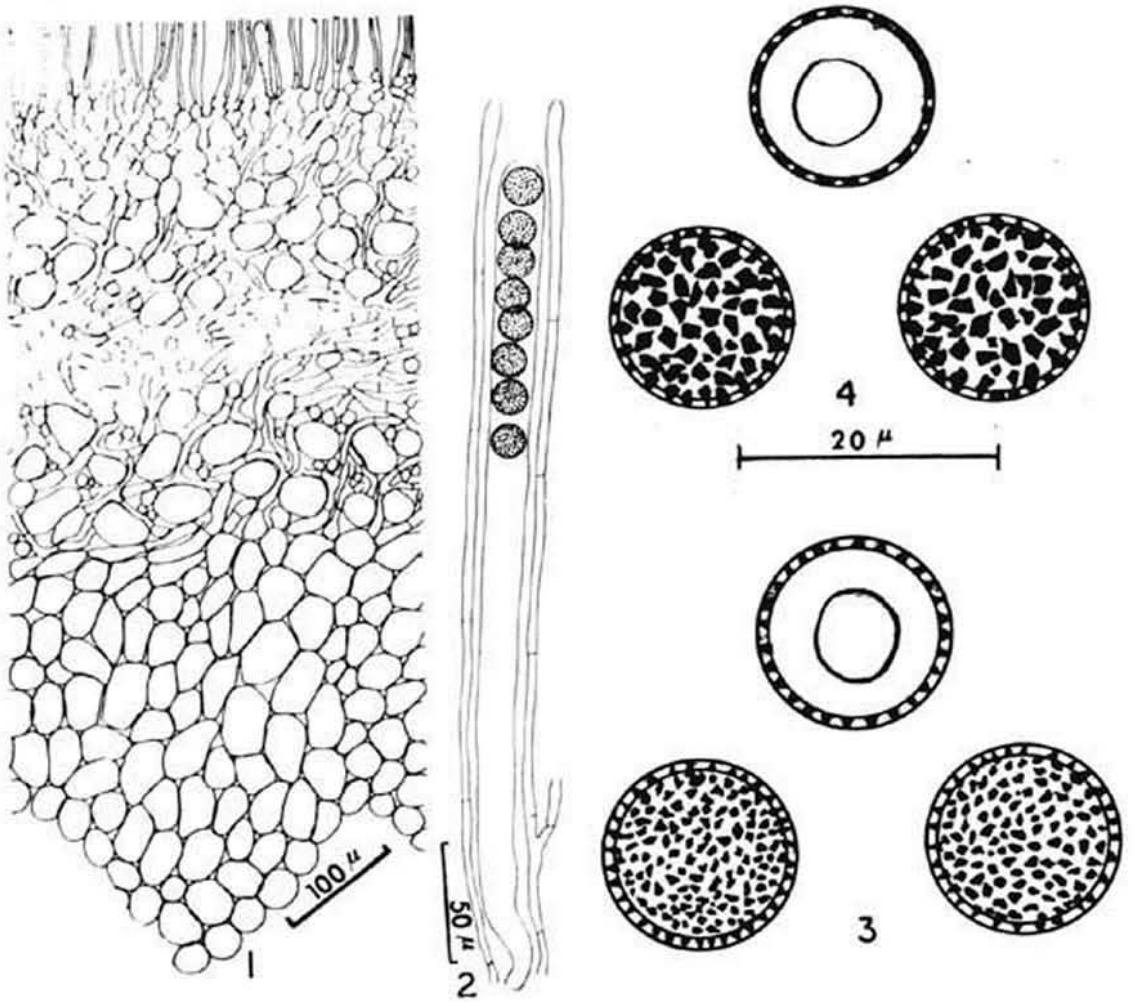
Following Thind and Sethi (1957) the collections from the Simla Hills (Coll. Nos. 152a and 152b, = Waraitch 2428 and 2429, respectively) were accommodated in *Lamprospora trachycarpa* var. *ferruginea* by Waraitch (1962) on the basis of bigger warts on the external surface of apothecia. However, these have also been found to be the same as the above mentioned collections. These collections cannot be separated into groups on the tubercule size on the apothecia or on any other character, external or internal, and all belong to *P. carbonaria*.

Collection No. 153 (= Waraitch 2430), for which a new, but unpublished, variety of *L. trachycarpa* was proposed by Waraitch (1962) is a true *P. trachycarpa* due to the smaller warts of the ascospores, though warts of the apothecia are quite comparable to those of the other Indian collections mentioned above. The same is described here in detail based on Indian collection No. 2430, while important features of Collection Nos. 2428 and 2429 representing *P. carbonaria* are also given.

1. PLICARIA TRACHYCARPA (Curr.) Boudier, Hist. Classif. Discom. d'Eur. 50. 1907.

FIGS. 1-3.

Apothecia up to 2.5 cm in diameter, gregarious to densely so, sessile or rounded below into a short, stem-like base, subglobose at first, later deep (up to 1.5 cm deep) to shallow cupulate, regular to slightly irregular, fleshy; external surface brown to dark brown, slightly lighter than the hymenium, tuberculed; tubercules up to 640 µm high and 900 µm wide at the base, dense, usually more conspicuous near the margin or in young apothecia, pyramid shaped; margin entire, tuberculed; hymenium brown to dark brown, sometimes with a greyish tinge due to deposition of discharged spores, smooth. *Asci* 300-365 × 15.5-19.5 µm, 8-spored, cylindrical, apex obtuse, J +ve. *Ascospores* 13.5-15 µm in diameter including ornamentation and 12.5-14 µm without ornamentation, biseriate at first, uniseriate at maturity, uniguttulate, guttule filling 1/2-3/4 of the ascospore cavity, smooth and hyaline at first, later profusely verrucose and becoming brown, warts 0.4-0.6 µm long, blunt and papillose. *Paraphyses* up to 6 µm wide below, gradually enlarged apically up to 7.5 µm, stout, straight, thin-walled, septate, simple or branched below, brown due to the presence of coloured spherical droplets, projecting up to 25 µm beyond the ascal tips.



FIGS. 1-4. *Plicaria* spp. 1-3. *P. trachycarpa*. 1. V.S. of apothecium showing 3-zoned medullary excipulum. 2. An ascus and paraphyses. 3. Ascospores with papillose warts. 4. *P. carbonaria*. Ascospores with comparatively bigger warts.

Anatomy: Ectal excipulum brown, up to 750 μm thick in region of the tubercule, textura angularis to textura subangularis, cells brownish, up to 70 × 50 μm, somewhat smaller and subglobose on the outside; medullary excipulum differentiated into 3 zones: (a) outermost zone textura subglobulosa, up to 110 μm thick, cells up to 57 × 40 μm, thin-walled, intermixed connecting hyphae up to 16.5 μm wide, thin-walled, septate and branched; (b) middle zone textura intricata, up to 100 μm thick, hyphae like those of interconnecting hyphae of outermost zone but running somewhat horizontally; (c) innermost zone like the outermost zone and almost of the same thickness; hypothecium brown, up to 60 μm thick, densely textura intricata approaching textura subangularis, hyphae up to 20 μm wide.

Waraitch 2430, on soil amid mosses in mixed forest, Chedwick Falls, Simla, Himachal Pradesh, August 18, 1961.

2. PLICARIA CARBONARIA (Fuck.) Fuckel, Jahrb. Nassauischen Vereins Naturk. 23-24: 326. 1870.

FIG. 4.

Apothecia up to 2 cm in diameter, brown, externally tuberculed; tubercules up to 675 µm high and 975 µm wide at the base. *Asci* 245-335 × 15.5-21.5 µm. *Ascospores* 13-14.5 µm in diameter including ornamentation and 10.5-13 µm without ornamentation, brown, uniguttulate, warts up to 1-2 µm long, blunt. *Paraphyses* 6.5 µm wide below and 7.5 µm at the top.

Waraitch 2428, on damp soil in Oak forest, Summer Hill, Simla, Himachal Pradesh, August 27, 1960; Waraitch 2429, on soil amid mosses in Oak forest, Boileau Ganj, Simla, Himachal Pradesh, Sept. 4, 1960.

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A PURPORTED FOSSIL DISCOMYCETE: ASCODESMISITES

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If the art of paleomycological taxonomy is in bad repute (Pirozynsky, 1976), its image is not enhanced by the publication of a monotypic new genus and species, *Ascodesmisites malayensis* Triv., Chat. & Verma (Trivedi *et al.*, 1973). Unfortunately the authors seem to be dead serious, and this is not some humorous hoax (Cryphal, 1956).

Twelve years earlier Trivedi and Chaturvedi (1961) reported finding two new (fortunately unnamed) genera of fungi in Tertiary coal from Malaya. The two fungi are now (Trivedi *et al.*, 1973) considered parts of the same organism (a wholly unconvincing photograph, pl. 1, fig. 1, is the documentation for the statement: "It has now been possible to clearly establish organic link between the asexual and sexual stages ..."). The so-called sexual stages are ill-defined, bulbous structures interpreted as ascogonia and male organs. The authors of these two papers seem convinced that the sexual organs of *Ascodesmis* v. Tiegh. are in some way unique among Ascomycetes; only unacquaintance with the literature of developmental mycology can account for this. The new generic name takes its basis from this supposed resemblance. That they have never seen a species of *Ascodesmis* (*cfr.* Obrist, 1961) is obvious: they report minute "fruiting bodies," illustrated (pl. 1, fig. 5) as an amorphous blob. This is an Ascomycete? The authors recognize that their material differs from *Ascodesmis;* their statement: "The sexual stages though closely related to *Ascodesmis*, differ from the same in one of the most important character, viz. the absence of paraphysis." One could add, a more significant difference is the *absence of asci!* All the filaments and structures illustrated could as well be those of an alga as of a fungus.

Equally unconvincing is the lobed structure that the authors conclude is a conidium. In both papers they propose that this is close to *Desmidiospora* Thaxt. If these are fun-

gal structures at all, they might better be interpreted as appressoria (the material examined was cuticular).

The generic and specific names have been dutifully picked up and accepted as if valid by the *Index of Fungi* (Anon., 1976), as "Fossil fungi, Pezizales." Trivedi *et al.* were not that precise: "... resembles that of members of Pezizinae or Pezizales and Agyriales.... minute fruiting body only reduced by the loss of exciple and paraphysis confirms the Agyrialean affinity of the fossil.... shows a close affinity with the family Pezizaceae...." No matter, for a fungus without asci cannot be described as an Ascomycete (International Code of Botanical Nomenclature, Art. 59). Since asci are lacking, it is conceivable that the generic name is valid for a fossil genus of Hyphomycetes (or of appressoria?). I am pleased to offer the name to my colleagues in such disciplines.

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SYNOPSIS OF A NEW LICHEN GENUS,

FISTULARIELLA Bowler & Rundel (Ramalinaceae)

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SUMMARY

Twenty-seven species in Ramalina sect. Fistularia (Vain.) RÄs., comprising the hollow species in Ramalina sens. lat., are transferred to the new genus Fistulariella Bowler & Rundel.

FISTULARIELLA Bowler et Rundel, nom. et genus nov.

Ramalina stirps Fistularia Vain., Etud. Lich. Brésil, Pars I: 14. 1890.
Ramalina section Fistularia (Vain.) RÄs., Acta Bot. Fenn. 33: 10, 34. 1943.
Ramalina section Bitectae subsection Fistularia (Vain.) Choisy, Bull. Soc. Bot. France 104: 338. 1957.
Ramalina section Bitectae subsection Fistularia (Vain.) Choisy, Bull. Soc. Mycol. France 73: 187. 1957. (comb. inval.)

Lectotype species: Cetraria inflata Hook. f. & Tayl., London Jour. Bot. 3: 646. 1844. (Basionym of Ramalina inflata (Hook. f. & Tayl.) Hook. f. & Tayl., in Hooker f. Fl. Antarct. I: 194. 1844; = Fistulariella inflata (Hook. f. & Tayl.) Bowler & Rundel).

The genus Fistulariella comprises the species previously placed in Ramalina section Fistularia. Plants in this genus are characterized by having a hollow, usually perforate thallus (see Figure 1). In the Ramalinaceae all other genera have solid thalli, with the exception of Cenozosia. The genus Ramalina has a diverse chemical representation that is rich in β-orcinol depsides and depsidones, while Fistulariella is much more restricted containing predominately depsidones (only two depsides have been reported). Fistulariella species are usually fertile; true soredia are rare while Ramalina contains a large proportion of sorediate species (over 30%). Most of the species in Fistulariella are small fragile shrubs, usually cylindrical but occasionally somewhat compressed. A few inflated Ramalina species (such as R. fastigiata, for example) superficially appear fistulate, but, as Krog & Swinscow (1974) note, the hollow aspect of true Fistulariella is always evident. The perforations in the cortex reveal the lumen of the plant.

The cortex of Fistulariella is simple and consists of a rigid tubular sheath of chondroid, longitudinally aligned periclinal prosoplectenchymatous hyphae with a thin external layer of indistinct, branched cells (Figure 2). The thin outer region usually contains granules (readily dissolved in KOH), and is sometimes sparse or absent leaving only the rigid chondroid substructure. This inner layer of supportive tissue is variable in depth, and has internal ridges in some species (see Bowler, 1977; Krog & Swinscow, 1974). The algal cells may be arranged in clumps or as a more or less continuous layer, and the sparse medulla is lax, often adhering to the internal surface of the cortex. Pseudocyphellae are absent (though very common in Ramalina), and the surface of the cortex is smooth and shiny in most species. The apothecia may be terminal or subterminal, frequently either reflexing the branch or bearing a spur. True soredia are rare in this genus (F. roesleri, F. portuensis, F. fimbriata); one species produces granules (F. tapperi). With the exception of F. carpatica, the margin of the apothecia is concolorous. Pycnidia are not common, but are notable in North America in F. almquistii. Melanized pycnidia are characteristic of F. carpatica. Spores are bilocular and may be either curved or straight. Krog & Swinscow (1974) suggest that the ratio of spore width to length is a useful taxonomic character in this group.

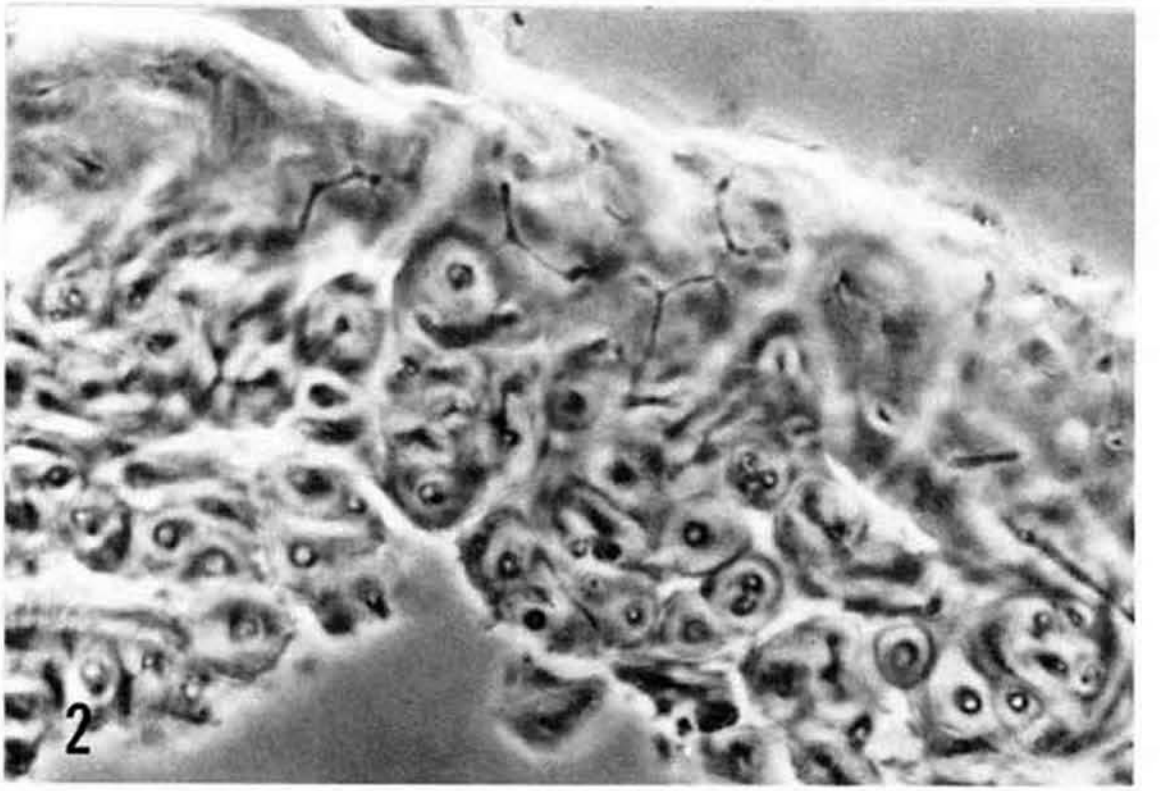
A majority of the species in Fistulariella produce β-orcinol depsidones, usually either sekikaic acid aggregates or divaricatic acid. Chemical races with these substances alternating in occurrence appear in many species groups. A few species contain depsides, and several depsidone producing species possess norstictic or salazinic acid in the hymenium (see Krog & Swinscow, 1974). Overall chemical diversity is very low in comparison with Ramalina sens. str. No acid deficient races or species have been reported. Krog & Swinscow's (1974) excellent study of the genus in East Africa is the only modern treatment of the genus.

At least one species in Fistulariella may produce a primary thallus, otherwise unknown in the Ramalinaceae. A collection from Teneriffe (F. cf. pusilla, Imshaug 36224 in MSC) had immature fistulose shrubs arising from a pale, adnate crust. Several of the largest of these primary thalli (up to ca. 4 mm in diameter) bear as many as a dozen minute fruticose individuals. The development of fruticose thalli from a crust in this manner is similar to Cladina species such as C. rangiferina when possessing a primary thallus and growing upon wood (H. Imshaug, personal communication).

Although most species have a pellucid appearance, Fistulariella carpatica has a shiny cortex that becomes blackened laterally and terminally. Often there is a melanized ring around the apothecial margin similar to the melanized apothecial margins in Trichoramalina and Desmazieria. The tips of the branches are often open and lacerate, appearing as if the tips had exploded. This tendency toward ruptured apices is exhibited by large thalli in other species, such as F. almquistii.

Figure 1. Perforations in the cortex of the cladinaform morphology of Fistulariella almquistii (Scotter 19046 Y-5 in CANL). Figure 2. Cross section of a Fistulariella species under phase at 40 × (W. A. Weber, Lichenes Exsiccati No. 343 sub. Ramalina javanica Nyl. in CANL).


1


2

Recent studies (Krog & Swinscow, 1974, 1976; Østhagen & Krog, 1976) have found a suprising degree of endemism among the Fistulariella. The genus is predominately temperate-boreal in affinities, occurring in both the Northern and Southern Hemispheres. With the exception of East African species, taxa in Fistulariella are poorly studied. Undoubtedly many more species will be described as the floras of other areas become better known.

It is not surprising that an isolated genus with close natural affinities has developed in the Ramalinaceae, which is now known to exhibit diverse anatomical and morphological radiations (Bowler, 1977). Many unrelated families have representatives with a fruticose growth form and hollow branches. Familiar examples from the temperate zones are Cladina, Cladonia, Dactylina and Thamnolia.

Fistulariella abyssinica (Nyl.) Bowler & Rundel, comb. nov. Basionyn: Ramalina abyssinica Nyl., Bull. Soc. Linn. Normand., Ser. 2, 4: 169. 1870.

Fistulariella almquistii (Vain.) Bowler & Rundel, comb. nov. Basionym: Ramalina almquistii Vain., Arkiv för Bot. 8: 17. 1909.

Fistulariella calcarata (Krog & Swinsc.) Bowler & Rundel, comb. nov. Basionym: Ramalina calcarata Krog & Swinsc., Norw. Jour. Bot. 21. 115. 1974.

Fistulariella carpatica (Körb.) Bowler & Rundel, comb. nov. Basionym: Ramalina carpatica Körb., in Fritze & Ilse, Verhandl. zool.-bot. Wien 20: 501. 1870.

Fistulariella consanguinea (Müll. Arg.) Bowler & Rundel, comb. nov. Basionym:Ramalina consanguinea Müll. Arg., Flora (Jena) 68: 501. 1885.

Fistulariella fimbriata (Krog & Swinsc.) Bowler & Rundel, comb. nov. Basionym: Ramalina fimbriata Krog & Swinsc., Norw. Jour. Bot. 21: 117. 1974.

Fistulariella fissa (Müll. Arg.) Bowler & Rundel, comb. nov. Basionym: Ramalina inflata var. fissa Müll. Arg., Flora (Jena) 71: 203. 1888. Synonym: Ramalina fissa (Müll. Arg.) Vain., Mémoir. Herbier Boissier No. 5: 2. 1900.

Fistulariella geniculata (Hook. f. & Tayl.) Bowler & Rundel, comb. nov. Basionym: Ramalina geniculata Hook. f. & Tayl., London Jour. Bot. 3: 655. 1844.

Fistulariella inflata (Hook. f. & Tayl.) Bowler & Rundel, comb. nov. Basionym: cetraria inflata Hook. f. & Tayl., London Jour. Bot. 3: 646. 1844. Synonym: Ramalina inflata (Hook. f. & Tayl.) Hook. f. & Tayl., in Hooker f. Fl. Antarct. I: 194. 1844.

Fistulariella intricata (Kremp.) Bowler & Rundel, comb. nov. Basionym: Ramalina intricata Kremp., Verhandl. zool.-bot. Gesell. Wien 26: 438. 1876.

Fistulariella javanica (Nyl.) Bowler and Rundel, comb. nov. Basionym:

Ramalina javanica Nyl., Bull. Soc. Linn. Normand., Ser. 2, 4: 167. 1870.

Fistulariella minuscula (Nyl.) Bowler & Rundel, comb. nov. Basionym: Ramalina minuscula Nyl., Bull. Soc. Linn. Normand., Ser. 2, 4: 164. 1870.

Fistulariella panizzei (De Not.) Bowler & Rundel, comb. nov. Basionym: Ramalina panizzei De Not., Giorn. Bot. Ital., anno II, Parte I, tomo I: 211. 1846.

Fistulariella pitardii (Hue) Bowler & Rundel, comb. nov. Basionym: Ramalina pitardi Hue, Bull. Soc. Bot. France 58, Mèmoir no. 22: 23. 1911.

Fistulariella pocsii (Krog & Swinsc.) Bowler & Rundel, comb. nov. Basionym: Ramalina pocsii Krog & Swinsc., Norw. Jour. Bot. 23: 109. 1976.

Fistulariella portuensis (Samp.) Bowler & Rundel, comb nov. Basionym: Ramalina portuensis Samp. Bol. Soc. Broteriana 2(2): 179. 1924.

Fistulariella pumila (Mont.) Bowler & Rundel, comb. nov. Basionym: Ramalina pumila Mont., Annal. Scienc. Nat., Bot., Ser. 2, 20: 356. 1843.

Fistulariella pusilla (Le Prév.) Bowler & Rundel, comb. nov. Basionym: Ramalina pusilla Le Prév., in Duby, Bot. Gallic. 2: 614. 1830.

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Fistulariella subpusilla (Nyl.) Bowler & Rundel, comb. nov. Basionym: Ramalina geniculata Hook. f. & Tayl. *R. subpusilla Nyl., Bull. Soc. Linn. Normand., Ser. 2, 4: 164. 1870. Synonym: Ramalina subpusilla (Nyl.) Krog & Swinsc., Norw. Jour. Bot. 23: 173. 1976.

Fistulariella tapperi (Krog & Swinsc.) Bowler & Rundel, comb. nov. Basionym: Ramalina tapperi Krog & Swinsc., Norw. Jour.Bot. 21: 121. 1974.

Fistulariella tasmanica (Nyl.) Bowler & Rundel, comb. nov. Basionym: Ramalina tasmanica Nyl., Bull. Soc. Linn. Normand., Ser. 2, 4: 162. 1870.

Fistulariella translucida (Krog & Swinsc.) Bowler & Rundel, comb. nov. Basionym: Ramalina translucida Krog & Swinsc., Norw. Jour. Bot. 21: 123. 1974.

Fistulariella turgida (Kremp.) Bowler & Rundel, comb. nov. Basionym: Ramalina turgida Kremp., Verhandl. zool.-bot. Gesell. Wien 26: 437. 1876.

The Fistulariella in North America are poorly understood, thus only a preliminary key and diagnostic notes can be provided prior to the completion of further studies. Relatively few species in this genus have been reported from North America, and some reports probably represent undescribed taxa.

Two sorediate species of Fistulariella are described for North America. The most widespread of these is F. roesleri, a polymorphic taxon including a divaricatic and a sekikaic acid race. This species, whose North American distribution was mapped by Hale (1969), is most abundant along the coastal margins of its range, extending as far south as northern California on the west coast and Maine on the east coast. Sorediate Fistulariella from maritime rocks in Alaska are F. scoparia. This taxon can be separated from F. almquistii, a sympatric saxicolous species, by its maculiform or rarely labriform soredia and the possession of sekikaic acid aggregates (Degelius, 1937; Krog, 1968). Fistulariella almquistii is predominately saxicolous with a Beringian distribution of decreasing frequency in North America (Thompson, 1972). At least two taxa are currently lumped in this species group (Krog, 1968). F. almquistii sens. str. is a coarse plant with lateral apothecia, pale (rarely superficially melanized) pycnidia, and a glossy opaque cortex. A terricolous inland form is much smaller, lacks apothecia and pycnidia, and has a translucent cortex. This undescribed taxa (see Figure 1) morphologically resembles a Cladina species, and often grows in caespitose clumps on the tundra. It appears to have a species pair relationship with F. almquistii. Krog (1968) reported divaricatic acid or unidentified substances from this complex.

Taxa referred to F. inflata and F. geniculata in North America, both containing divaricatic acid, need to be compared with Southern Hemisphere populations. Several authors have considered these two taxa to be conspecific (Howe, 1914; Landrón, 1972). In North America taxa associated with this complex have an oceanic distribution along the Pacific coast (see Du Rietz, 1929) from central California north to British Columbia and inland to the Canadian Rockies. Landrón (1972) reports F. inflata from the west Indies. Fistulariella minuscula, a widespread boreal species (Hale, 1969), is very poorly understood. It appears to merge with the larger F. inflata auct. (and F. geniculata auct.), at its western limit, while northeastern plants resemble typical European material. North American populations of this species contain divaricatic acid. Finally, a strongly inflated, robust species of Fistulariella, presently undescribed, occurs infrequently from central California north into British Columbia and east into Idaho and the Canadian Rockies. This taxon is characterized additionally by its sparse branching. Chemically it contains divaricatic acid. More study is needed to properly define this new taxon.

Ramalina obtusata (Arn.) Bitt., present in North America, has recently been placed in the section Fistularia (Krog and James, 1977). Although this taxon is clearly fistulose, fenestrations are few and differ somewhat from those of typical Fistulariella. Extreme morphological variability also complicates interpretation of this taxon. For these reasons, we prefer to provisionally retain the species in Ramalina, pending more detailed studies.

A PRELIMINARY KEY TO FISTULARIELLA IN NORTH AMERICA

1. Thallus sorediate

    2. Thallus typically corticolous, finely branched with multifid-dendroid branch tips; boreal and Pacific coast distribution. F. roesleri

    2. Thallus saxicolous, coarse and tubular branches with maculiform soredia; Pacific coast of Alaska. F. scoparia

1. Thallus esorediate

    3. Thallus corticolous; boreal and Pacific coast distribution

        4. Thallus relatively compressed, abundantly branched.

            5. Thallus small (typically less than 20 mm); branching compact; typically northeastern United States, Canada, and Great Lakes region, but merging with the F. inflata - geniculata complex in Canada. F. minuscula

            5. Thallus larger (commonly over 20 mm), branching open; Pacific Coast and northern Rocky mountains. F. inflata auct. (including F. geniculata auct.)

        4. Thallus strongly inflated and robust; sparsely branched; apothecia very broad; Pacific coast and northern Rocky Mts. F. sp. (undescribed).

    3. Thallus saxicolous or terricolous; Beringian distribution, coarse.

        6. Saxicolous; thallus branches coarse; lateral apothecia and pale pynidia common. F. almquistii (typical form)

        6. Terricolous; thallus branches cladinaform; sterile. F. almquistii (Sterile form)

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REVUE DES LIVRES

par

G. L. HENNEBERT

LICHEN FLORA OF THE ANTARCTIC CONTINENT AND ADJACENT ISLANDS, par Carroll W. DODGE, xxiv + 399 p., 8°, relié toilé, 1973. Phoenix Publishing, Canaan, New Hampshire 03741, USA. Prix non indiqué.

Cet ouvrage est la somme de 35 années d'exploration et de recherches sur les nombreux échantillons récoltés sur le continent antarctique depuis la seconde expédition de l'amiral Rchard E. Byrd en 1938-39 à laquelle l'auteur a participé. Quatre cent quarante six espèces de lichens sont ici rassemblées, selon leur ordre systématique, avec une nomenclature largement revue, des descriptions détaillées et les indications précises de localité et d'habitat. La nature du texte et l'absence d'illustration des espèces et même de carte géographique font de cet ouvrage un outil pour spécialistes, mais ceux-ci regretteront peut-être de ne pas disposer des références aux herbiers en face des récoltes citées. Le taxonomiste y trouvera de nombreuses nouvelles espèces, nouvelles combinaisons et noms nouveaux.

ORDEN PEZIZALES, par Irma J. GAMUNDI DE AMOS, in FLORA CRIPTOGAMICA DE TIERRA DEL FUEGO, édité par S. A. GUARRERA, I. J. GAMUNDI DE AMOS et D. RABINOVICH DE HALPERIN, tome X, fasc. 3, 185 p., 53 pl., 8°, broché, 1975. Fundación para la Educación, la Ciencia y la Cultura, Moreno 431, Buenos Aires, Argentina. Prix non indiqué.

Madame Gamundi présente un relevé descriptif et illustré de toutes les espèces de Pezizales récoltées à ce jour à la Terre de Feu. En 1960, 17 espèces seulement étaient connues, récoltées par Spegazzini, Berkeley, Rehm, Bresadola, Bommer et Rousseau et l'auteur. Depuis lors, six expéditions de l'auteur ont porté le nombre des espèces à 54, dont 5 espèces, 1 variété et 1 combinaison nouvelles. Sa classification se base sur celle de Boudier, modifiée par Mme Le Gal et par Dennis. Les descriptions et les illustrations de pleine page de chaque espèce sont excellentes. Ce livre de qualité devra se trouver dans les mains de tous les discomycétologues.

FUNDAMENTALS OF MYCOLOGY, par J. H. BURNETT, seconde édition, xiv + 673 p., ill., 8°, relié toilé, 1976. Edward Arnold Publishers Ltd, 25 Hill Street, London W1X 8ll. Prix £ 27.50.

La première édition de FUNDAMENTALS OF MYCOLOGY fut fort bien accueillie parce que, différant des traités taxonomiques traditionnels, elle donnait une autre vue d'ensemble sur la structure, la croissance, les fonctions, le comportement génétique

et l'évolution des champignons. De grands progrès ont été réalisés depuis dix ans en ces divers domaines. L'auteur nous présente un texte largement revu et augmenté, avec le désir qu'il stimule encore le progrès de la mycologie. En effet, il n'est pas une page du livre où l'auteur ne mette en évidence la limite de nos connaissances actuelles ou de nouvelles perspectives de recherche. De cette manière son livre sera l' heureuse "provocation" que souhaite l'auteur. Par ailleurs, ce livre est essentiel pour un enseignement de la mycologie qui ne se veut pas purement taxonomique. Enfin il constituera pour le biochimiste et le généticien une excellente introduction au monde des champignons.

MONOGRAPHIE DES TYPHULA FR., PISTILLARIA FR. ET GENRES VOISINS, par Jacques BERTHIER, Bulletin de la Société linnéenne de Lyon, numéro spécial, septembre 1976, 214 p., 39 pl., 2 pl. col. h.t., 8°, broché, 1976. Société linnéenne de Lyon, 33 rue Bossuet, 69006 Lyon. Prix non indiqué.

L'auteur revoit l'ensemble Typhula-Pistillaria dans ses aspects morphologiques anatomiques cytologiques et culturaux et propose une classification plus naturelle des 71 espèces qu'il accepte, dont 29 ont été récoltées par lui-même en France. Son étude se base aussi sur l'examen de 60 spécimens types d'espèces, dont il a analysé l'anatomie. En effet c'est dans l'anatomie des carpophores que l'auteur trouve les caractères-clés de sa classification. Son système dépasse dès lors ceux de Bourdot et Galzin et de Corner. Le genre Typhula, qui dans sa conception stricte ne devrait plus comporter que son espèce type, T. phacorrhiza, est élargi pour comprendre en plus les sous-genres Pistillaria, Pistillina, Gliocoryne, Typhulina, Microtyphula et Cnazonaria, soit un total de 63 espèces. En outre 4 espèces de Macrotyphula, 3 de Ceratellopsis et 1 de Pterula sont décrites. Les descriptions sont méthodiques et incluent la description du carpophore (clavule, stipe, spores, basides, poils, sclérote), les caractères mycéliens et culturaux (hétérothallie, état nucléique, germination, conidiogénie, croissance mycélienne, activité enzymatique), l'habitat, la littérature et des commentaires sur la synonymie et les affinités. Les illustrations au trait et en couleurs sont de qualité. Le lecteur ne sera pas dérouté par la minutie des caractères à observer: l'auteur lui explique et illustre les concepts anatomiques nouveaux qu'il utilise et fournit des méthodes simples d'observation. Ce travail s'impose par sa qualité, non seulement à ceux qu'intéressent les Clavariacées mais aussi à titre d' exemple d'étude monographique.

LES LACTAIRES par J. BLUM, Etudes mycologiques, vol. 3, 372 p., 94 fig., 16 pl. col., 12x18, relié, 1976. Editions Lechevalier, rue Augereau 19, Paris. Prix 90 FF.

L'auteur propose au mycophile une monographie des lactaires de France, intentionnellement basée sur les caractères macroscopiques observables sur le terrain. Les caractères microscopiques de dimension et d'ornementation des spores ne sont donnés qu'à des fins de contrôle d'identification. De cette manière, il espère attirer l'attention de l'amateur sur ce genre . Sa nomenclature suit celle de Kühner et Romagnesi plutôt que celle de Neuhoff, non qu'il rejette celle-ci mais parce qu'il juge la connaissance des lactaires encore trop fragmentaires pour qu'un accord entre les

iiverses nomenclatures puisse être atteint au delà des "modes locales". 96 espèces sont décrites. 22 sont dépeintes en couleurs, quelques autres en blanc-noir.

PINE STEM RUSTS OF CANADA, par Yasuyuki HIRATSUKA et John M. POWELL, Forestry Technical Report n° 4, 104 p., 41 fig. col. et b.n., 20 cartes, 8°, broché, 1976. Department of the Environment, Canadian Forestry Service, 171 Slater Street, Ottawa. Prix non indiqué.

Des 20 espèces de rouille du Pin, cinq espèces de Cronartium et une espèce d'Endocronartium sont les causes des rouilles de la tige des Pins du Canada. Ces rouilles de la tige sont désastreuses dans la culture du Pin et en particulier du Pin blanc. Ce livre apparaît surtout comme un guide pour l'identification de ces parasites dans chacun de leurs stades de développement, grâce à une excellente iconographie. L'épidémiologie des maladies, les dommages causés et les méthodes actuelles de lutte sont brièvement exposées, suivies d'une importante bibliographie.

STUDIES ON CERCOSPORA AND ALLIED GENERA. VI. PSEUDOCERCOSPORA SPEG., PANTOSPORA CIF. AND CERCOSEPTORIA PETR., par F. C. DEIGHTON, Mycological Papers, n° 140, 168 p., 87 fig., 6 pl. broché, 1976. Commonwealth Agricultural Bureaux, Farnham Royal, Slough SL2 3BN, England. Prix £ 5.00.

L'étude de Cercospora, un des genres les plus larges des Hyphomycètes, amène l'auteur à revoir chaque espèce et la reclasser en des genres séparés, Pseudocercospora, Pantospora et Cercoseptoria. Un des critères génériques essentiels de cette ségrégation consiste dans l'épaississement de la cicatrice conidienne sur la cellule conidiogène du conidiophore. 204 nouvelles combinaisons sont établies, en plus des 24 espèces nouvelles décrites. 2 noms nouveaux sont aussi proposés.

THE GENERA OF YEASTS AND THE YEAST-LIKE FUNGI, par J. A. von ARX, L. RODRIGUES DE MIRANDA, M. Th. SMITH et D. YARROW, Studies in Mycology n° 14, 42 p., broché, 1977. Centraalbureau voor Schimmelcultures, Baarn, Nederland. Prix 15 Fl.

Ce fascicule des STUDIES IN MYCOLOGY contient une importante mise à jour des genres de levures et champignons levuriformes autres que noirs. 78 genres, classés par ordre et par famille, sont revus et commentés. La synonymie, les caractères génériques, les espèces acceptées, les espèces à rejeter, les affinités intergénériques, les connections des stades parfaits et conidiens et la littérature récente sont donnés pour chacun d'eux. Les levures à asques sont classées dans les Endomycetales (familles Endomycetaceae, Ascoidaceae, Saccharomycodaceae, Saccharomycetaceae, Metschnikowiaceae, Schizosaccharomycetaceae). Les levures à affinité aux basidiomycètes forme l'ordre des Sporobolomycetales (familles Sporobolomycetaceae et Filobasidiaceae). Les levures imparfaites constituent l'ordre des Torulopsidales et la famille unique Torulopsidaceae. Dans cette dernière, le nouveau genre Selenozyma Yarrow est crée. De nombreuses combinaisons et synonymies nouvelles sont aussi établies.

CHLORIDIUM AND SOME OTHER DEMATIACEOUS HYPHOMYCETES GROWING ON DECAYING WOOD, par Walter GAMS et Vera HOLUBOVA-JECHOVA, Studies in Mycology n° 13, 99 p., 52 fig., broché, 1976. Centraalbureau voor Schimmelcultures, Baarn, Nederland. Prix 30 Fl.

Douze espèces du genre Chloridium sont décrites et illustrées. Sept d'entre elles sont les stades conidiens de Chaetosphaeria. Quatre espèces de Cylindrotrichum sont décrites, une d'entre elles avec la forme parfaite Chaetosphaeria. De même quatre espèces de Gonytrichum dont deux appartiennent à Chaetosphaeria. Le Fascicule contient en outre 1 espèce de Codinaea, 2 de Exochalara, 9 de Phialophora, 3 de Chalara, 1 de Fusichalara et 2 dans le nouveau genre Phaeostalagmus W. Gams.

FUSARIUM, LABORATORY GUIDE TO THE IDENTIFICATION OF THE MAJOR SPECIES, par Colin BOOTH, Publication C.M.I., 58 p., 112 fig., 4°, broché, 1977. Commonwealth Agricultural Bureaux, Farnham Royal, Slough SL2 3BN England. Prix £ 2.5o (U.K.), £ 3.oo (étranger).

Une heureuse initiative du Dr Booth de publier ce guide illustré pour l'identification de 29 espèces communes de Fusarium. De tous temps, l'image a été un moyen de représentation et de communication efficace. L'auteur en fait usage: les diagnoses synoptiques laissent la place aux dessins et photographies. Cependant ce guide ne serait qu'un album s'il n'y avait la clé dichotomique. Mais celle-ci est difficile: elle utilise des caractères que le débutant devra malheureusement apprendre lui-même à observer et à évaluer. La distinction entre l'ontogénie des microconidies et celles de certaines macroconidies "primaires" sur des polyphialides ou des cellules conidiogènes polyblastiques n'est pas aisée et eut mérité quelques mots d'explication et une illustration démonstrative. De même les 10 formes différentes des cellules basales ou apicales des conidies indiquées dans la clé auraient beaucoup gagné à être illustrées. Enfin l'arrangement des espèces, que l'auteur n'a pas voulu alphabétique, ne dut-il pas suivre alors celui de la clé? Il n'empêche que ce guide s'avèrera utile.

TAXONOMIC LITERATURE. A SELECTIVE GUIDE TO BOTANICAL PUBLICATIONS AND COLLECTIONS WITH DATES, COMMENTA IES AND TYPES. Vol. I: A-G. par F. A. STAFLEU et R.S. COWAN, 2e édit., 1136 p., 8°, relié toilé, 1976. Bohn, Scheltema & Holkema, Emmalaan 27, Utrecht, Nederland. Prix US $100.oo. (80.oo pour usage privé).

Ce monumental travail est le premier volume de quatre constituant une revision très élargie de l'ouvrage de F.A. Stafleu publié en 1967. Cette seconde édition comprendra un beaucoup plus grand nombre de noms de botanistes, y compris les cryptogamistes et les mycologues, qui jusqu'en 1940 ont publié 3 noms de genres au moins, et fournit pour chacun d'eux de plus amples informations: biographie, sources biographiques, éponymie (noms de genres ou de journaux basés sur le nom d'auteur), ouvrages majeurs avec dates précises de publication, herbiers et exsiccata, abréviation des noms et titres d'ouvrages. Par l'inclusion de plus nombreux mycologues, cette édition retiendra l'attention. Sans aucun doute un tel ouvrage devra se trouver à la disposition de tous.

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TERMS FOR STATES AND FORMS OF FUNGI, THEIR NAMES AND TYPES

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In analyzing the nomenclature of pleomorphic imperfect fungi, Hennebert (1971) proposed the term a n a t o m i c a l to contrast with b o t a n i c a l for denoting the different systems of naming taxa of different kinds. An attempt to extend his analysis to the nomenclature of all perfect and imperfect fungi has revealed the usefulness of certain other terms, as will be seen below.

Obviously, what is called the botanical system of nomenclature is the primary system of the International Code of Botanical Nomenclature (ICBN), with botanical names applied to botanical taxa. In the context of this analysis, what is significant in the botanical system is that the ultimate unit of every botanical taxon is an "individual plant" (Art. 2, ICBN 1972). And an individual plant or organism is an organism as a whole, in all its facets, forms and potentialities, latent or expressed. For the purpose of this discussion, we shall refer to a whole organism as a h o l o m o r p h (from Gk ὅλος: holos – entire).

It is holomorphs that are grouped in botanical taxa, to which botanical names apply. These names are required by the ICBN to be based on nomenclatural types, but the type of a botanical name is not necessarily a holomorph. A nomenclatural type (Art. 7) is "any constituent element ... not necessarily the most typical or representative." In the case of the name of a species, the type specimen is not necessarily a complete organism, not necessarily representing all its forms or all phases of its life cycle, nor even its most typical or characteristic parts. It may be an organism in a state of reproduction or a phase of vegetative growth, a specimen complete or incomplete, fertile or sterile, sexual or asexual. Although "the application of names of taxonomic groups is determined by means of nomenclatural types" (Principle II),

there is no intention to restrict the application of a botanical name to whatever part, form, organ or state of an organism is represented on the type specimen. The name, however typified, covers a taxon of complete organisms that make up the species, each of them similar to the individual organism that is represented, perhaps in the whole but probably only in part, by the type specimen.

The system of nomenclature of plants is a botanical system to the extent that holomorphs are the ultimate units of botanical taxa, to which botanical names are given. It is, without qualification, the system of naming non-fossil Cormophytes and Algae, so-called 'lower' fungi (Myxomycota, Mastigomycotina and Zygomycotina: see Ainsworth *et al.*, 1971), as well as lichen-forming Ascomycetes and Basidiomycetes.

As an example, we may take *Mucor mucedo* Fres., a species described as sporangial and therefore based on the sporangial state of the fungus. Its name is not thereby restricted in application to this state alone. The name covers the whole organism — the holomorph — and all organisms judged similar enough to be conspecific, even if their relationship is established on the basis of characters not seen in the type material. When Brefeld later discovered zygospores, a potentiality of the fungus originally unknown, the newly discovered form was automatically covered by the original name by virtue of its botanical application. Neither a new name or a new type was required, no more than an amplification of the known characters of the fungus species, under the botanical name typified by a sporangial state. This is the botanical system without qualification.

The botanical system is also — but with qualification — the system for naming Ascomycetes and Basidiomycetes that are not lichen-forming. That these fungi receive names of botanical application is clear in Art. 59 (ICBN 1972), where their names are described as covering "all states which are states of any one species," *i.e.*, holomorphs. But this Article makes a specification regarding the typification of these names. Unlike the type specimen of the botanical name of a holomorphic 'lower' fungus (which may bear any state or form of it), the type specimen of the name of a non-lichenized Ascomycete or Basidiomycete is required to bear evidence of sexuality if the name is to have botanical application to the holomorphic fungus. Art. 59 rules that "the ... name of all states which are states of any one species is the ... name typified by the perfect state ... which is characterized by the presence of asci ... basidia ..." etc. This characterizing form that is involved in producing meiotic diaspores may be termed the t e l e o m o r p h (from Gk τελεος: teleos — having perfect achievement, being complete, adult): in Ascomycetes, an ascocarp or its equivalent, at maturity producing asci and ascospores; in Basidiomycetes, a basidiocarp or its equivalent, at maturity producing basidia and basidiospores. Hence, for an autonomous non-lichenized Ascomycete or Basidiomycete to qualify for a botanical name, teleomorphic material must be used to typify that name.

But Art. 59 also provides for the separate naming of these fungi in their asexual state. The Article makes a distinction between the nomenclature of Ascomycetes and Basidiomycetes which qualify for botanical names by virtue of their teleomorphic expression, and the naming of their asexual states and of autonomous Fungi Imperfecti, for which a non-botanical system of nomenclature is in use. This is the system referred to by Donk (1960*a*) as c o n v e n t i o n a l and by Hennebert (1971) as a n a t o m i c a l. Donk (1960*b*), in discussing the conventional system further, re-introduced the useful term a n a m o r p h o s i s for the imperfect state, a term we shall proceed to use here for the asexual, mitotic diasporic expression of a fungus, the form basic to the anatomical scheme.

Anatomical names are applied to anatomical categories or pseudo-taxa (Donk 1960*a*) whose members are parts of the anatomy of organisms instead of holomorphic organisms; *i.e.*, the ultimate unit of any anatomical taxon is a specified portion, form, or organ of an "individual plant" rather than the individual plant itself.

Thus, it is particular morphs, not holomorphs, that are grouped in anatomical taxa, to which anatomical names apply These names, like botanical names, are required by the ICBN to be based on nomenclatural types. But in the case of the name of an anatomical species, application is not only determined by, but also restricted to, whatever part, form, state or organ is represented on the type specimen. In other words, typification and application of anatomical names coincide: the type is the unique morph that is also the ultimate unit of the anatomical taxon.

In the anatomical system governing form- and organ-genera of fossil plants (Art. 3, Note 1), the basis of a taxon is a particular kind of form or organ found in a fossil fragment; and the name is to be applied only to similar forms or organs, not to the holomorphic plant that may eventually be reconstituted from various fragments. In the form-taxa of imperfect fungi (Art. 59), the ultimate unit is a particular kind of anamorph; and the name (referring "only to the state represented by its type") is to be applied only to similar anamorphs; it is not to be applied to the holomorph that is already known – or eventually discovered – to include this anamorph, nor is it to be applied to other kinds of anamorphs. As already understood by Hughes (1953), anatomical names – by definition, typification and application – are monomorphic (Hennebert, 1971).

It is by long-standing convention that these morphs of fossils and of certain fungi are treated in an anatomical system of classification and nomenclature. But if anamorphs of non-lichenized Ascomycetes and Basidiomycetes are conventionally assigned anatomical names, should not the anatomical system be extended to cover also the names based on their teleomorphs? Certainly, if application of a name based on a teleomorph were restricted to this one sexual anatomical part of a fungus, while names based on anamorphs were restricted to single asexual forms, the several names for the same pleo-

morphic fungus could exist side-by-side without competing for priority. But then, the holomorphic fungus would be denied a botanical name.

Mycological legislators decided in favor of botanical names. In the Brussels Code of 1912, the first special rules for naming fungi established the principle that basing a name on a teleomorph makes it applicable in the botanical sense to a holomorphic fungus. Under Art. 59, the type need not be confined to the teleomorph alone, though it must include it; and the name is not restricted in application to that sexual segment of the fungus, though it undoubtedly covers it. On the contrary, although the teleomorph is a necessary component, the type may include any number of anamorphs as well; and although the name covers whatever morphs are represented in the type, it applies automatically to the holomorph in all its forms, present or not on the type specimen, and including whatever is known or remains to be discovered about the whole organism. Such a name is botanical in its full sense, applied in the same way as a name for so-called 'lower' fungi and lichen-forming Ascomycetes and Basidiomycetes. The fundamental difference between their nomenclature and that of non-lichenized Ascomycetes and Basidiomycetes is that the name of the fungi in the latter groups, when based only on anamorphs, is excluded by convention from botanical status.[1]

In summary: as ruled by Article 59, the system of nomenclature for non-lichenized Ascomycetes and Basidiomycetes consists in the co-existence of two distinct systems, the

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[1] In practical terms, it means that, if the type of a name for non-lichenized Ascomycetes or Basidiomycetes includes the teleomorph, the name is botanical and covers the whole fungus. If, on the other hand, the type does not include the teleomorph, the name is anatomical and restricted in application to the form represented by its type.

The Code is concerned with taxa of two kinds and consequently names of two kinds, botanical and anatomical. For most plants and fungi, the system of nomenclature is botanical. Only in the case of autonomous Fungi Imperfecti (Deuteromycetes), the mitotic states of non-lichenized Ascomycetes and Basidiomycetes, and the organs of fossil plants, is the system of nomenclature anatomical.

In the case of Ascomycetes and Basidiomycetes that are not lichen-forming, one might say that the system is "botanico-anatomical," being jointly botanical (for the entire fungus) and anatomical (for the non-meiotic state of the fungus). This kind of botanico-anatomical system of nomenclature is not at all the same system as that formulated under the same name by Hennebert (1971: 215) for imperfect fungi pleomorphic in themselves. Behind that proposal was an attempt to provide the entire imperfect phase of a fungus with a binary name of botanical effect, while retaining an anatomical monomorphic restriction for names of form-genera, which could thus serve also as terms designating monomorphic states of botanical holomorphic taxa. The relative complexity of this approach to the nomenclature of pleomorphic imperfect fungi (both autonomous and correlated) seems to us now to provide little advantage over the simplicity of the monomorphic anatomical system for form-species as well as form genera.

one for taxa of holomorphic fungi and therefore botanical, the other for form-taxa of anamorphs of fungi, treated as anatomical.

All botanical names are *nomina holomorphosium*, applying to organisms as whole beings in all their known or unknown expressions and potentialities. *Nomina holomorphosium* are normally typified by any constituent diagnosable element of the taxon (Art. 7), whether teleomorphic, anamorphic or combining all elements. This is the unqualified botanical system of nomenclature as it applies to plants, 'lower' fungi and lichen-forming 'higher' fungi. In non-lichenized Ascomycetes and Basidiomycetes, *nomina holomorphosium* (botanical names), applicable to holomorphs, are typified at the very least by their teleomorph, whereas names typified by anamorphs alone are *nomina anamorphosium* (anatomical names), and their application is restricted to the single anamorph represented by their type. Anatomical *nomina teleomorphosium* do not exist under our present Code, because a sexual form does not bear a name separate from the name of the holomorphic fungus.

Finally, a word about the Code's ruling requiring the co-existence of a *nomen holomorphosis* and *nomina anamorphosium* for the same Ascomycete or Basidiomycete. As Donk (1960*b*: 172) pointed out, if a choice has to be made between them, *nomina anamorphosium* automatically become *nomina rejicienda*, giving way to the priority of the *nomen holomorphosis*. Under Art. 59, holomorphic names, being botanical, are priorable; anamorphic names, being anatomical, are unpriorable except within the narrow limits of typification by similar anamorphs.

It is our contention that the terms used above bring into sharper focus the nomenclature of fungi as regulated by ICBN and its Art. 59. Their adoption can turn discussion away from arguments about the meaning of long familiar and no longer uniformly understood terms to a concentration on basic principles.

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NOTICE

IMA NOMENCLATURE MEETINGS AT IMC[2]

Each Subcommittee of the International Mycological Association's Nomenclature Committee will have a scheduled session at the Second International Mycological Congress, University of South Florida, to conduct face-to-face discussions of the work already begun by mail. It is to be hoped that some definitive proposals can be hammered out during those subcommittee meetings for further action by the whole Nomenclature Committee in their meetings scheduled later in the week.

Please note that in order to avoid conflicting meetings for some members who serve on more than one subcommittee, the date for some subcommittee meetings has been changed from that provisionally sent to Secretaries, and from that published in the MSA Newsletter. Meetings are open to anyone.

The following is the corrected schedule of all sessions of the Nomenclature Committee:

Subcommittee Meetings	*Date & Time*	*University Center*
A (Article 59)	Aug.27, 2:00 pm	Room 201
B (Living types)	Aug.30, 8:00 pm	Room 202
C (Registry, Art.39)	Aug.29, 8:00 pm	Room 202
D (Starting-points)	Aug.28, 9:00 am	Room 201
E (Infraspecifics)	Aug.30, 8:00 pm	Room 201
F (Generic names)	Aug.29, 8:00 pm	Room 201

Nomenclature Committee (everyone!)	*Date & Time*	*Place*
Subcommittee Reports	Aug.31, 5:00 pm	Gymnasium
Final Session	Sept.1, 5:00 pm	Gymnasium

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