

MYCENAS OF THE NORTHERN HEMISPHERE

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Mycenas of the Northern Hemisphere

I Studies in Mycenas and other papers

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My thanks go particularly to our secretary, Marianne de Groot, for uncomplainingly typing many of my manuscripts.

PREFACE

'Mycenas of the Northern Hemisphere' is a work in two volumes containing the collected papers of two separate series published between 1977 and 1991, and dealing with the genus *Mycena* of the northern half of the world.

In Part I, 'Studies in Mycenas', the results have been laid down of the examination of type material as well as of the attempts at interpreting old and forgotten names. Gradually, also other papers were included, some written jointly with other authors.

A deliberate omission in this series is that the new species described by J. Velenovský after 1920 have not been considered after two requests for a loan of material had come to nothing.

Part II, containing the series 'Conspectus of the Mycenas of the Northern Hemisphere' and providing keys and descriptions, took most of the time. Actually much more than originally visualized. By narrowing the field of research and abandoning the idea of a full-fledged Monograph in favour of a more simple Conspectus, it could reasonably be expected to see my task finished.

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NOTES AND BRIEF ARTICLES

MYCENA GALERICULATA—USUALLY 2-SPORED?

R. A. MAAS GEESTERANUS

Oegstgeest

Mycena galericulata (Scop. ex Fr.) S. F. Gray is a common agaric, widely distributed in Europe and readily recognized. Whether this also applies to extra-European areas is here left out of consideration, while the actual investigation is concerned only with the situation in the Netherlands.

As far as I have been able to check, the general opinion in Europe has been and still is that *M. galericulata* occurs predominantly with 2-spored basidia. A few references may be cited to substantiate this statement; some care had to be taken in consulting those authors who regarded *M. galericulata* and *M. rugosa* Fr. (now considered to represent one and the same species) as distinct.

Hennig (1958: 108): 'Basidien zweisporig'; Horak (1968: 391): 'Basidien 2sporig (selten 4sporig)'; Konrad & Maublanc (1948: 311): '... le plus souvent bisporique...'; Kühner (1938: 324): '[forme tétrasporique] Octobre-Décembre ... aux environs de Paris..., où il semble moins commun que le *M. galericulata* bisporique'; (1938: 326): '[forme bisporique] Très commun ... de mars à décembre...'; Kühner & Romagnesi (1953: 108): '... race bisporique, la plus commune...'; Lange (1936: 47): 'Basidia 2-spored'; Oort (1928: 241): 'Basidiën 2-sporig' (23 collections); he (p. 230) also recorded a single, 4-spored collection of what he took to be *M. rugosa*, but he felt uncertain about his own identification. His description does not suggest *M. galericulata*, and this find seems best disregarded. Patouillard (1885: 145) proves to be an exception in European literature in that he is the only author to have illustrated 4-spored basidia: '... hyménium grossi montrant des basides à 4 stérigmates...'; Pearson (1955: 56-57): '... basidia usually 2-spored ...'; Rea (1922: 383): 'Basidia generally with 2-sterigmata only'; alongside of *M. galericulata* he also recognized a *M. rugosa* with 2-4-spored basidia. Ricken (1915: 439), too, distinguished *M. galericulata* and *M. rugosa*, the former 2-spored and exceedingly common, the latter 4-spored and rather rare. Viennot-Bourgin (1959: 79): 'Basides typiquement à 2 spores'; Wakefield & Dennis (1950: 89): 'The basidia are almost always two-spored'.

Some of the less sophisticated questions that may be asked are (i) whether it is true that the 2-spored forms are more numerous than the 4-spored, and if so (ii) in what ratio they occur. No doubt questions of such or a similar nature have been posed in the past, but I am unaware of a definite answer having been published. The following investigation, carried out on herbarium material, confirms to some extent the general opinion, partially answers the second question and, above all, seems to offer interesting prospects for experimentalists.

For the present examination I assembled 72 collections from the Netherlands and one drawing showing microscopic details. Of the former 19 proved unsuitable for various reasons (the month of collecting was not stated; one collection belonged to a different genus; some collections proved to have been misidentified; others were immature or their basidia lacked sterigmata; etc.). The data derived from the drawing and the remaining 53 collections are presented in Fig. 1, in which the collections with 2-spored basidia are indicated by the symbol o, those with 4-spored basidia by ●.

As can be seen at a glance, all collections of *Mycena galericulata* gathered from May to September (V–IX) are of the 2-spored form. Apparently no basidiomes of *M. galericulata* were collected in June. October (X) is the month when a few collections of the 4-spored form make their appearance for the first time, while the following two months (XI and XII) show a considerable numerical increase of the 4-spored form. In December there usually occur some days of frost which put an end to most agarics. In order to express more clearly the ratio of the numbers of the 2-spored and the 4-spored forms, the following graph (Fig. 2) is presented, in which rather than the collections being indicated by their actual numbers, their relative proportions are expressed by percentages, correlated with the month of collecting.

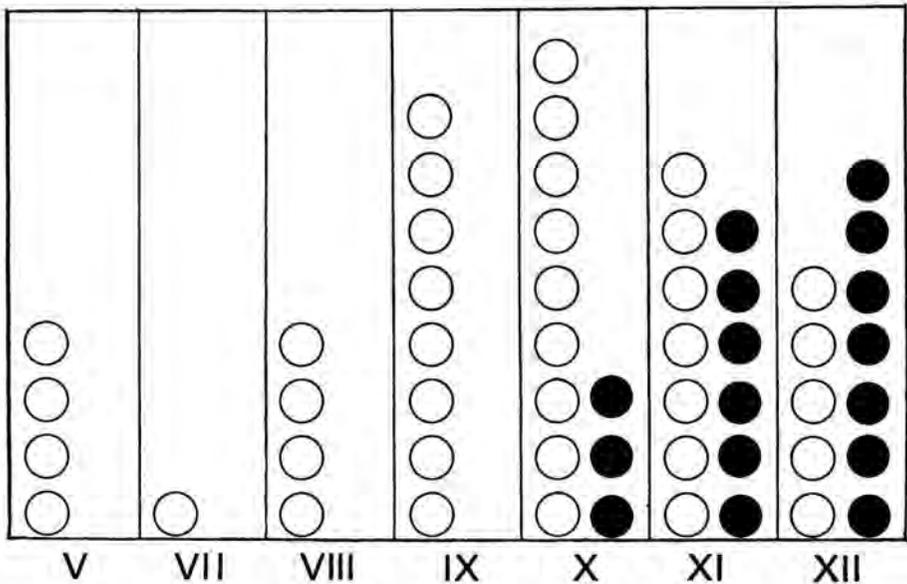


Fig. 1. *Mycena galericulata*. Collections arranged according to the month of collecting; the symbol o denoting a collection with 2-spored basidia ● denoting one with 4-spored basidia.

If, as I am inclined to assume, the lower temperatures during the last months of the year have something to do with the conspicuous decline of the 2-spored form (and the corresponding increase of the 4-spored form), it may well be pointed out that the curves as drawn have but an approximative value. The data used have been derived from collections which span a period of more than 110 years, the oldest collection being from 1864. It is beyond doubt that the temperatures of the fungus seasons in those years must have varied a great deal. Perhaps even more important than the influence of the macroclimate ought to be considered that of the microclimate. It is not known, however, at what stage in its development the temperature may cause *Mycena galericulata* to produce either 2-spored or 4-spored basidia. General information, therefore, on the fluctuations of the temperature as may be provided by a meteorological institute is not likely to be of great help. In order to understand the processes that determine the nature of the phenomenon discussed above, experiments will be needed under strict control of all environmental factors.

Thus far, the 2- and 4-spored basidiomes have been regarded as simple forms of the taxonomic entity *Mycena galericulata*, but there is yet another possibility which requires serious attention, and which suggests that the basidiomes referred to belong to genetically different taxa.

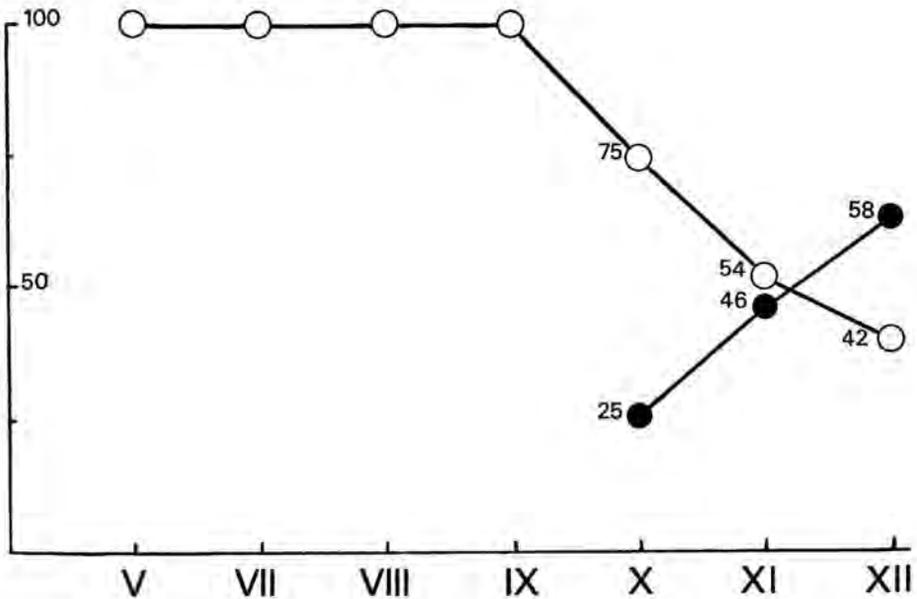


Fig. 2. *Mycena galericulata*. Graph illustrating the different course of the percentages of the collections with 2- and 4-spored basidia during the fungus season.

Apart from the collections preserved in the Rijksherbarium (also housing the collections of the Royal Dutch Botanical Society, the Dutch Mycological Society, and Herb. Oudemans), material has been examined from Centraalbureau voor Schimmelcultures (CBS), Biologisch Station Dr. W. Beyerinck, Wijster (WBS), Dr. H. A. van der Aa (Baarn), Mr. P. B. Jansen (Breda), and Dr. E. Kits van Waveren (Amsterdam). To all these I tender my best thanks.

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CLAMP CONNECTIONS AT THE CHEILOCYSTIDIA IN MYCENA

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Oegsteest

Clamp connections at the cheilocystidia in *Mycena* are invariably correlated with their presence in other elements of hymenium and subhymenium. In some species of the genus clamped cheilocystidia occur in both the four- and two-spored forms; in others, the cheilocystidia are clampless in the two-spored form. Two of the sections examined are shown to comprise species with clamped and species with clampless cheilocystidia, suggesting that the presence of clamps at the cheilocystidia is a character of specific rather than sectional importance. Two examples are given to illustrate the value of clamps at cheilocystidia as a distinguishing character. *Mycena jacobii* and *M. niveipes*, long regarded as being identical, are here considered to represent two separate species.

The incidental observation of a clamp connection at the base of cheilocystidia in some species of *Mycena* and the apparent absence in others elicited a more directed investigation, the result of which seems worth recording. Before presenting my own findings, a brief survey of the literature should precede.

Josserand (1937) reported on various species of *Omphalia* which were subsequently transferred to *Mycena* by Kühner. Josserand neither described nor depicted clamps at the cheilocystidia, although they are known to be present in *Mycena gracilis* (Quél.) Kühn.

Kühner in his monograph (1938) occasionally did observe clamps, usually at the septa of hyphae, but did not accord special importance to them. In figure 94 (page 299) one of the cheilocystidia (depicted by R. Maire) is shown to possess a clamp. In his chapter on cystidia (pp. 77-84) Kühner did not mention the presence of clamps.

Smith (1947) was reticent about clamp connections, and so was Favre (1955, 1960).

A change took place with the appearance of the publications of Kühner & Valla (1972) and Malençon & Bertault (1975) in that these authors described and depicted clamps whenever they saw them, sometimes at septa of hyphae, sometimes at hymenial elements. But, whereas Malençon & Bertault ignored the significance of the clamps, Kühner & Valla frequently used them for the distinction of two closely resembling species.

The above review is by no means an exhaustive one, but suffices to show that if clamp connections were noticed at the cheilocystidia, the observation was rarely and only quite recently put to use with a view to facilitate the distinction between species.

In the course of my investigation I found that the ostensible lack of clamps at the cheilocystidia

in mature basidiomata was not necessarily evidence of their absence also in a younger stage.¹ During, or perhaps in the later stages of, the development of the hymenial region, the cheilocystidia in some species would appear to lose every trace of the earlier presence of a clamp connection at their base. It may be reminded that a similar phenomenon is also known in the basidia of some species of *Rhodophyllus*. Clamp connections found to occur at the younger basidia may be hard to distinguish at a later stage. To avoid uncertainties of a similar nature in the work I had undertaken, the investigation was extended to include also other hymenial elements. It was found that in all species examined the presence or absence of clamps at the cheilocystidia is invariably correlated with their presence or absence at the basidia and at the septa of the subhymenial hyphae. This was to be expected since cheilocystidia and basidia both arise from subhymenial hyphae, but I wanted confirmation of my assumption. This principle sometimes facilitates the search for clamps at the cheilocystidia (since clamps at the septa of subhymenial hyphae are less subject to change) and may, under circumstances, prove the only means of demonstrating the presence or absence of clamps.

The next question that arose was whether the presence (or absence) of clamps at the cheilocystidia would or would not depend on the species being in its four-spored or two-spored form. Four- and two-spored forms of the same species are known (or reputed) to occur in various sections throughout the genus *Mycena*. The following species were selected for closer inspection. They are arranged according to the sections and subdivisions as indicated by Kühner & Romagnesi (1953), while their nomenclature follows the Check List by Dennis & al. (1960).

1. *Filipedes*: *M. filopes* (Bull. ex Fr.) Kummer (Figs. 1, 2), *M. metata* (Fr.) Kummer (Figs. 3–5), *M. septia* J. E. Lange (Figs. 6–8).

2. *Rigidipedes*: *M. galericulata* (Scop. ex Fr.) S. F. Gray (Figs. 9–11).

3. *Adonidae* § *Hiemales*: *M. hiemalis* (Osb. apud Retz. ex Fr.) Quél. (Figs. 12–14), *M. olida* Bres. (Figs. 15–18).

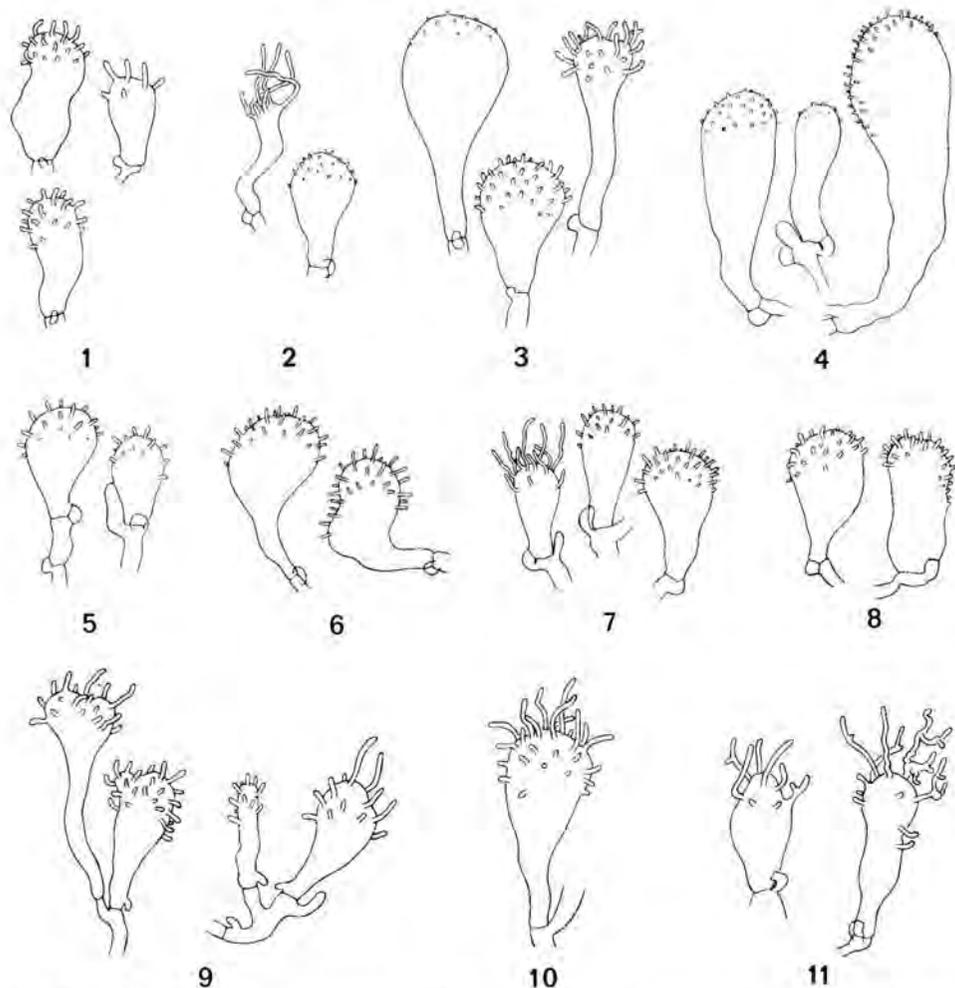
4. *Adonidae* § *Amabilissimae*: *M. flavoalba* (Fr.) Quél. (Figs. 19, 20).

5. *Adonidae* § *Lacteae*: *M. lactea* (Pers. ex Fr.) Kummer (Fig. 21; for illustration of the cheilocystidia in the four-spored form, see Kühner & Valla, 1972: fig. III 3).

Examination showed the species of sections 1, 4, and 5 to possess clamps at the cheilocystidia in both the four- and two-spored forms. The species of sections 2 and 3 were found to possess clamped cheilocystidia in the four-spored form, clampless cheilocystidia in the two-spored form.

Yet another species, which does not figure in the above enumeration, is *M. delectabilis* (Peck) Sacc. It was regarded by Kühner & Romagnesi (1953: 118) as a member of the genus *Delicatula*, but afterwards restored in *Mycena* by Kühner & Valla (1972: 48). Like in e.g. *M. galericulata* of section 2, the four-spored form has cheilocystidia with clamps, the two-spored form has clampless cheilocystidia (Kühner & Valla, 1972: 48–49).

¹ In this respect I am and have been constantly aware of the truth of the admonition: 'Absence of evidence is not evidence of absence.'



Figs. 1, 2. *Mycena filopes*, cheilocystidia. — 1. Two-spored form; Netherlands: Wieringermeer, Robbenoord, 23 Oct. 1976, *C. Bas* 7106 (L). — 2. Four-spored form; Netherlands: Breda, 15 Nov. 1964, *P. B. Jansen* (L).

Figs. 3–5. *Mycena metata*, cheilocystidia. — 3. Two-spored form; Netherlands: Oost-Flevoland, 9 Dec. 1976, *F. & G. J. M. G. Tjallingii* (L). — 4. Four-spored form; as preceding. — 5. Four-spored form; Sweden: Fgi exs. succ. praes. upsal. 119 (UPS).

Figs. 6–8. *Mycena sepi*, cheilocystidia. — 6. Two-spored form; Netherlands: Drongelens kanaal, 1 Nov. 1970, *P. B. Jansen* (L). — 7. Four-spored form; Netherlands: Kootwijkerveld, Oct. 1970, *G. S. de Hoog* (L). — 8. Four-spored form; Denmark: Silkeborg, Østerskov, 24 Oct. 1947, *M. Lange* (C).

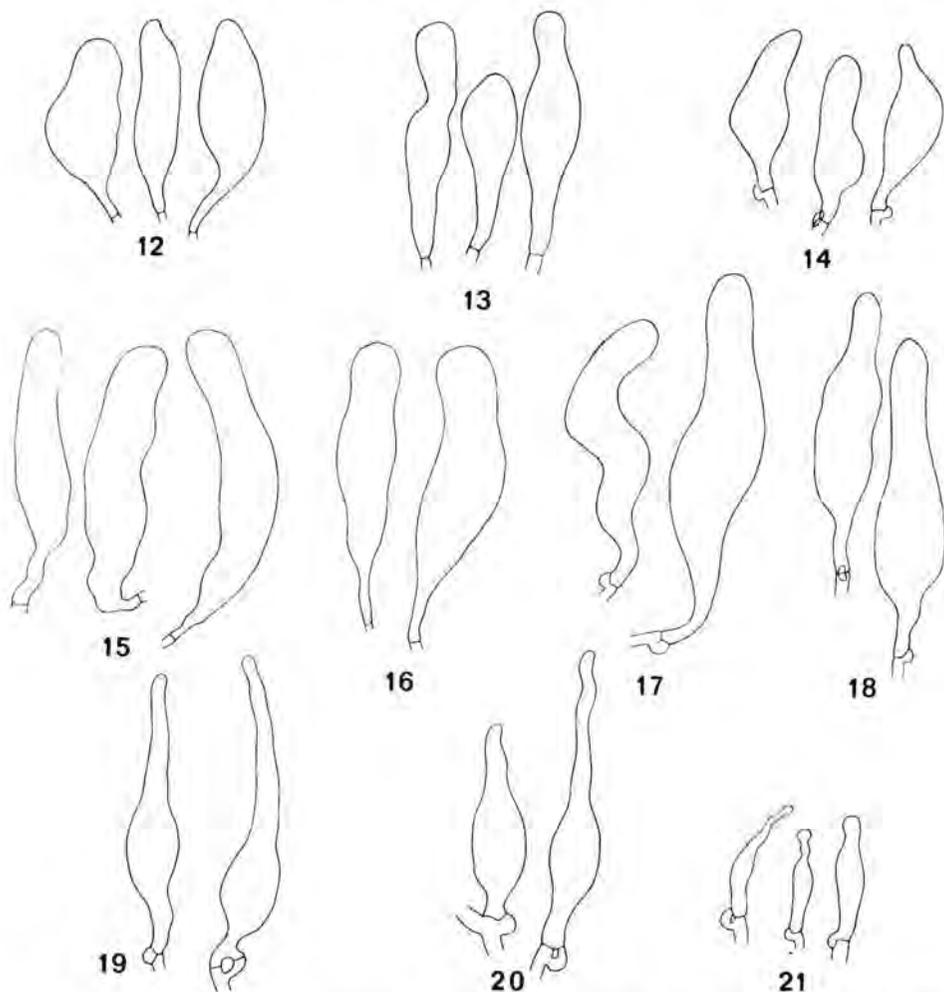
Figs. 9–11. *Mycena galericulata*, cheilocystidia. — 9. Two-spored form; Netherlands: Laag Soeren, 27 Sept. 1976, *R. A. Maas Geesteranus* 15510 (L; note abortive clamps). — 10. Two-spored form; Netherlands: Baarn, 15 Apr. 1977, *W. Gams* (L). — 11. Four-spored form; Netherlands: Koning's Hof, 5 Dec. 1976, *J. van Brummelen* 5162 (L). — All figures $\times 2800$.

From these observations the fact emerges that two kinds of two-spored forms appear to exist — one which has clamp connections at the cheilocystidia, and another which has cheilocystidia devoid of clamps. The cytological, genetic, and taxonomic implications would seem well worth investigating, but are beyond the scope of the present note. The urgency of such an investigation is the more pressing since matters may well prove more complicated than they appear on the outside. A. H. Smith (1934) published a paper on two-spored forms in various species of *Mycena*. His investigations, however, rather more concerned the nuclear behaviour of the basidia, offering no clue in answering the questions posed in the present note. Kühner (1938: 125), in his chapter on parthenogenetic forms in *Mycena*, stated that '... la forme bisporique de *M. galericulata* possède des hyphes sous-hyméniales et des basidioles à un seul noyau' He proceeded by referring to A. H. Smith who '...a eu le mérite de montrer que les formes à basidioles uninucléées que l'on rencontre dans la nature, ne sont pas forcément bisporiques... mais qu'elles peuvent présenter, sur le même chapeau ... des basides 2-, 3- et 4-sporiques, ou même des basides en majorité tétrasporiques ...' As an example for the last named Kühner mentioned *M. citrinomarginata* which, as will be shown presently, has clamped hymenial elements. The uninucleate condition of the basidia apparently does not necessarily imply that the basidia (and the cheilocystidia) must be devoid of clamps. Would it be too bold a thought to assume that some of the uninucleate species of *Mycena*, irrespective of the number of spores produced per basidium, may present themselves as a dikaryotic population (with clamped cheilocystidia) or a monokaryotic one (with clampless cheilocystidia)? It seems we still have a long way to go.

A further question which required investigation was whether it would be correct to assume the character to have general applicability if within a section of four-spored species some of its randomly selected members are found to possess clamps at the cheilocystidia. The 'Fragilipedes typiques' (Kühner & Romagnesi, 1953: 106) is a case in point. Of this group, *M. abramsii* Murrill (2 North American collections, L), *M. aetites* (Fr.) Quéf. (3 Dutch coll., L; 1 Swedish coll., UPS), *M. alcalina* (Fr. ex Fr.) Kummer (3 Dutch coll., L; 2 Danish coll., C; 2 Swedish coll., UPS), *M. jacobi* Maire² (2 Dutch coll., L; see also Malençon & Bertault, 1975: 279, as *M. niveipes*), *M. leptcephala* (Pers. ex Fr.) Gillet³ (6 Dutch coll., L; 1 Swedish coll., C; 2 Swedish coll., UPS), *M. praecox* Vel. (2 Dutch coll., L; 3 Czechoslovakian coll., L), and *M. zephrus* (Fr. ex Fr.) Kummer (1 Austrian coll., L) have cheilocystidia with clamps. Two others, *M. niveipes* Murrill² (2 North American coll., L) and *M. strobilicola* Favre & Kühn. (1 Swiss coll., L), have their cheilocystidia devoid of clamps.

² It may cause some surprise that *M. jacobi* and *M. niveipes*, regarded as being identical ever since Kühner (1938: 486), are here taken to represent two independent species. In view of the preceding, however, I do not wish to exclude the possibility that these two taxa, both of which are four-spored, are specifically different, precisely because of the presence of clamps in the former and the lack of clamps in the latter. This seems the more prudent course as long as there is no knowing what exactly the presence of clamps portends.

³ There seems to be a growing, but unwarranted, tendency to use the name *M. chlorinella* (J. E. Lange) Sing. for this species.



Figs. 12-14. *Mycena hiemalis*, cheilocystidia. — 12. Two-spored form; Netherlands: Amsterdam, Amsterdamse Bos, 10 Oct. 1977, *J. Reijnders* (L). — 13. Two-spored form; Sweden: Fgi exs. suec. praes. upsal. 1746 (UPS). — 14. Four-spored form; Netherlands: Fortmond, Duursche Waarden, 18 Dec. 1977, *G. & H. Piepenbroek 1074c* (L).

Figs. 15-18. *Mycena olida*, cheilocystidia. — 15. Two-spored form; Netherlands: St. Odiliënberg, Munnicksbos, 7 Oct. 1962, *C. Bas 2839* (L). — 16. Two-spored form; Czechoslovakia: Moravia, Zdravá Voda near Zárošice, 5 Sept. 1945, *V. Vacek* (PRM 13465). — 17. Four-spored form; Netherlands: Overveen, Elswout, 7 Nov. 1974, *E. Kits van Waveren* (Herb. v. W.). — 18. Four-spored form; Great Britain: Wales, Lake Vyrnwy, 2-Sept. 1960, *E. Kits van Waveren* (Herb. v.W.).

Figs. 19, 20. *Mycena flavoalba*, cheilocystidia. — 19. Two-spored form; Netherlands: De Lutte, 30 Oct. 1948, *H. S. C. Huijsman* (L). — 20. Four-spored form; Netherlands: Heusden, 19 Nov. 1976, *P. B. Jansen* (L).

Fig. 21. *Mycena lactea*, cheilocystidia. — Two-spored form; Netherlands: Kuinderbos, 9 Oct. 1976, *P. B. Jansen* (L). — All figures $\times 2800$.

The group of species designated by Kühner & Romagnesi (1953: 104) as the 'second group of the Calodontes' may serve as another instance. Of the species examined, *Mycena atromarginata* (Lasch) Kummer (1 Belgian coll., L) has cheilocystidia without clamps. *Mycena capillaripes* Peck (2 Dutch coll., L), *M. citrinomarginata* Gillet (2 Dutch coll., L), *M. olivaceomarginata* (Masseé apud Cooke) Masseé (4 Dutch coll., L), *M. purpureofusca* (Peck) Sacc. (1 Belgian, 1 Polish coll., both L), *M. rubromarginata* (Fr. ex Fr.) Kummer (1 German coll., L; 2 Swedish coll., UPS), and *M. seynii* Quél. (2 Dutch coll., L) all possess clamped cheilocystidia.

Thus, it would seem from the few examples examined that the presence of clamps at the cheilocystidia (or their absence, as the case may be) is a character of specific rather than sectional significance. The following cases are recorded to demonstrate the value of the character.

Mycena leptocephala and *M. vitilis* (Fr.) Quél. are both common members of the genus, and yet of either species there may be found forms which are hard to recognize. Kühner (1938: 468) described the former species as *M. metata* sensu Schroeter, the latter (504) as *M. filopes* sensu Schroeter. Although his descriptions do show points of difference, there is ample occasion for the two taxa to be confused on account of the many characters they have in common. It is true that Kühner & Romagnesi (1953: 107) placed *M. leptocephala* in section *Fragilipedes* and *M. vitilis* in section *Rigidipedes* (108), but a great deal of experience is required to appreciate such a qualitative character as is the rigidity of a slender stipe in fresh condition, let alone the difficulty of judgment once the material is dried. However, there is one infallible differential character — *M. leptocephala* possesses clamped cheilocystidia, whereas those of *M. vitilis* are clampless.

As a second example I may refer to the remark accompanying Kühner's description of *M. polygramma* f. *ambigua* (1938: 503): 'Cette forme relie le *M. polygramma* au *M. filopes* [= *M. vitilis*] et serait peut-être mieux placée comme forme de cette dernière espèce, dont elle ne diffère guère que par le pied strié.' I do not know this form but if its cheilocystidia should prove to possess clamps, the taxon definitely belongs to *M. polygramma*.

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THREE MYCENAS REVISED

R. A. MAAS GEESTERANUS

Oegstgeest

(With 10 Text-figs.)

Mycena flocculentipes is reduced to the synonymy of *M. hiemalis*. *Mycena metata* is maintained as the correct name for *M. vitrea* var. *tenella* sensu Ricken, and *M. phyllogena* becomes a synonym. *Mycena corticola* is rejected as an ambiguous name, while *M. meliigena* seems a plausible choice as the correct name for *M. corticola* sensu Kühner.

In the course of my study of the genus *Mycena* the following cases were encountered which called for comment.

Special thanks are due to the Director of the Herbarium at Uppsala for the loan of material. Acknowledgment is also made to the Director of the 'Rijksherbarium' for providing working facilities.

MYCENA FLOCCULENTIPES Huijsm.

Mycena flocculentipes Huijsm. in *Blumea*, Suppl. 4: 160, fig. 2. 1958.

The present species proves to key out so near the two-spored form of *M. hiemalis* (Osb. apud Retz. ex Fr.) Quél. that a closer inspection seemed in order. The more important features taken from the descriptions of both are tabulated below.

	<i>M. flocculentipes</i> (after Huijsman)	2-spored <i>M. hiemalis</i> (after Kühner, 1938: 577)
Habitat	on rotten wood of broad-leaved tree	on mossy trunks of broad-leaved trees
Pileus	6-9 mm across, striate nearly to centre, brown in centre, more greyish, beige or whitish near margin	5-15 mm across, long striate, grey-brown to brown in centre, passing into whitish or white near margin
Flesh	very thin, more or less concolorous, not amyloid	thin, brownish, not amyloid
Odour	practically none	none
Lamellae	adnate, somewhat ventricose, white	not very broadly adnate, ascending or ventricose-sinuate, pure white or often whitish, sometimes with grey-brown shade along the base

	<i>M. flocculentipes</i> (cont.)	2-spored <i>M. hiemalis</i> (cont.)
Stipe	24–30 × 0.6–1 mm, finely pruinose, farinose above, covered with long hairs at the base, whitish	5–30(–40) × 0.5–1(–1.2) mm, densely but briefly pubescent throughout, with long hairs at the base, white
Basidia	22–28 × 6–7 μm, 2-spored	21–30 × 5.5–8 μm, 2-spored
Spores	7–8 × 5–6 μm, broadly ellipsoid, not amyloid	5.7–9.5 × 4.5–7 μm, briefly pruniform, ovoid to almost spherical, not amyloid
Cheilocystidia	(40–)60–72(–80) × 9–15 μm, very numerous, usually lageniform	22–35 × 5–15 μm, scattered, cylindrical to more or less strongly ventricose
Pleurocystidia	absent or some present near edge of lamellae	absent or some present near edge of lamellae
Caulocystidia	subcylindrical to fusiform, more or less irregularly shaped	cylindrical or fusiform, more or less irregularly shaped

Except for the cheilocystidia which appear much longer in *M. flocculentipes* and are moreover said to be very numerous, the two descriptions offer no other points of difference by which *M. flocculentipes* could be effectively separated from *M. hiemalis*. Since, however, in many species of *Mycena* numbers as well as size and shape of cheilocystidia may vary within wide limits, one Swedish and two indubitable Dutch collections of *M. hiemalis* were procured for further investigation. The essential features of the cheilocystidia of these collections are tabulated as follows. Spore measurements are added 'pour acquit de conscience'.

Mycena hiemalis

	I	II	III
Cheilocystidia	36–45 × 5.5–12.5 μm, numerous	40–60 × 7–10 μm, scattered to numerous	36 × 6.5–9 μm, scarce
Spores	7.3–9 × 5.5–6.3 μm	8.1–8.5 × 5.8–6.5 μm	7.2–9 × 6.7–7.2 μm

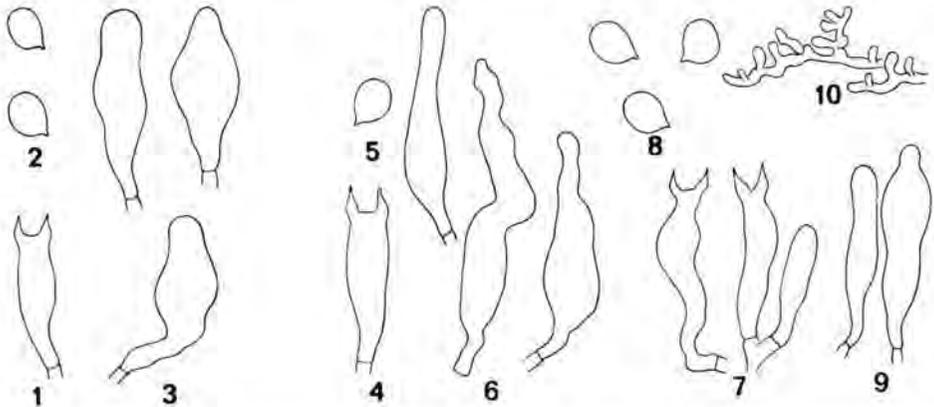
I: Netherlands: Noord-Holland, Amstelveen, 9 Aug. 1978, *J. Reijnders* (L).

II: Netherlands: Overijssel, Delden, 11 Oct. 1968, *E. Kits van Waveren* (herb. v. W.).

III: Sweden: Fungi exs. succ. praes. upsal. 1746 (UPS).

By comparing these data and their relevant drawings (figs. 1–9) with those bearing upon the two species under discussion it will be readily seen that the supposed gap between *M. flocculentipes* and *M. hiemalis* is bridged by intermediates.

Two more points may be brought forward in support of my view that the two species are truly identical. (i) In both species, that is, in their two-spored forms, the basidia and cheilocystidia lack



Figs. 1-3. *Mycena hiemalis* (Netherlands: Noord-Holland, J. Reijnders). — 1. Basidium. — 2. Spores. — 3. Cheilocystidia.

Figs. 4-6. *Mycena hiemalis* (Netherlands: Overijssel, E. Kits van Waveren). — 4. Basidium. — 5. Spore. — 6. Cheilocystidia.

Figs. 7-9. *Mycena hiemalis* (Sweden, Fungi exs. succ. 1746). — 7. Basidia. — 8. Spores. — 9. Cheilocystidia.

Fig. 10. *Mycena flocculentipes* (holotype), hyphae from pileipellis 1.8-2.7 μm wide, showing simple and branched excrescences.

(All figures, $\times 700$.)

clamp connections. (ii) Although the hyphae of the pileipellis in *M. flocculentipes* were stated to be 'lisses ou pourvues de quelques aspérités difficiles à résoudre', some of the said hyphae in the holotype were actually seen to possess excrescences (Fig. 10), very much like those described and depicted by Kühner (1938: 580, fig. 202 c).

MYCENA PHYLLOGENA (Pers.) Sing.

Agaricus phyllogena Pers., Mycol. eur. 3: 242. 1828. — *Mycena phyllogena* (Pers.) Sing. in Persoonia 2: 38, fig. 25. 1961.

Singer, on examination of the type of *Agaricus phyllogena* in Herb. Persoon, proposed the combination *Mycena phyllogena*, pointing out that this represented what Kühner (1938: 289) had described as *Mycena vitrea* var. *tenella* sensu Ricken. I restudied Persoon's type but failed to find cheilocystidia. Yet, in view of Singer's microscopic description and Persoon's diagnosis, I am inclined to agree with the former author's identification, but I do not share his opinion that *Mycena phyllogena* is the correct name for the species. Instead, I concur with Dennis, Orton & Hora (1960: 119) that the (earlier and) correct name is *Mycena metata* (Fr. ex Fr.) Kummer. Singer's attempt at stabilizing nomenclature, however, makes one thing abundantly clear. It is high time that action be taken and that Fries's species become fixed by the intelligent choice of neotypes. In my eyes, going by the description given by Lundell (1935: 10), it seems that the material of Lundell & Nannfeldt, Fungi exs. succ. no. 119 would make an excellent neotype for

Mycena metata. Redescription and illustration also of the microscopic features will be necessary before the choice is actually made.

In a later publication Singer (apud Singer & Moser, 1965: 156) indicated that two of his South American collections compared well to Kühner's and Favre's ideas of *Mycena vitrea*, although the colours of one of them were said to be in better agreement with *M. vitrea* var. *tenella*. Singer solved this problem by considering both collections to be mere colour forms of one species, *M. phyllogena*. It may be remembered, however, that in Europe and at least by a number of mycologists *Mycena vitrea* sensu Kühner and *M. vitrea* var. *tenella* sensu Ricken are taken to represent two separate species, and that Dennis, Orton & Hora (1960: 121) regarded *Mycena sepia* J. Lange as the correct name for *M. vitrea*. If Singer's observation, which requires repetition in Europe, is correct *M. sepia* would fall into the synonymy of *M. metata*.

MYCENA CORTICOLA (Pers. ex Fr.) S. F. Gray

Agaricus corticola Pers., Syn. meth. Fung.: 394. 1801; ex Fr., Syst. mycol. 1: 159. 1821. — *Mycena corticola* (Pers. ex Fr.) S. F. Gray, Nat. Arrang. Br. Pl. 1: 621. 1821.

Persoon's diagnosis and description of *Agaricus corticola* allow very few conclusions, and these are negative. The recording of his fungus as 'fuscescens' may be taken to mean either darkish or darkening, but since this term was followed by 'Recens pallescit, exsiccatus crispus et fuscus' there is no room for doubt. Such a description can on no account be applied to *Mycena corticola* as understood by modern authors. But, then, how to interpret Persoon's species? Here is where Singer's opinion (1961: 18–19) and mine diverge.

Persoon referred to Bulliard's *Agaricus corticalis* and the accompanying illustration, pl. 519 fig. 1A, B, with which the description of his own *A. corticola* shows a marked correspondence. If indeed this is what *A. corticola* looked like, Persoon's fungus may well have been any of several corticolous species: *Mycena supina* (Fr.) Gillet, *M. venustula* Quél., *M. alba* (Bres.) Kühn., *M. hiemalis* (Osb. apud Retz. ex Fr.) Quél., *M. speirea* (Fr. ex Fr.) Gillet, to name some of the more obvious possibilities. I fail to find any feature in Persoon's account that applies to one of the above species to the exclusion of the others. My conclusion is that it is impossible to be certain about the identity of *A. corticola* from the information available.

Fries in accepting Persoon's species gave a description of his own but, while the latter's colour annotation is simple enough, Fries must have had a much wider concept of the species in that he included dark or darkening forms (exemplified by *Agaricus corticalis* Bull. and *A. corticola* Pers.), whitish forms (exemplified by *A. umbellifera* Scop., *A. clavularis* Batsch, and *A. hiemalis* Retz.), and still others apparently seen fresh by him which were stated to vary 'incarnatus, rufescens, cyaneus, etc.' It is no use speculating what colour was foremost in Fries's mind in view of the diverse examples he gave.

The conclusion to be drawn from this is that *Agaricus corticola* Pers. ex Fr. must be rejected as a nomen ambiguum and the same applies to *Mycena corticola*. I therefore agree with Singer (although my grounds for this conclusion are different) that *M. corticola* in the sense of Kühner must be renamed, and I also agree with him that the correct name for this species would seem to be *Mycena meliigena* (Berk. & Cooke apud Cooke) Sacc., the type of which I have not studied.

Singer based his arguments largely on his examination of the material he had seen. Of the two sheets in Herb. Persoon under the name *A. corticola*, Singer suggested L 910.258–421 as lectotype. (The second sheet is of no consequence as it does not bear Persoon's handwriting.) Considering as proved by his account of this material, Singer proclaimed that 'Persoon's type must be recognized as the type of *A. corticola*.' I am not convinced. It is true that in Singer's redescription of the one whole basidiome he has seen (and of which now nothing remains) the size of the pileus (3.5 mm broad) and the size of the stipe (7.5 mm long) are well in agreement with those given by Persoon — pileus $1\frac{1}{2}$ lin. (3.2 mm) latus, stipes 3–5 lin. (6.3–10.5 mm) longus — but Singer ignored the presence of six additional stipes on the sheet. Five lack a pileus, the sixth bears a poor fragment of the pileus, with no trace left of the lamellae, but with inamyloid context, while the narrower hyphae of the stipe possess clamps. On the evidence of these two important features I am inclined to accept that the stipes on the sheet and the specimen redescribed by Singer belong to the same species. No evidence, however, can be obtained that the stipes, which may well have been gathered in a period after the publication of the Synopsis, are also conspecific with *A. corticola* as originally described by Persoon. The six stipes now range from 12 to 22 mm long. Very likely they were appreciably longer when fresh, and this coincides in no way with the measurements indicated by Persoon. It may seem futile to use the greater length of the stipe of a number of specimens as an argument to disprove their connection with an earlier description. I may point out, however, that in view of the importance of the choice of a lectotype every bit of evidence counts, and there is very little else of it available in the present case. While I admit that my own arguments inevitably contain some indecisive elements, I cannot see any justification in accepting Singer's view as correct.

Perhaps an additional piece of (circumstantial) evidence may be presented. Singer described the base of the stipe as 'now velutinous but insititious.' A stipe is called insititious if it is attached directly to the substratum, that is, without rooting fibrils. This description vividly recalls Bulliard's illustration referred to by Persoon and depicting a stipe which looks glabrous except for the very base and which does not seem to be fastened by rooting fibrils. The actual situation in the six stipes is completely different. Towards the base they are increasingly covered in long, flexuous fibrils with which the stipes are attached to the surrounding mosses.

Summing up, I maintain that the relation between the material of L 910.258–421 and the original description of *A. corticola* has not been and cannot be conclusively ascertained. In other words, the identity of the material, albeit authentic, cannot be taken to coincide with the identity of the species as originally described.

There is yet another consideration which comes into play in case Singer's choice of the lectotype would have been correct. Singer, in redescribing the specimen he regarded as lectotype, failed to give a description of the cheilocystidia, stating that they 'must be rare.' This is a circuitous way of admitting that he has not seen any. He further admitted to have observed spores 'of various types and apparently different sources...the subglobose ones most consistently appearing...taken to belong to these carpophores...' In my opinion here two defects are disclosed, and they are so serious as to render the material under discussion completely unsuitable as lectotype.

A final point may be mentioned, although it has no direct connection with the foregoing. Singer held the opinion that his redescription, in which stress is laid on subglobose spores,

'coincides with *Omphalia corticola* Peck which, according to A. H. Smith... is *Mycena hiemalis*.' Actually, Smith's wording was more cautious, for this author said '...in all probability ...' (1947: 359). I should add here that Smith who had studied Peck's type stated that the material was very scanty; he said nothing about the spores. The matter acquires a very different aspect when, on consulting the original description (1891: 130), the spores of Peck's species (compare also his pl. 2 fig. 12) turn out to be 'elliptical, .0003 in. long, .00016 broad', that is, almost twice as long as their width. Further, Peck's illustration shows the lamellae to be narrow and arcuate, whereas those of *M. hiemalis* are definitely ventricose. This clearly demonstrates that Peck's fungus and *M. hiemalis* are not conspecific.

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The *Mycena epipterygia*-group

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The present paper is based on the study of the original descriptions of the taxa that make up the *Mycena epipterygia*-group, while a key is provided for their identification. *Mycena griseoviridis* and *M. pelliculosa* are reduced to varietal status under *M. epipterygia*. The copy of "Lundell & Nannfeldt, Fungi exs. succ. 1124" at C is proposed as neotype of *Agaricus pelliculosus* Fr.

The growth of the *Mycena epipterygia*-group¹ and the ensuing problems furnish an account which could be written about many groups of variable fungi. It does seem out of the ordinary, however, within the genus *Mycena*, since especially in the *epipterygia*-group the variability is little short of spectacular. Difficulties in this particular group started with the discovery of deviating but obviously related forms. These difficulties are of two kinds. Firstly, although a common enough species, *M. epipterygia* (Scop. ex Fr.) S.F. Gray proved far from being itself a well defined taxon while, secondly, of several other members of the group the full variability was unknown or not understood, and still remains obscure. The present paper cannot be said to have solved the problems, but at least the mere listing of the members of the *epipterygia*-group is a first, and hitherto neglected, step on the way to more profound insight.

Following Kühner's (1938) example nearly all taxa discussed here have been called varieties, but I am perfectly aware of the fact that the value of the varietal

¹ This, of course, is the same as Subject. *Gummosae* (Lange) Oort in Singer's work (1975: 394).

status is not the same in every separate case. And I would not be surprised if still other forms will be found which may blur the picture.

The descriptions added to each taxon have been adapted from the original and should simplify comparison; they are meant to give only the essential information.

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KEY TO SPECIES AND VARIETIES²

1. Basidia 4-spored.
 2. Cheilocystidia with 1-4 needle-like projections 15-30 μ m long; enlarged portion of the cystidial body sometimes with irregular, blunt excrescences var. *griseoviridis*
 2. Cheilocystidia different (in some cases said to be absent).
 3. Pileus and stipe purplish brown from the beginning; yellowish shades not recorded [var. *x*]
 3. Pileus and/or stipe either without purplish brown shades or only gradually and locally becoming suffused with such colours.
 4. Pileus olive brown, dark grey-brown or dark brown to almost black at centre; margin sometimes yellowish.
 5. Stipe citrine yellow to golden yellow, at least in part or when young.
 6. Odour, when cut, more or less pronouncedly rancid. Stipe with age turning red-brown from base upwards or becoming spotted with that colour.
 7. Pileipellis with peppery taste [var. *atroviscosa*]
 7. Pileipellis not peppery var. *viscosa*
 6. Odour slightly farinaceous var. *cespitosa*
 5. Stipe grey, grey-brown or, if yellowish, never of a bright citrine yellow colour var. *pelliculosa*
 4. Pileus pale greyish brownish, bright yellow, honey yellow, brownish yellow, greenish yellow, sometimes almost white.
 8. Stipe remaining unchanged or pallescent with age, more rarely becoming suffused with a purplish shade.
 9. Growing on soil or humus.
 10. Stipe citrine yellow, pallescent with age var. *epipterygia*
 10. Stipe yellowish grey, becoming suffused with a purplish shade unusual form of var. *pelliculosa*

² The use of brackets signifies that the taxon has not been validly published.

9. Growing on conifer wood var. *lignicola*
8. Stipe rubescent with age
11. Pileus whitish or greyish. Spores 6–8 μm wide var. *viscosa*
11. Pileus pale citrine. Spores 5–6 μm wide [var. *rubescens*]
1. Basidia 2-spored.
12. Odour more or less strongly farinaceous.
13. Pileus dark olivaceous grey-brown to bistre or almost black.
14. Stipe citrine yellow, with age turning very pale olivaceous grey-brown above, red-brown below *Mycena simia*
14. Stipe citrine yellow, with age turning dark greyish brown above, not rubescent below var. *badiceps*
13. Pileus citrine yellow in various shades var. *lignicola*
12. Odour not particular or absent.
15. Spores 9–10 μm long, broadly pip-shaped.
16. Stipe greenish, usually with reddish stains at the base var. *eipterygioides*
16. Stipe deep citrine yellow or golden citrine yellow towards the base *M. subinamyloidea*
15. Spores (10–) 11–15 μm long, elongated pip-shaped or amygdaliform [var. *brunneola*]

MYCENA EPIPTERYGIA var. ATROVISCOSA Malençon

Mycena eipterygia var. *atroviscosa* Malençon apud Malençon & Bert. in C.r. Séanc. mens. Soc. Sci. nat. phys. Maroc 27: 24. 1961 (not validly publ., type not indicated); Fl. Champ. sup. Maroc 2:250, fig. 47, pl. 12. 1975 (not validly publ.). — *Mycena viscosa* var. *atroviscosa* (Malençon) Malençon apud Malençon & Bert., Fl. Champ. sup. Maroc 2: 253. 1975 (not definitely accepted).

Pileus 10–17 (–25) mm across, dark bistre to almost black, less dark towards the margin and with a brownish shade. Lamellae greyish to sepia coloured along the base, whitish towards the edge. Stipe 30–65 \times 2–3 (–5) mm, citrine yellow or slightly virescent, sometimes discoloured and whitish, with age from base upwards assuming increasingly pronounced reddish or brown-red shades. Entire basidiome with age turning reddish brown. Odour when cut rancid, sometimes not very markedly, then fruity. Taste of context mild or somewhat rancid, but pellicle of pileus peppery. Basidia 4-spored. Spores mostly 8.8 \times 6 μm . Cheilocystidia irregularly clavate, with variously shaped excrescences. — Type locality: Morocco, Moyen Atlas. — Fasciculate, more rarely solitary, at the base of coniferous trees or on their woody debris.

MYCENA EPIPTERYGIA var. BADICEPS M. Lange

Mycena eipterygia var. *badiceps* M. Lange in Meddr Grönland 147: 49, fig. 27. 1955 (misspelled var. *badipes* by Malençon & Bertault, Fl. Champ. sup. Maroc 2: 253. 1975).

Pileus 8–12 mm across, bistre to almost black at centre, narrow zone on edge pale honey yellow. Lamellae white at first, then pallid greyish. Stipe 40–70 \times 1–1.5 mm, lemon yellow when young, dark greyish brown above when older. Odour and taste pronounced, farinaceous-acid. Basidia 2-spored. Spores 9–12 \times 5.5–7.3 μm . Cheilocystidia with branched, rather short projections. — Type locality: Greenland. — Type: ML 302, in moss on deep humus layer. Further collections were stated to grow among moss and *Salix arctophila*.

Gulden & Lange (1971: 12) reduced the present variety to the synonymy of *Mycena griseogilva*, a new name given by Horak to replace *M. eipterygia* var. *brunneola* Favre. Even if their arguments should prove to be correct, the name change they accepted is not, since neither Favre's nor Horak's taxon has any nomenclatural status.

Contrary to the opinion of Gulden & Lange, however, there is good reason to believe that var. *badiceps* is sufficiently distinct to warrant separation from var. *brunneola*. The former has a low, campanulate-convex pileus with a small umbo and its colour is bistre to almost black at the centre. Odour and taste are said to be pronounced, farinaceous-acid. The pileus of the latter is high and narrow with a strongly marked umbo, while its general colour is of an indeterminate but not very dark shade of brown. The odour is not particular.

Going by the descriptions, var. *badiceps* and *M. simia* (which see) appear very close. Further research may prove them identical.

MYCENA EPIPTERYGIA var. BRUNNEOLA Favre

Mycena epipterygia var. *brunneola* Favre, Cat. descr. Champ. sup. zone subalp. Parc natn. suisse (= in *Ergebn. wiss. Untersuch. schweiz. Nationalparks VI* 42): 407, 586, fig. 17, pl. 1 fig. 5. 1960 (not validly publ., type not indicated). — *Mycena griseogilva* Horak in *Mitt. schweiz. Anst. forstl. Versuchswesen* 39 (1): 69, pl. 3 fig. 16a–c. 1963 (not validly publ.).

Favre: Pileus when very young brown with citrine shade, the umbo long retaining the citrine colour, otherwise soon turning darkish brown. Lamellae white or very pale citrine at first, soon becoming grey, sometimes with pink shade. Stipe $110 \times 1.2\text{--}1.5$ mm, citrine at the extreme apex and towards the base, paler concolorous with the pileus in the middle part. Odour not particular. Basidia usually 2-spored. Cheilocystidia more or less clavate, with coarse, fairly long excrescences. — Type locality: eastern Switzerland, subalpine zone. — In coniferous forest.

Horak: Pileus smoky brown, paler brown towards the margin. Lamellae whitish-greyish. Stipe watery grey above, dark yellow below, more rarely entirely dark yellow. Odour none. Basidia 2-spored. Spores $(10\text{--})11\text{--}15 \times 6.8\text{--}7.5$ μm . — Among *Rhododendron*, under *Pinus mugo* or under *Alnus viridis*.

Mycena griseogilva is a new name on the specific level given by Horak to replace the varietal epithet of Favre. However, since the latter omitted to indicate a type his variety was not validly published. This omission was not remedied by Horak, as a result of which the new name is likewise invalid.

Judging from Horak's annotation, var. *brunneola* seems quite consistent in its characters and certainly deserves recognition. Its name requires valid publication by the selection of a type from the specimens in Favre's collection, but thus far these have been prevented from being sent on loan by the prevalent regulations.

MYCENA EPIPTERYGIA var. CESPITOSA Thiers

Mycena epipterygia var. *cespitosa* Thiers in *Mycologia* 50: 517. 1958.

Pileus 8–20 mm across, olive brown ("Dresden brown" to "Prout's brown" to "mummy brown") at the centre, changing to yellow ("pinard yellow") toward the margin. Lamellae white to pale yellow. Stipe $30\text{--}50 \times 1.5\text{--}2.5$ mm, yellow ("pinard yellow") during all stages of development. Odour slightly farinaceous, taste pungent to farinaceous. Basidia 4-spored. Spores $9.3\text{--}10.5 \times 6.2\text{--}7.8$ μm . Cheilocystidia clavate to broadly clavate, with numerous short, rod-like projections or with few branches or unbranched. — Type locality: U.S.A., Texas, Montgomery Co. — Type: H.D. Thiers 1433, densely gregarious to cespitose at base of conifer stump in mixed forest.

The description of the taste as pungent is interesting since it illustrates that any character may turn up in any member of the *eipiterygia*-complex.

Josserand in a note published by Kühner (1938: 350) stated that the taste of *M. epipterygia* becomes "légèrement piquante à la fin . . .", while Malençon & Bertault (1975: 252) found the pileipellis of their var. *atrovisca* to have a peppery taste. These examples, of course, are given in the, admittedly unproved, presumption that the acrid taste is caused by the same chemical constituent.

MYCENA EPIPTERYGIA var. EPIPTERYGIA

Agaricus epipterygius Scop., Fl. carniol., ed. 2, 2: 455. 1772; ex Fr., Syst. mycol. 1: 155. 1821. — *Mycena epipterygia* (Scop. ex Fr.) S. F. Gray, Nat. Arrang. Br. Pl. 1: 619. 1821.

Agaricus citrinellus Pers., Icon. Descr. Fung.: 44, pl. 11 fig. 3. 1800; ex Fr., Syst. mycol. 1: 155. 1821. — *Mycena citrinella* (Pers. ex Fr.) Kummer, Führ. Pilzk.: 109. 1871 (misspelled *citronella*, but correct in index).

Agaricus citrinellus var. *candidus* Weinm., Hym. Gasteromyc. Imp. ross. obs.: 118. 1836.

Mycena citrinella var. *candida* Gillet, Hym.: 258. 1876 (recombination of preceding?).

Mycena citrinella var. *alba* Oort in Meded. Ned. mycol. Ver. 16–17: 243, 253. 1928.

Pileus 18–24 mm across, pale dingy brownish at the centre, yellowish then whitish at the margin, sometimes turning entirely brownish honey-colour or creamy honey-colour. Lamellae whitish. Stipe 55–80 × 1.5–1.7 mm, citrine yellow, pallescent from base upwards. Odour almost none; taste almost none to distinctly farinaceous-rancid. Basidia 4-spored. Spores 8.5–11 × 4.5–6 μm. Cheilocystidia irregularly clavate, with usually coarse, finger-like, simple or branched, blunt excrescences. — Type locality: [formerly Austria, now] Yugoslavia, Krain. — Gregarious, mostly in deciduous woods, also on heaths.

The original diagnosis by Scopoli is so short as to be of very little use, while the description given by Fries in his Systema clearly shows that this author must have combined the features of several varieties if not different species. The abridged description given above has been adapted from Kühner's (1938: 347), while I agree with Maire (1910: 161) that Cooke's plate 245/208 and Gillet's plate 461 each give an excellent interpretation of a colour form of the type variety. A more recent picture of similar quality illustrating yet another colour form was published by Nannfeldt & Du Rietz (1952: pl. 140A). A good description was further given by Raithelhuber (1979: 36).

It would be unreal to suppose that var. *epipterygia* itself should not have its share of little variations. It is difficult enough to judge which of these would deserve recognition. Some of these variations concern the colour of the pileus which at times tends to turn out rather more brightly yellow than is thought normal. Some examples were described by Singer & Moser (1965: 160). Another extreme is that both pileus and stipe sometimes are almost white, either faded in old age or bleached by rain. These forms became known in literature under such names as *Mycena citrinella* var. *candida* and var. *alba* (see the synonymy). As regards the colour of the lamellae, there is some variation here, too. Whitish and pale yellowish are the usual colours, but eventually the lamellae may turn flesh-coloured or pink (note by Maire apud Kühner, 1938: 350; Pearson, 1955: 54–55). The odour is also known to be variable; it may be non-existent, faintly fragrant or rancid (Kühner, 1938: 348; Maire, 1911: 411; Pearson, 1955: 54–55; Smith, 1947: 426). Some authors (Josserand apud Kühner, 1938: 350; Maire, 1910: 161; Ricken, 1915: 419) reported the absence of cystidia. There may well

be some variation in the number of cheilocystidia but, with reference to the evidence presented by Smith (1947: 427), it seems also quite plausible that in the case of the European authors "the cheilocystidia have gelatinized to such an extent that their outlines are very indistinct." Finally, data on the habitat such as given by Favre (1948: 92), Pearson (1955: 54–55) and Smith (1947: 426) indicate that the occurrence of var. *epipterygia* is not restricted to deciduous woods as maintained by Kühner (1938: 348) and Maire (1910: 161).

Mycena citrinella and interpretations of this species have been subject of discussions by Kühner (1938: 351, 668) and Smith (1947: 476), and both authors suggested that very probably it was nothing more than a minor form of *M. epipterygia*, that is of var. *epipterygia*. Singer (1961: 15) investigated material of *Agaricus citrinellus* in Herb. Persoon which he thought to be "the type or authentic material." This material is glued to a sheet of paper which bears the name *A. citrinellus* in a handwriting that probably is Junghuhn's rather than Persoon's. In any case, the material clearly is not the type, although it does represent var. *epipterygia*, as correctly recognized by Singer. My own conclusion, based on Persoon's description and illustration, is that *Agaricus citrinellus* is identical with var. *epipterygia* and for this reason formally reduced to its synonymy.

Horak (1968: 170; 1971: 420) left no doubt that he regarded *Mycena epipterygia* as a member of the genus *Collopus* segregated by Earle (1909: 426). Actually, *M. epipterygia* was made the type species of this genus, but neither author effectively made the recombination. Smith (1947) ignored the genus.

Var. *epipterygia* is fairly common in the Netherlands; an additional description of the local populations is deemed unnecessary.

MYCENA EPIPTERYGIA VAR. EPIPTERYGIOIDES (Pearson) Kühn.

Mycena epipterygioides Pearson in Trans. Br. mycol. Soc. 6: 135. 1919. – *Mycena epipterygia* var. *epipterygioides* (Pearson) Kühn., Genre *Mycena* (= in Encycl. mycol. 10): 353. 1938.

Pileus 10–15 mm across, greenish yellow [greenish], centre usually a little darker [dark green]. Lamellae white at first, then a delicate greenish yellow. Stipe $\pm 60 \times 2$ mm, greenish, usually with reddish stains at the base. Odour and taste [none]. Basidia 2-spored. Spores $9-10 \times 7.5-8 \mu\text{m}$. Cheilocystidia finely ciliated, brush-like [clavate with finger-like knobs]. – Type locality: Great Britain, Surrey. – Among moss in pine woods.

– In a later publication Pearson (1955: 56–57) gave a description of the species which deviated somewhat from his first. The differences are shown above in square brackets. Although Pearson stated that the species was common in late autumn, there seems to be no recent and more detailed British description (a defect many common species have in common!), as a result of which it is uncertain whether or not yellow shades must be considered an essential component in the colouration of either pileus or stipe. Kühner (1938: 353) and Kühner & Romagnesi (1953: 110) did not hesitate to designate Lange's (1936) plate 58 fig. C as a good illustration of var. *epipterygioides*, but ignored (or overlooked) the fact that Lange had described the basidia as 4-spored. This

renders their identification uncertain, but the illustration referred to does permit the conclusion that in the initial stages of the basidiome yellow colours may actually be present. Some years later, Kühner in a joint paper with Mille Lamoure (1958) compared his *Mycena simia* with dried material of var. *epipterygioides* received from Pearson but this study, of course, supplied no information on the colours of fresh specimens of Pearson's taxon. The meagre notes recorded by Wakefield & Dennis (1950: 94) contributed nothing to a better understanding of the variety. More recently Raithelhuber (1977: 98) published a description which, however, very much gives the impression of being a German translation of Pearson's descriptions. Indeed, to me var. *epipterygioides* remains somewhat puzzling, and reports of its occurrence in the Netherlands must be viewed with reservation.

***Mycena epipterygia* var. *griseoviridis* (A. H. Smith) Maas G., n. comb.**

Mycena griseoviridis A. H. Smith, N. Amer. spec. *Mycena* (= in Univ. Mich. Stud., Scient. Ser. 17): 418, figs. 52(1-2), pl. 91. 1947 (basionym).

Pileus 10-35 mm across, "deep olive", "olive brown" to "clove brown", finally blackish, sometimes "Chaetura black" with hoary sheen when young, dark greyish citrine becoming greenish brown in age. Lamellae white with a greenish tinge, soon greenish grey and becoming spotted reddish brown, with pallid edge. Stipe (30-) 50-90 × 1-2.5 (-3.5) mm, "light dull green yellow" to "courage green", sometimes rather bright yellowish fading to pearly grey and usually sordid purplish brown toward the base. Odour and taste strong, reminding one of green cucumbers or much more disagreeable. Basidia 4-spored. Spores 9-11 × 5-6.5 μm. Cheilocystidia clavate at first but soon fusoid, with 1-4 long needle-like projections 15-30 × 2-3 μm which are simple or forked, the enlarged portion of the cystidium sometimes covered with obtuse irregular protuberances in addition. - Type locality: U.S.A., Michigan, near Ann Arbor. - Type: A. H. Smith 15498, gregarious to scattered in oak or pine woods.

Smith emphasized the importance of the cheilocystidia of *M. griseoviridis* which he considered the most distinctive character of his species. This may be countered by the observation that all characters in the *Mycena epipterygia*-complex are subject to variation and that the cheilocystidia make no exception. In his description Smith actually added, in brackets, that "a few cheilocystidia are clavate and more or less contorted," while his fig. 52(1) shows one cystidium without the characteristic "needle-like projection," thus resembling one of those types also seen in other varieties of the complex. The description given by Thiers of his *M. epipterygia* var. *cespitosa* is another reminder of the variable aspect of the cheilocystidia. These considerations have led me to the conviction that *griseoviridis* is just another variety of the variable *epipterygia*-complex.

Smith (1947: 420) also described a *M. griseoviridis* var. *cascadensis*, distinguished from the typical variety "by its more intense colors, habitat [conifer logs], and simple or seldom-branched cystidia." No decision has been taken as yet whether it would be expedient to maintain var. *cascadensis* as a separate taxon.

MYCENA EPIPTERYGIA var. LIGNICOLA A. H. Smith

Mycena epipterygia var. *lignicola* A. H. Smith, N. Amer. spec. *Mycena* (= in Univ. Mich. Stud., Scient. Ser. 17): 428, fig. 51 (8). 1947.

Pileus 8–15 mm across, "citrine" to "dark citrine" on the disk or "picric yellow" on the disk and "naphthalene yellow" toward the whitish margin. Lamellae white to pale yellow. Stipe 40–60 × 1–1.5 mm, "lemon chrome" to "citron yellow" at first and fading to "massicot yellow". Odour and taste slightly to rather strongly farinaceous. Basidia 2- to 4-spored, usually 2-spored in northeastern North America. Spores (9–)10–12(–13) × 5.5–8 μm. Cheilocystidia clavate, covered with short rod-like projections. – Type locality: U.S.A., Washington, near Mt. Angeles. – Type: A.H. Smith 17316, gregarious on conifer wood.

Because this variety was stated to be found 2- or 4-spored, depending on the latitude of the locality, it appears on two places in the key. It may well be asked, however, whether the 2- and 4-spored conditions are actually conspecific. In the light of Mlle Lamoure's researches on *Mycena simia* (which see), Smith's assumption needs reconsideration.

Mycena epipterygia var. *pelliculosa* (Fr.) Maas G., n. comb.

Agaricus pelliculosus Fr., Epicr. Syst. mycol.: 116. 1838 (basionym); Monogr. Hym.: 228. 1857; Hym. eur.: 149. 1874. – *Mycena pelliculosa* (Fr.) Quél. in Mém. Soc. Emul. Montbél. II 5: 343. 1873. – *Mycena vulgaris* subsp. *pelliculosa* (Fr.) Legué, Cat. rais. Basidiomyc.: 46. 1908.

Mycena viscosa var. *iodiolens* A.H. Smith, N. Amer. spec. *Mycena* (= in Univ. Mich. Stud., Scient. Ser. 17): 423. 1947.

?*Mycena steinmannii* Raithelhuber in *Metrodiana* 6: 96, 99, fig. on p. 95. 1977.

Pileus blackish–dark brownish olive. Lamellae pale slate colour, fading with age. Stipe pale greyish. Odour reminiscent of iodine. [Basidia 4-spored. Spores 7.8–9.1 × 4.9–5.3 μm. Cheilocystidia more or less irregularly clavate, with coarse excrescences up to 10.5 μm long, up to 1.8 μm wide. Pleurocystidia none.] – Type locality: Sweden, Småland. – Neotype: Lundell & Nannfeldt, Fungi exs. suec., praes. upsal. 1124, amongst short grasses and mosses in a moist spot at the margin of a pasture (C).

The macroscopic part of the above description, which is Lundell's, has been taken from the label accompanying the exsiccatum, while the microscopic part, in square brackets, is my own. Although the macroscopic description, unfortunately, is somewhat scanty, the exsiccatum is quite typical of most of the Friesian concept of the species, and the Copenhagen copy is herewith proposed as neotype.

Dennis, Orton & Hora (1960: 205) pointed out that they had retained *M. pelliculosa* in the sense of Pearson and A.H. Smith, the interpretations by Ricken and J.E. Lange being unknown to them. To this the following may be said. Lundell stated that he had been unsuccessful in finding any fungus [completely] resembling Fries's species in the latter's own hunting grounds. He believed that the description given by Fries had been based on specimens with abnormal lamellae, and he further mentioned that his own material agreed perfectly with Ricken's description. Careful comparison of Ricken's account with Fries's 1838 diagnosis shows that the deviation only concerns two minor points. Ricken (i) mentioned olivaceous shades in the pileus and stipe, and (ii) recorded a mealy odour. Perhaps, it is not surprising that Fries should have

missed this odour in view of the fact that he was an inveterate snuff taker (Maire, 1910: 160). This would make Ricken's description even more closely similar to the Friesian diagnosis. Since there is very little difference between the descriptions of Ricken and of Lundell there can be no serious obstacle in accepting *Agaricus pelliculosus* in the sense of these two authors. Very much in contrast with their interpretations stand the two descriptions published by Smith (1935: 598, and 1947: 435). In his 1935 publication Smith stated that the "entire fruit body is very tough and cartilaginous." This is inconsistent with Fries's (1838: 116) "Stipes . . . fragilis." It is true that Fries later (1857: 228) changed this part of the description into "Stipes . . . rigidus," but no doubt this was an error, for several years later again (1874: 149) the original "Stipes . . . fragilis" was restored. To return to A.H. Smith, in his monograph (1947: 435) no further mention was made of the tough consistency, but now the lamellae were described as arcuate-decurrent and the pleurocystidia were said to be numerous. Neither character is correct for var. *pelliculosa*, or even for the *Mycena epipterygia*-group as a whole. The conclusion to be drawn from this is that Smith's later description of *Mycena pelliculosa* is an equally unacceptable interpretation of the European taxon.

Kühner (1938: 356), being unfamiliar with *M. pelliculosa*, adopted the description by Smith and, along with it, the particular feature of the lamellae which were said to be arcuate-decurrent. On account of this character Kühner placed *M. pelliculosa* in the group of the *Omphalariae*. In the sense as understood here, var. *pelliculosa* has ascending lamellae, decurrent with a short tooth. There is no doubt, therefore, that it is a true member of the *Mycena epipterygia*-group.

Finally, some words must be said about the interpretations of Lange and Pearson. If Lange's description and illustration (1923: 46 and 1936: 50, pl. 58 fig. C) are to be referred to var. *pelliculosa* at all, his material must have been an unusual form, not reported since. As regards Pearson's interpretation (1955: 56-57), this definitely is not a member of the *epipterygia*-group on account of the lamellae being described as arcuate.

In the Netherlands var. *pelliculosa* is not uncommon, while it is found in a considerable variety of forms. Some of these forms, it is true, deviate to such an extent from Lundell's notes that one may be tempted to segregate them as so many varieties. But there is one important point that should be kept in mind. Lundell described material collected on a single day and from a very limited area, which must have offered him very little opportunity of observing possible variation. Several of the varieties of *M. epipterygia* discussed in the present paper, however, clearly show how wide their limits of variation can be, so the diversity of the Dutch material of var. *pelliculosa*, collected over a period of more than 20 years and from many different localities and habitats, should not cause undue concern. Some, of course, may eventually prove to be different from true *pelliculosa*, but the characters of the forms thus far examined seem to intergrade in various combinations, and no workable clue has yet been found.

The following abbreviated description is based on notes accompanying the indigenous collections preserved in L and WBS.

Pileus up to some 35 mm across, grey-brown or dark grey-brown to almost black at centre, sometimes with an olivaceous shade, usually paler towards the margin (once observed to be entirely ochraceous yellow with an olivaceous shade in very young specimens; on two other occasions found to assume purplish hues at maturity), rarely becoming red-spotted with age. Lamellae pale grey, beige-grey, pale grey-brown, ash grey with whitish edge, smoky grey, sometimes turning pink or flesh-coloured with age, rarely becoming red-spotted. Stipe 20–90 × 1–6 mm, pale grey-brown with yellowish or beige or olivaceous shades, usually somewhat darker below, rarely becoming red-spotted or turning somewhat red-brown at the base. Odour rarely none or indefinite, sometimes said to be strong and farinaceous or of cucumber, but mostly rancid, disagreeable, fish-like, twice found to be decidedly of iodoform when drying out. Basidia 4-spored. Spores 6.5–12.5 × 4–7 μm (the larger sizes possibly produced by occasional 2-spored basidia?). Cheilocystidia numerous, of the usual type. Pleurocystidia none or rare. — Among grasses on heathy places and in dune grassland, not necessarily associated with conifers.

The scale of smells in var. *pelliculosa* is wider than in most other varieties of *M. epipterygia*, and more particularly the odour of iodoform is somewhat surprising, but it is not unique. Smith described the odour of his var. *lignicola* (1947: 428) as “slightly to rather strongly farinaceous,” while of the same species his collection Smith 16928 was said to have a strong odour of iodoform.

Mycena viscosa var. *iodiolens* described by Smith fits in better with var. *pelliculosa* rather than with var. *viscosa* on account of its iodoform-like odour and narrower spores.

Mycena epipterygioides as redescribed by the same author (1947: 424) resembles var. *pelliculosa* in several respects; perhaps they are actually identical.

Raithelhuber failed to mention the number of spores per basidium, but apart from this omission there seems to be no other obstacle to regard his *Mycena steinmannii* as identical with var. *pelliculosa*.

MYCENA EPIPTERYGIA var. RUBESCENS Remy

Mycena epipterygia var. *rubescens* Remy in Bull. trimest. Soc. mycol. Fr. 80: 498, 580. 1965 (not validly publ., type not indicated).

Pileus up to 20 mm across, pale citrine yellow. Stipe 60 × 2 mm, [presumably concolorous with pileus] reddening with age. Spores 9–12 × 5–6 μm. — Type locality: France, near Briançon. — Growing among tall mosses in coniferous wood.

The author regarded this as a somewhat rubescent variety of *M. epipterygia*, differing from *M. viscosa* in smaller stature, pale citrine yellow colour, spores, and habitat. He failed to mention whether the reddening might extend farther upwards to include lamellae and upper surface of pileus. Probably, however, this is hardly of any importance, and Smith (1947: 425) rightly observed that “the reddish stains that develop on the gills and stipe in old carpophores are an unreliable character in many groups of Mycenae.” The only reason for maintaining var. *rubescens* is that red-spotted variants of var. *epipterygia* (which is emphatically said to be non-rubescent) cannot be left unnamed. The epithet awaits validation, however.

MYCENA EPIPTERYGIA var. VISCOSA (Maire) Ricken

[*Agaricus alcalinus viscosus* Secr., *Mycogr. suisse* 2: 312. 1833 (not validly publ.)]. *Mycena viscosa* Maire in *Bull. Soc. mycol. Fr.* 26: 162, 163, fig. 1 B. 1910. — *Mycena epipterygia* var. *viscosa* (Maire) Ricken, *Blätterp.*: 419. 1915.

Pileus 20–30 mm across, whitish, pearl grey, grey, brown, finally turning red-brown. Lamellae whitish to greyish or flesh-coloured. Stipe 50–80 × 1–2 mm, citrine yellow or golden yellow, whitish at the apex. Odour of rancid candle wax [formerly made of sheep fat!]. Basidia 4-spored. Spores 8–12 × 6–8 μm. Cheilocystidia clavate, smooth. — Type locality: France, Dép. Doubs. — On fallen needles and rotten stumps in coniferous forests.

Maire (p. 164) correctly observed that he had been compelled to modify Secretan's inadmissible denomination, and proceeded to give a full description as well as a Latin diagnosis of the taxon he considered to be a species in its own right. Several later authors, however, kept referring to Secretan in connection with the epithet '*viscosa*'. The Code (of Botanical Nomenclature) of 1978 put an end to this undesirable situation by clearly stating (Art. 23.6.C) that "none of the specific names . . . in this [Secretan's] work are validly published." The consequence to be drawn from this is that the type should be selected from Maire's herbarium. If it is no longer in existence a neotype should be collected in the coniferous woods near Boujeailles, Département Doubs, France.

Maire's description, it may be pointed out, deviates from Secretan's in that it omits the citrine yellow colour of the pileus in its early stages. Whether this colour in var. *viscosa* is an elusive or inconstant feature is unknown; it does not seem to have been observed by the more recent European authors. On the other hand, it is well worth remembering that Smith (1947: 420) justly commented on "the great variation of yellow, green, and gray in this group . . ."

In a beautifully illustrated book Jahn (1979: 207, pl. 181) gave a picture of his interpretation of *M. viscosa*, showing the pileus with citrine shades. With no information on the number of spores per basidium it is impossible to say whether the interpretation is correct.

Maire described cystidia which look rather unusual for the *M. epipterygia*-group since they are said to be clavate and devoid of finger-like excrescences. In a later publication (Maire, 1911: 411) he stated that he had found them absent from many specimens and that he doubted whether these structures were not transformed basidia rather than true cystidia. In this connection it seems appropriate to point to *M. epipterygia* var. *cespitosa*, the cheilocystidia of which Thiers (1958: 517) described as "with numerous short, rod-like projections or with few branches or unbranched."

Kühner (apud Kühner & Lamoure, 1958: 23) in a note said that, after nothing but negative results in interfertility tests, it was tempting to regard *M. epipterygia* and *M. viscosa* as good species in their own right. He avoided a more affirmative statement, however.

MYCENA EPIPTERYGIA var. X

Pileus 13–22 mm across, dark red-brown with purplish hue, darker to almost black towards the centre, drying lilaceous brown. Lamellae originally pinkish grey-brown, becoming vinaceous-

spotted, finally dark purplish brown. Stipe 36–40 × 1.5–2 mm, pinkish brown, turning red-brown. Odour when cut of rancid meal or cucumber, after half an hour reminiscent of iodoform. Basidia 4-spored. Spores approximately 8–9 × 5.5–5.8 μm. Cheilocystidia of the usual *epipterygia*-type. – Type locality: The Netherlands, prov. Drente. – E. Arnolds 3373, on grassland on poor humose sandy soil.

In the above description, the macroscopic part is by the collector, E. Arnolds, who proposes to include this taxon in a publication under his own name. Without any doubt it is the most striking colour form of the *epipterygia*-group and one which at first sight would well seem to deserve specific rank. However, it does not stand isolated. In the herbarium at Wijster (WBS) there is an equally remarkable collection of var. *pelliculosa* (Masselink 7643) with the following description: Pileus greenish yellow, turning purplish grey-brown. Lamellae pale grey tinged purplish. Stipe yellowish grey, often with a pronounced purplish shade, approaching the colour of *Laccaria amethystea* (Bull. ex Mérat) Murrill. Then, another intergrading form of var. *pelliculosa* should be mentioned (M.E. Noordeloos & C. Bas, 6 XI 1976; L), which was described thus: Pileus originally entirely ochraceous yellow with olivaceous shade, then turning grey-brown near the margin and dark brown to very dark brown in centre and striae. Lamellae dingy whitish, turning lilaceous grey-brown. Stipe pale watery citrine above, lilaceous brown below. These two collections, along with two others of lesser importance, demonstrate that the capacity of assuming purplish shades is apparently present in varying degrees in var. *pelliculosa*, although not to such an extreme as shown in the case of var. *x*. It seems justified, therefore, to distinguish Arnolds 3373 as a separate taxon, but it is probably better regarded as a variety rather than a species.

MYCENA IXOXANTHA Sing.

Mycena ixoxantha Sing. in Beih. Sydowia 7: 42. 1973.

Singer (1975: 394) regarded this species as a member of what here is called the *Mycena epipterygia*-group. In fact, many of the characters seem in agreement with such a disposition, but the lamellae give a completely different picture. These were described to be eight in number (against twice or three times as much in the *epipterygia*-group!), broadly adnate or somewhat decurrent. Obviously, *M. ixoxantha* does not belong to the *epipterygia*-group.

MYCENA LEUCOXANTHA Sing.

Mycena leucoxantha Sing. in Beih. Sydowia 7: 42. 1973.

Whether this species can be regarded as a member of the *M. epipterygia*-group (as Subsect. *Gummosae* in Singer, 1975: 394) is questionable. All members of this group possess pip-shaped spores, whereas Singer for his species described them globose to subglobose (8–11 × 7.5–10.3 μm). Secondly, the excrescences of the cheilocystidia were stated to be “divergentibus erectis setuloidiformibus,” which is unknown for the *epipterygia*-group. Finally, the lamellae were said to be distant. It is true that the *epipterygia*-group is a variable

one, but the three characters referred to above combined seem to exceed the limits.

MYCENA PITERBARGII Sing.

Mycena piterbargii Sing. in Beih. Nova Hedwigia 29: 116. 1969.

According to Singer (1975: 394), this species should be placed in Subsect. *Gummosae*, along with *M. epipterygia* and others, here indicated as the *epipterygia*-group. Singer described the lamellae as "adnatis vel manifeste decurrentibus, arcuatis vel mox descendentibus, haud ascendentibus." On account of this character the species cannot be maintained in the *epipterygia*-group. Singer also stated the lamellae to be distant, which is equally inconsistent with the members of the *epipterygia*-group. Perhaps some clue could be found in the stipe, but Singer omitted this part of the description.

MYCENA SIMIA Kühn.

Mycena simia Kühn. apud Kühn. & Lamoure in Anns Univ. Lyon (sect. C) 10: 21, 23. 1958.

Pileus 8–12 mm across, dark olivaceous grey-brown, paling flavescent in the end. Lamellae frankly grey. Stipe 85–100 × 1–1.2 mm, citrine golden yellow below, very pale olivaceous greyish above, finally turning red-brown at the base. Odour strong, rancid and of meal. Basidia 2-spored. Spores 12.5–13 × 6.7–7.5 μm. Cheilocystidia [apparently present and] "en brosse." – Type locality: France, Haute-Savoie. – Type: Praz de Lys, on *Hypnum schreberi* among *Vaccinium*.

It may seem inconsistent not to reduce the present taxon to varietal level, but there is a good reason. Mlle Lamoure showed *M. simia* to differ cytologically from 4-spored forms such as *Mycena epipterygia*, and from this she concluded that both are specifically different.

MYCENA SUBINAMYLOIDEA Sing.

Mycena subinamyloidea Sing. in Anns mycol. 41: 139. 1943.

Pileus 2.5–10 mm across, pale brownish or yellowish grey, olivaceous yellow in the centre. Lamellae greyish whitish. Stipe 23–75 × 0.5–1 mm, pallid above, deep citrine yellow or golden citrine yellow towards the base. Odour almost none. Basidia 2-spored. Spores 7.5–10 × 6.5–8.2 μm. Cheilocystidia of the usual *epipterygia*-type. – Type locality: Asia, Altai. – On trunks, bark, and debris of *Larix sibirica*.

This species keys out near var. *epipterygioides*, but since the colour variation of the latter is not clearly known, *Mycena subinamyloidea* for the time being is best kept separated. The differences are few, however, and their value somewhat doubtful.

MYCENA SUBULIFERA Sing.

Mycena subulifera Sing. in Beih. Nova Hedwigia 29: 136. 1969.

Singer (1975: 394) placed this species in what here is named the *M. epipterygia*-group. This disposition is open to questioning. Singer himself considered his species close to *M. laevigata* and *M. pseudovulgaris*, neither of

which belongs to the group. He described the lamellae as decurrent, and the cheilocystidia as fusiform or subulate, smooth. On account of these characters, combined with the rather narrow spores ($6.5-8.5 \times 3-4 \mu\text{m}$), his species is definitely out of place in the *epipterygia*-group, although it cannot be denied that fusiform, smooth cheilocystidia do occur in var. *griseoviridis*. There they are not the sole type, however.

MYCENA SUBVISCOSA G. Stevenson

Mycena subviscosa G. Stevenson in Kew Bull. 19: 55, pl. 11 fig. 4. 1964. — *Collopus subviscosus* (G. Stevenson) Horak in N.Z.J. Bot. 9: 456. 1971.

The colouration of pileus and stipe very much suggests that this species is a member of the *epipterygia*-group, although the description of the lamellae as "adnate to strongly decurrent" contradicts such an assumption. The lack of information on the number of spores per basidium renders it impossible to place this species without having seen the type.

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Studies in Mycenas 1-4

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Mycena abramsii and *M. praecox* are shown to be identical; the former binomial is the correct name for the species.

No evidence can be presented that *Agaricus amygdalinus* in Herb. Persoon is the type, while the original description does not allow the species to be recognized. *Mycena amygdalina* is rejected as a possible name to replace *M. filopes*.

Hemimycena cucullata, as already intimated by Singer, is the correct name for the species currently called *Mycena gypsea*. Its stipe is demonstrated to be covered with cystidia. If the stipe of *M. gypsea* in the sense of Kühner & Valla should turn out to be devoid of cystidia their species might be a different taxon.

Mycena chlorinella is reduced to the synonymy of *M. leptocephala*. A recent attempt at reviving *Mycena ammoniaca* is briefly discussed.

The following notes are the first of a series in which I intend to publish the results of investigations carried out in mycenoid fungi.

Collections have been received on loan from the herbarium at Stockholm (S) and for incorporation in the "Rijksherbarium" from the mycological department of the museum at Prague. I wish to record my grateful appreciation to the authorities of these institutes. I am also much indebted to Prof. J. Boidin (Villeurbanne) for kind intermediary and to Prof. R. Kühner (Lyon) for a gift of material. Acknowledgement is made to the Director of the "Rijksherbarium" for providing working facilities.

I. MYCENA ABRAMSII and MYCENA PRAECOX

A full redescription of *Mycena abramsii* (Murrill) Murrill was given by Smith

(1947: 239) and of *M. praecox* Vel. by Kühner (1938: 482). Details here considered essential for a thorough comparison of the two species have been adapted from these descriptions and are tabulated below.

Table 1. Juxtaposition of the characters of *Mycena abramsii* and *M. praecox*.

	<i>M. abramsii</i>	<i>M. praecox</i>
Habitat	on leaves and debris in hardwood forests	on moss-covered stumps of frondose trees or often on the base of living oaks
Time of occurrence	in spring	found till the end of October but appearing already very early, June–July
Pileus	10–30 mm diam., pruinose at first, then glabrous, "Chaetura black" when young, then "fuscous" or "drab", fading to pale grey, margin frequently paler than disc throughout development	15–35(–45) mm diam., delicately pruinose at first, brown to grey-brown, sometimes fairly dark, sometimes pale, especially with age, margin originally paler or even whitish
Flesh	very fragile	watery
Odour	not distinctive	usually none, at times raphanoid (sometimes of nitric acid?)
Taste	not distinctive	mild
Lamellae	18–20, ascending, adnate, equal to subventricose, pallid grey, edge pallid	17–25, ascending, more or less adnate, equal to subventricose (judging from the illustrations), white or whitish to pallid, although at times clearly fuscous or greying at the base
Stipe	30–80 × 1–3 mm, very fragile, hollow, watery; upper portion at first conspicuously pruinose, later glabrous and polished, base white-strigose; concolorous with pileus or merely pale grey with whitish apex	20–55 × 1–2 mm, fragile, widely hollow, watery; covered with a fine but fugacious pruina, then glabrous and polished, base villose with white rhizoids; originally blackish, becoming pale grey-brown or pale grey, often even watery whitish
Basidia	26–30 × 6–7 μm, 4-spored	20–30 × 7–9 μm, 4-spored
Spores	(10–)11–13(–15) × 4.5–5.5(–6) μm, amyloid	7.5–10(–13) × 3.7–5.5 μm, amyloid
Cheilocystidia	9–16 μm wide, abundant, variable in shape from clavate to vesiculose, sometimes elongated and fusiform-ventricose with acute apices, smooth or with a few finger-like protuberances	9–22 μm wide, very numerous, variable, often ventricose below and attenuated above into a slender neck, or broadly clavate, or mucronate, or with several fairly long excrescences
Pleurocystidia	similar to the cheilocystidia, rare to scattered	more or less similar to the cheilocystidia, often rare or unobtrusive

From a cursory inspection of both columns the impression is produced that although the two species have much in common, *M. praecox* is somewhat smaller-spored. This impression seems to be further strengthened on consulting Velenovský's diagnosis (1920: 325), which gave the spores as 8–10 μm long, and Kubička's redescription (1963: 82), which showed them to be 7.1–11.6 \times 4.0–6.9 μm . In order to judge for myself some collections from North America and Czechoslovakia were investigated, the results of which are set out in Table 2.

Table 2. Spore sizes in *Mycena abramsii* and *M. praecox*

	<i>Mycena abramsii</i>		<i>Mycena praecox</i>		
	I	II	III	IV	V
Spores (observed)	9.8–11.6 \times	10.5–12.5 \times	(9–)9.8–11.2(–11.6) \times	10.3–11.5 \times	11.6–13(–13.4) \times
in Melzer's reagent)	5.2–6.3 μm	4.5–5.8 μm	4.5–5.8 μm	4.9–5.8 μm	5.4–5.8(–6.5) μm

- I. U.S.A.: Michigan, Marquette Co., Huron Mts, near Pine Lake, 14 June 1963, C. Bas 3049; identification confirmed by A.H. Smith (L).
- II. Same area, 14 June 1963, C. Bas 3054; recognized at first sight by A.H. Smith (L).
- III. Czechoslovakia: Bohemia, Suchdol near Prague, 9 June 1965, M. Svrček; revised by L. Kubičková (L).
- IV. Czechoslovakia: Bohemia, Chuchle near Prague, 9 June 1945, V. Vacek; revised by L. Kubičková (L).
- V. Czechoslovakia: Bohemia, Skochovice, 21 May 1961, B. Ježek; revised by L. Kubičková (L).

Comparison of the spore measurements in Table 2 shows that the original impression proves to be without foundation. Long and fairly short spores occur indiscriminately in both North American and Czechoslovakian material.

If there had been any suspicion of misinterpretation of the original conception of either *Mycena abramsii* or *M. praecox*, it would have been imperative for me to re-examine the types. But this is not the case. I am satisfied that the identity of the North American material with the Czechoslovakian collections simply means that Murrill's and Velenovský's taxa represent one and the same species.

To supplement the data presented above, and partly also because illustrations are easier to grasp at a glance than are words, portraits of the microscopic details of collections I and V are given in figures 1–8.

The epithet *abramsii* was published in 1916 so that *Mycena abramsii* becomes the correct name for the species while *M. praecox*, published in 1920, falls into its synonymy.

2. AGARICUS AMYGDALINUS Pers.

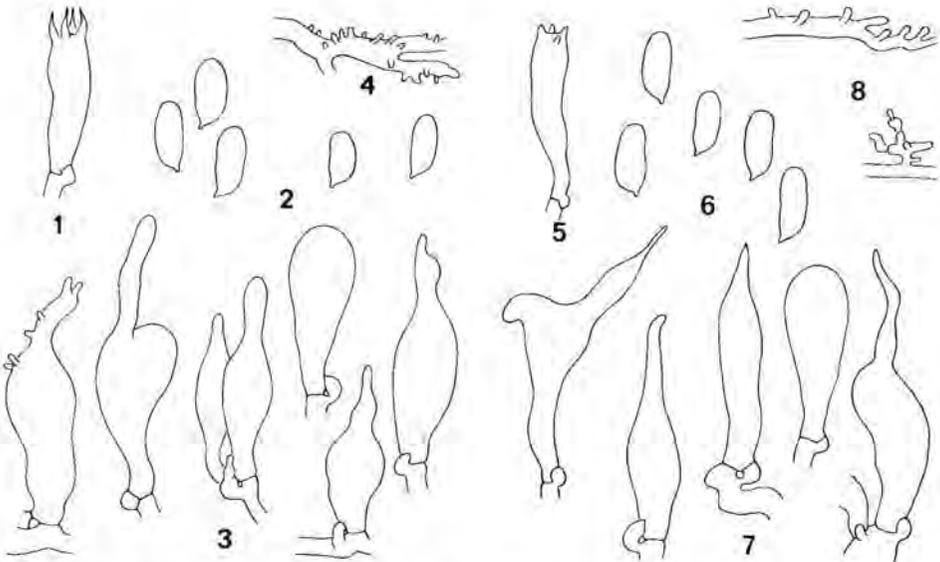
Agaricus amygdalinus Pers., Mycol. eur. 3: 255. 1828. – *Mycena amygdalina* (Pers.) Sing. in Persoonia 2: 6. 1961.

Singer stated that "This [*M. amygdalina*] is undoubtedly what Kühner and A.H. Smith call *M. iodiolens* Lundell." In fact, there are several points which make me doubt the correctness of this statement.

Mycena iodiolens, it may be recalled, is the species named *M. vitilis* sensu Ricken by Kühner (1938: 298) and *M. filopes* (Bull. ex Fr.) Kummer by Dennis & al. (1960: 117). I am inclined to follow the latter authors.

According to Singer, the material in Herb. Persoon is the type, bearing "direct reference to Mycol. eur. no. 438" I may point out, however, that the indication "Pers. Mycol. Europ. sp. 438" has been written on a differently coloured slip of paper and in a hand which is not Persoon's. In the case of specimens collected around Paris, as here, Persoon often used to add the words "Prope Parisios", but these are lacking in this instance. In my eyes, therefore, there is no definite proof that the material represents the type.

The cheilocystidia, which Singer had failed to find, measuring $16-30 \times 10.5-21 \mu\text{m}$ and covered with cylindrical excrescences about $3 \mu\text{m}$ long, are of the kind commonly found among the *Filipedes* thus seemingly strengthening Singer's opinion. But, while Singer, to make his point, accentuated the peculiar odour described by Persoon as "fere ut in *Amygdalo amaro*," he eliminated Persoon's indication "et sapor virosus." This adjective, according to various dictionaries, used in connection with smell and taste stands for "having an unpleasant smell", "stinking", "poisonous", none of which can be applied to either the odour or the taste of *Mycena filopes*. Lundell (1932: 8) while describing the odour of his *M. iodiolens* never mentioned any taste. However, Kühner (1938: 287) under the name of *Mycena vitrea* (that is, *Mycena*



Figs. 1-4. *Mycena abramsii* (U.S.A.: Michigan, near Pine Lake, 14 June 1963, C. Bas 3049). 1. Basidium. 2. Spores. 3. Cheilocystidia. 4. Hypha of pileipellis with excrescences.

Figs. 5-8. *Mycena praecox* (Czechoslovakia: Bohemia, Skochovice, 21 May 1961, B. Ježek). 5. Basidium. 6. Spores. 7. Cheilocystidia. 8. Hypha of pileipellis with excrescences. All figures $\times 700$.

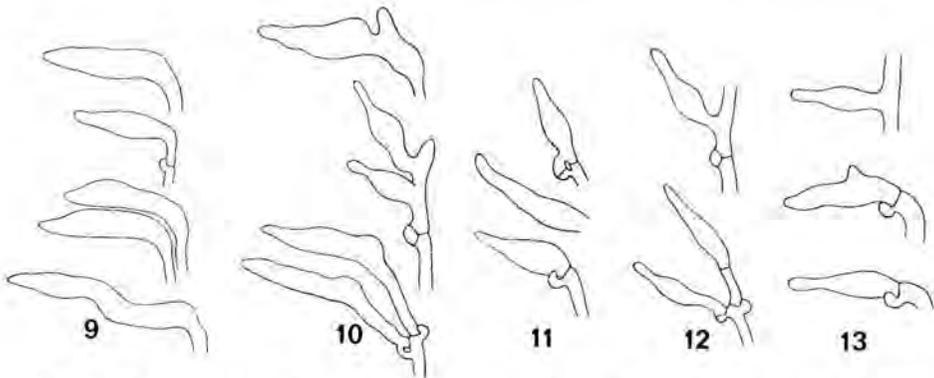
sepia J. Lange according to the British checklist) published an interesting observation made by Favre: "Odeur et saveur faiblement raphanoïdes ou parfois nitreuses." If this is what Persoon experienced as "virosus", his species and *Mycena sepia* might be identical but, in view of the dubious identity of the material in Herb. Persoon and the insufficiency of his description, any suggestion must remain conjectural. That is why *Mycena amygdalina* is here formally rejected as a possible name to supersede *M. filopes*.

3. HEMIMYCENA CUCULLATA (Pers. ex Fr.) Sing.

Agaricus cucullatus Pers., Syn. meth. Fung.: 372. 1801 [=white form of *A. galericulatus*, according to Fr., Syst. mycol. 1: 143. 1821]; ex Fr., Syst. mycol. 1: 158. 1821. – *Hemimycena cucullata* (Pers. ex Fr.) Sing. in Persoonia 2: 20. 1961. – *Mycena cucullata* (Pers. ex Fr.) Bon in Docums mycol., fasc. 9: 30. 1973 (no reference to original publication).

Agaricus gypseus Fr., Epicr. Syst. mycol.: 104. 1838. – *Mycena gypsea* (Fr.) Quél. in Mém. Soc. Emul. Montbél. II 5: 342. 1873. – *Hemimycena gypsea* (Fr.) Sing. in Anns mycol. 41: 121. 1943. – *Marasmiellus gypsea* (Fr.) Sing., Agaricales (Mushrooms) (= in Lilloa 22): 298. ("1949") 1951.

Singer, who had examined the type material, declared that *Hemimycena cucullata* was the correct name for what had been called *Mycena gypsea* in Kühner's monograph (1938: 623). In the redescription of the type of *Agaricus cucullatus*, Singer stated that the "...carpophores... [were] now glabrous everywhere except for the base [of the stipe]." This statement immediately raises the question why Singer should have missed the cystidia on the stipe, the presence which proved so easy to demonstrate (see fig. 9). Whatever the reason may be, fact is that so acute an observer as Ricken (1915: 434) described the stipe of *M. gypsea* as "kahl und nackt." Kühner who in his monograph interpreted the species in the sense of Ricken described the stipe, somewhat less



Figs. 9–13. Caulocystidia. – 9. *Agaricus cucullatus*; type (L). – 10. *Hemimycena cucullata*; Netherlands: Limburg, Wijlre, 31 Aug. 1977, R.A. Maas Geesteranus 15531 (L). – 11. *Mycena gypsea*; France: Seine-et-Oise, Boissy-St-Léger, 8 Oct. 1934, R. Kühner (L). – 12. *Mycena gypsea*; Sweden: Östergötland, Roglösa parish, 2 Sept. 1951, G. Haglund and R. Rydberg (S). – 13. *Mycena gypsea*; Sweden: Öland, Borghamn, 9 Sept. 1951, G. Haglund (S). All figures $\times 700$.

explicitly, as "d'aspect parfois cireux, poli et entièrement pruneux-mat..." but later said (Kühner & Valla, 1972: 32) "glabre sous la loupe..." (printed in italics). Contrary to these descriptions, particularly those of Ricken and Kühner & Valla, all European collections at the "Rijksherbarium" under the name *Mycena gypsea*, the identification of which with the usual keys had not previously met any obstacles, on renewed inspection invariably proved to possess caulocystidia (see fig. 10). Since the presence or absence of caulocystidia in *Mycena* may well signify the difference between two separate species, the discrepancy indicated above required further investigation.

Through kind intermediary of Prof. J. Boidin (Villeurbanne) the "Rijksherbarium" received fragments of two separate collections which had served Kühner in making his 1938 description of *Mycena gypsea*. One of these gatherings (Boissy-St-Léger, 8 Oct. 1934) contained the apical half of a stipe and this turned out to be densely covered with caulocystidia (see fig. 11). From this observation I conclude that (i) *Mycena gypsea* sensu Kühner 1938 and *Hemimycena cucullata* are really identical, (ii) Singer is right in claiming the latter as the correct name for the species, and (iii) *Mycena gypsea* sensu Kühner & Valla 1972 might well be a different species.

I do not believe that *M. gypsea* sensu Kühner 1938 is in any way different from the Friesian concept, since the two recent Swedish collections received on loan from Stockholm give perfectly the same picture (see figs. 12 and 13) as all other material studied.

4. MYCENA LEPTOCEPHALA (Pers. ex Fr.) Gillet

Agaricus leptocephalus Pers., Icon. Descr. Fung. 2: 48, pl. 12 fig. 4. 1800. — *Agaricus alcalinus* [subsp.?] *A. leptocephalus* Pers. ex Fr., Syst. mycol. 1: 143. 1821. — *Agaricus alcalinus* var. *leptocephalus* (Pers. ex Fr.) Duby, Bot. gall. II 2: 828. 1830. — *Mycena leptocephala* (Pers. ex Fr.) Gillet, Hym.: 267. 1876.

Mycena leptocephala is a common European species but its name, although adopted by Kühner & Romagnesi (1953: 107) and by Dennis & al. (1960: 195), does not seem to have become universally accepted as the correct one.

Persoon gave an accurate description which, except for the somewhat unusual habitat, leaves not the slightest doubt that the interpretation of the species as understood today is in perfect agreement with the original concept. Fries (1815: 31) who had found *A. leptocephalus* also in Sweden (printed in italics) gave a redescription which, while differently worded, very closely followed Persoon's account. In his Systema, Fries offered a very much shorter description but he did not fail to refer to the one he had published in 1815 as well as to Persoon's original account. Unfortunately both these descriptions seem to have been forgotten by those mycologists who turned to the misconception Fries had developed of the species in later years (1838: 109) and who got confused as a consequence. It is this description of the Swedish author which must have given Lange (1914: 22) the notion that *M. leptocephala* should have the pileus "not pellucido-striate" with the result that when he did find

nitrous-smelling fungi with a subpellucid¹ pileus, "growing in deep moss" he thought he had found something new which he called *Mycena alcalina* var. *chlorinella* (1914: 21, pl. 1 fig. b). Singer (1936: 430), recognizing the identity of this variety with *M. leptcephala* sensu Ricken, raised it to specific level. Since in my opinion Ricken's conception of the species is in no way different from Persoon's original, *Mycena chlorinella* (J. Lange) Sing. is a superfluous name and a synonym of *Mycena leptcephala*.

Another author at least originally led astray by Fries's 1838 description is Kühner (1938: 473) who commented that "*M. leptcephala* de Fries s'écarte de notre espèce..." Kühner's opinion of 1938, however, has been corrected since and is not relevant here but it does show the effect of the wide-spread custom of relying on later redescriptions with disregard of the original.

Moser who in the first editions of his well-known flora had used the binomial *Mycena leptcephala*, subsequently chose to follow Singer from the third edition (1967: 141) onward.

Perhaps it is Bon (1972: 18) who most clearly expressed the doubts that must long have surrounded the identity of *M. leptcephala*, doubts that, ironically, originated from Persoon's (1800: 49) own words: "Crescit rarissime ad truncos, in sylvis quercinis." This line has been interpreted in two ways. According to one interpretation (the one I adhere to) Persoon would have meant to say that his species very rarely grew on tree trunks, while the other view (which I reject) holds that the species was stated to grow on trunks and to be very rare. The latter is the opinion expressed by Fries (1821: 143) [note the place of the comma!]: "Ad truncos, rarissime," later somewhat mitigated to read "Ad truncos et terram rariss[ime]" (1838: 109) and "Ad truncos et terram raro" (1874: 141). For those authors who used to consult only Fries's later works it must have been difficult indeed to believe that *M. leptcephala* would be the correct name for such specimens as are found to grow among grass or moss outside woods and prove to be not rare at all. It is quite probable that Fries, too, had found similar specimens, and the only likely name to be found for them in Fries's works would seem to be *Agaricus ammoniacus* Fr. ex Fr., originally described by him (1818: 155) as *Agaricus alcalinus* var. *ammoniacus*. Unfortunately, in the description of this variety it is not readily possible to recognize *M. leptcephala* (no more than it is possible in it to identify any other species). This may have induced later authors, like Ricken (1915: 441), Oort (1928: 215), Pearson (1955: 48-49) and, more recently, Bon (l.c.), to maintain *Mycena ammoniaca* (Fr. ex Fr.) Quél. as a species in its own right, but I doubt whether there is any solid ground to defend their views.

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¹ The subpellucid nature of the pileus is suggested by Lange's illustration.

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Studies in *Mycenas* 5–8

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Communicated by Prof. A.J.P. Oort at the meeting of February 23, 1980

Mycena filopes, *M. metata*, *M. sepia* sensu Lundell, and *M. sepia* J. Lange are discussed. The last named may prove to be identical with *M. filopes*. A neotype is chosen for *M. metata*, and representative collections are indicated for *M. filopes* and *M. sepia* sensu Lundell. Descriptions accompanying these collections are supplemented by abbreviated descriptions in which for the distinction of the species emphasis is laid upon the shape of the cheilocystidia and their excrescences. A key is provided to facilitate the identification.

Mycena filopes, *M. metata*, and *M. sepia* (the last named thus far taken in its original sense as described by J.E. Lange) constitute a small group which gradually gave me the impression of having been ill understood and, hence, its problems underestimated. Over-simplification of the actual conditions (for example, it is incorrect to assume that *M. metata* can be invariably recognized by the pinkish shades of its pileus) and the use of inappropriate characters or of features not tested in authentic material created a situation of uncertainty and confusion. An aggravating point moreover is that a different set of names for these species is apparently now widely used in Europe and these do not conform to those of the British check list (Dennis & al., 1960), possibly because this work, lacking explanatory argumentation, fails to convince. This is, for the species under discussion, a defect which to mend is attempted in the following.

I am not trying to conceal that distinction of the three species discussed below is really difficult but, as I have found to my own satisfaction, identification even of dried specimens is perfectly possible, provided (i) the collections are accompanied by adequate notes; (ii) the dried material is in excellent condition;

and (iii) one is prepared to examine a great many of the cheilocystidia in order to reduce the possible influence of aberrant ones.

For the preparation of this paper, loans were received from the herbaria at Ann Arbor (MICH), Copenhagen (C), Uppsala (UPS), Wijster (WBS), as well as from the private herbarium of Dr. E. Kits van Waveren (Amsterdam). An almost continuous stream of expertly dried and well-annotated collections were moreover sent in by Mr. P.B. Jansen (Breda) and Dr. and Mrs. F. Tjallingii (Wageningen), with each collection adding to my vision of the variability of the species concerned. I would like to record my grateful appreciation to authorities and private persons alike for their unstinted help. Acknowledgment is also made to the Director of the 'Rijksherbarium' for providing working facilities.

KEY TO THE SPECIES

1. Cheilocystidia covered with excrescences which are predominantly cylindrical, narrow (c. 1 μ m wide), and straight (very long excrescences tend to become curved or kinked, but there are always cystidia with the usual short outgrowths).
 2. Cheilocystidia as a rule with a long slender stipe. Pleurocystidia usually present: *M. metata*
 2. Cheilocystidia as a rule with a short, stocky stipe, or with no stipe at all and sessile. Pleurocystidia absent: *M. filopes*
1. Cheilocystidia covered with excrescences which are usually short, usually broad (2–3 μ m wide), often curved and variously shaped and/or branched: *M. sepia* sensu Lundell

5. MYCENA FILOPES (Bull. ex Fr.) Kummer

Agaricus filopes Bulliard, Herb. Fr.: pl. 320. 1787; ex Fries, Syst. mycol. 1: 142. 1821. — *Mycena filopes* (Bull. ex Fr.) Kummer, Führ. Pilzk.: 110. 1871. — Lectotype: *Agaricus filopes* Bull., Herb. Fr.: pl. 320. 1787.

Mycena filopes f. *tetraspora* J. Lange in Dansk bot. Ark. 1(5): 34. 1914. — Type locality: Denmark, Hjallesø.

Mycena iodiolens Lundell in K. svenska VetAkad. Skr. Naturskyddsår. 22: 8. 1932. — Type locality: Sweden, near Uppsala.

Misapplied: *Mycena vitilis* sensu Ricken, Blätterp.: 430, pl. 110 fig. 7. 1915; *Mycena vitilis* var. *typica* f. *typica* sensu Kühn., Genre *Mycena* (= in Encycl. mycol. 10): 299, figs. 94, 95. 1938.

Mycena amygdalina (Pers.) Sing. sensu Sing. in Persoonia 2: 6. 1961. (See Maas Geesteranus, 1980: 169.)

Representative collection: Flora suecica, n° 11733. *Mycena iodiolens* Lundell. Gästrikland: Gävle, Lövudden, 13 VIII 1951, J. Ax. Nannfeldt, on plant debris in dense and moist *Rubus idaeus* thicket (UPS).

“Pileus broadly campanulate, without umbo, translucent-striate, slightly grooved, smooth, somewhat flesh-coloured brownish grey at centre and striae, elsewhere nearly white to delicately flesh-coloured grey. Lamellae leaving a narrow sterile border at the margin, white. Stipe half translucent, white above, grey-brown below, with tufts of hyphae at the base, with very short patent hairs farther upwards.” (Translated from Swedish description by Nannfeldt, label accompanying representative collection.)

“Basidia 2-spored. Spores 8,5–9,5(–12) \times 5–6 μ , . . . ellipsoid, smooth, usually containing one drop, with firm wall. Cystidia of the granulata type, 15–17 \times 11–12 μ , nearly round to broadly oval, with thin short bristles.” (Description by Lundell on the same label.)

Some authors (Schroeter, 1889: 634 [misapplied]; Lange, 1914: 34) used the epithet 'filipes'; although this variant spelling did not find further acceptance, the publication of the later binomial *Mycena filipes* (Raithelhuber, 1974: 66, 144) may cause some confusion.

The description given by Fries can be retraced word for word to Bulliard's illustration of *A. filipes*. It is clear, therefore, that Fries' concept of the species is in full agreement with Bulliard's. Fries missed one feature, however, a very important one, because although duly described by Bulliard, it was not shown in his plate. The French author said of the pileus "ses bords sont un peu festonnés", the margin is somewhat festooned, a description which is easily understood in view of the narrow rim (or its remnants) of the margin often seen to project beyond the lamellae. It is this character which is the main clue to the recognition of Bulliard's picture.

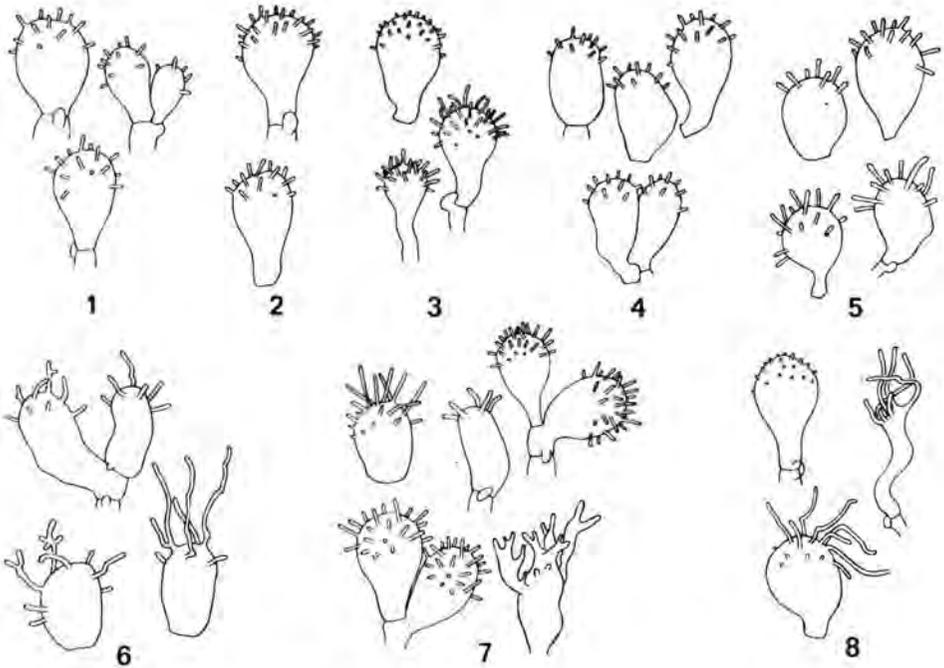
Kühner (1938: 298), following Ricken, used the binomial *M. vitilis* for the present species. Even if it should turn out that Fries' *Agaricus vitilis* is the same as *A. filipes*, the former, having been published at a later date (1838), cannot be used. It is clear, however, that *A. vitilis* is not the same, since Fries described its stipe as flexible and radicating. Neither character applies to the stipe of *M. filipes*.

Mycena filipes is a variable species, much more so than may be gathered from the descriptions available. This has in some cases led to the use of inappropriate characters in an attempt to distinguish the present species from the next, *M. metata*. Like this species, *M. filipes* can best be characterized by its cheilocystidia, most other features being either too variable in themselves or too little different from those of *M. metata* to be relied upon. The following partial description of *M. filipes* has been prepared from material collected in several parts of Europe.

Pileus at centre grey-brown, somewhat flesh-coloured grey-brown or reddish grey-brown, sepia grey-brown, sepia brown, very dark grey-brown, blackish brown, towards the margin paler, sometimes pale yellowish grey, paling very much on drying and at times the pileipellis giving the impression of or actually breaking up into a fibrillose-rimulose surface (much in the way of certain species of *Inocybe*); margin particularly in younger stages projecting beyond the lamellae, usually almost whitish, somewhat greying with age. Lamellae whitish with some sepia shade, watery grey-white, pale sepia, pale sepia grey-brown, with age or on drying sometimes turning dingy flesh-colour or pinkish (see also Kühner, 1938: 301, "...prenant parfois... un reflet carné sale..."), edge paler concolorous or whitish.

Cheilocystidia 14–30(–36) × 7–15(–18) μm, numerous, clamped (but clamps either easily torn off or pushed aside, hence usually hard to find), obpyriform, obovoid, broadly ellipsoid, rarely clavate, as a rule tapering to a short, broad stipe, often with no stipe at all and sessile with a broad base, the upper part sparsely to fairly densely covered with more or less evenly spaced cylindrical excrescences (more rarely warts), 3–22.5 × 0.8–1.8 μm which are straight or somewhat curved, more rarely flexuous or kinked, not infrequently apically somewhat enlarged, generally simple but at times also more or less branched (figs. 1–8). Very rarely also other cheilocystidia are found which are differently shaped, with much longer or completely deviating excrescences. Pleurocystidia absent.

Reported to grow in a pasture, among grass and moss under broad-leaved trees (such as *Alnus*, *Carpinus*, *Quercus*, *Salix*, *Ulmus*), on fallen twigs, on decayed wood, on the base of moss-covered



Figs. 1–8. *Mycena filopes*, cheilocystidia

Fig. 1. Sweden, Gästrikland, Gävle, Lövudden, 13 Aug. 1951, J.A. Nannfeldt, on plant debris in dense, moist *Rubus idaeus* thicket (Fl. succ. 11733, UPS): Pileus delicately flesh-coloured grey-brown at centre and striae, elsewhere nearly white to delicately flesh-coloured grey, margin projecting beyond lamellae. Lamellae white.

Fig. 2. Denmark, Jylland, Frederikshavn, 14 Oct. 1966, J.J. Barkman 8467, in *Juniperus* thicket (WBS): Margin of pileus somewhat projecting beyond lamellae.

Fig. 3. Germany, Niedersachsen, Oldenburg, Neuenburger Urwald, 25 Oct. 1961, J.J. Barkman 7213, in forest of *Quercus* and *Carpinus* (WBS): Pileus isabella to pale grey-brown, with darker centre, margin projecting beyond lamellae. Lamellae pale grey.

Fig. 4. Great Britain, Wales, Lake Vyrnwy, 15 Sept. 1977, E. Kits van Waveren, in pasture (Herb. K.v.W.): Pileus fairly dark reddish grey-brown (Munsell 5 YR 5/3) at centre, pale yellowish grey (Munsell 10 YR 7/3) farther outwards, margin white, projecting beyond lamellae. Lamellae somewhat grey-brown, edge white.

Fig. 5. Netherlands, Gelderland, Wageningen, 24 Nov. 1979, Mrs. G.J.M.G. Tjallingii, under deciduous tree (L): Pileus very dark brown at centre, pale grey-brown farther outwards, margin whitish, projecting beyond lamellae.

Fig. 6. Netherlands, Utrecht, Leusden, 14 Nov. 1979, T. Boekhout, among fallen leaves under *Quercus* (L): Lamellae pale pinkish flesh-colour on drying.

Fig. 7. Netherlands, Zuid-Holland, Oegstgeest, Oud-Poelgeest, 22 Oct. 1978, R.A. Maas Geesteranus 15636, on vegetable debris in deciduous wood (L): Pileus sepia grey-brown at centre, paler farther outwards, margin projecting beyond lamellae. Lamellae pale sepia, edge white.

Fig. 8. Netherlands, Noord-Brabant, Breda, 15 Nov. 1964, P.B. Jansen 64–141, among grass under *Quercus* and *Pinus* (L): Pileus brownish at centre, grey-brown farther outwards. Lamellae pale grey.

All figures, $\times 700$.

tree trunks, among vegetable debris in deciduous woods on clayey or sandy soil, not infrequently in mixed woods and, finally, also in *Juniperus* thickets.

6. *MYCENA METATA* (Fr.) Kummer

[*Agaricus laevigatus* Pers., Syn. meth. Fung.: 380. 1801] *Agaricus metatus* Fr., Syst. mycol. 1: 144. 1821. — *Mycena metata* (Fr.) Kummer, Führ. Pilzk.: 109. 1871. — Neotype: Lundell & Nannfeldt, Fungi exs. suec., praes. upsal. 119 (UPS).

Agaricus phyllogena Pers., Mycol. eur. 3: 242. 1828. — *Mycena phyllogena* (Pers.) Sing. in Persoonia 2: 38, fig. 25. 1961. — Type: *Agaricus phyllogena*, Herb. Persoon, no. 910.256–1733 (L). (See Maas Geesteranus, 1979: 279.)

Agaricus alboroseus Secr., Mycogr. suisse 2: 353. 1833; name change for *Agaricus metatus* α *laevigatus* Fr. (not validly published according to Art. 23.6. C, Int. Code bot. Nom., 1978).

Misapplied: *Mycena vitrea* var. *tenella* (Schum. ex Fr.) Kühn., Genre *Mycena* (= in Encycl. mycol. 10): 289. 1938. — *Mycena iodiolens* var. *tenella* (Schum. ex Fr.) Kühn. & Romagn., Fl. anal. Champ. sup.: 102. 1953 (not val. publ., no reference to basionym).

“The colour is very variable, a lighter or darker grayish brown, always with a characteristic shade of pink, most manifest in old and drying specimens, which show the surface of the cap covered by a silky pruina.

The species has a strange smell, reminding one of iodoform, noticeable only if the specimens are placed for a short while in a closed vessel.

Spores 7–9(–10) \times 4–5(–6) μ , oblongly ellipsoidal. Basidia 12–16 \times 5–6 μ , with 4 sterigmata (ab. 4 μ in length). Cystidia \pm inflated, apically with setulose warts, 20–30(–40) μ in length, basally 12–17(–20) μ in breadth.

This species is exceedingly common in late autumn in Swedish coniferous woods...” (Description by Lundell, label accompanying Fungi exs. suec. 119; also 1935: 10.)

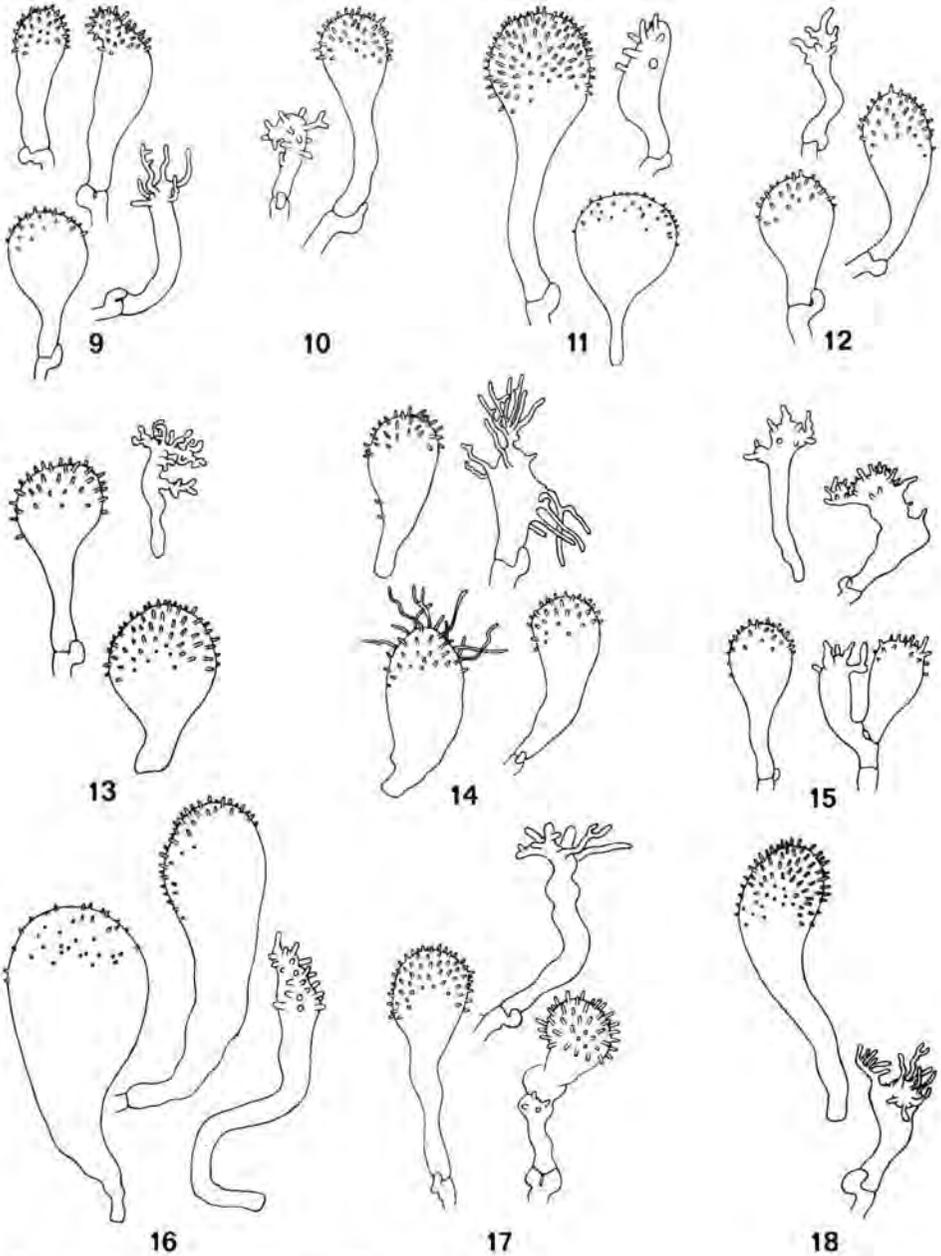
Fries subdivided his *A. metatus* into two varieties, var. α *laevigatus*, with reference to *A. laevigatus* of Persoon, and var. β *plicosus*. This disposition he abandoned in later works (1838: 110; 1874: 142) when he dropped the varietal epithet *laevigatus* and regarded *A. plicosus* as a species in its own right. From this it may be concluded that Fries considered *laevigatus* to be the typical variety of *A. metatus*. There is no earlier publication of the epithet *metatus* so that the author citation “(Fr. ex Fr.)” in the British check list (Dennis & al., 1960: 119) is incorrect.

As regards *A. laevigatus*, it may be pointed out that no material of this name exists in Herb. Persoon.

Kühner (1938: 289), adopting the denomination *Mycena vitrea* var. *tenella*, accepted it in the sense as used by Ricken. But the latter (1915: 429) misapplied the name *Mycena tenella*. Schumacher (1803: 302) described his *Agaricus tenellus* as being cespitose, with the stipes conglutinate at the base, which is completely contrary to Ricken's indications “rasig” and “gesellig”, meaning gregarious, that is, not tufted. Fries (1838: 111), who did not know the species from personal observation, repeated the word “caespitosus.”

The opinion has gradually grown that *Mycena metata* is a species with (usually pronounced) pink or flesh-coloured shades of both the pileus and the lamellae (see more particularly Kühner apud Kühner & Terra, 1955: 161), which is only partly true. Matters were further complicated by the belief (Kühner, 1938: 295; Kühner & Romagnesi, 1953: 114) that Fries' *Agaricus metatus*

should be seen as a member of the group whose cystidia are of the Ciliatae kind, which conflicted with the views of others. To obviate uncertainties, various authors naturally preferred to adopt the names of other species (see synonymy), but the root of the trouble is the obvious difficulty of interpreting the (admittedly often inadequate) description of a species from a region, with the climatic and ecological conditions of which one is not familiar. With a view to



Figs. 9-18. *Mycena metata*, cheilocystidia

consolidating the choice of authors like Lange (1914: 31) and Lundell (1935: 10), as well as of the British check list, and taking the opportunity of the availability of excellent Swedish material, I formally designate the copy in UPS of Lundell & Nannfeldt, *Fungi exs. suec.* 119 as neotype for *Mycena metata*. Detailed examination of this exsiccatum, followed by comparison with an increasingly wider range of well-annotated collections from other European countries convinced me that the differential features of the species are to be found in the cheilocystidia, irrespective of the colours of pileus and lamellae. A partial redescription based on this material is given below, but an observation of some importance should be intercalated here.

Lundell & Nannfeldt, *Fungi exs. suec.* 2543 was issued under the name *Mycena vitilis* sensu Kühner, and Lundell, giving his opinion on the collection, said that it was "excellently illustrated by Lange... as *M. filipes*." I have seen the Uppsala copy of this exsiccatum. Since the material is rather scanty I took care to examine no more than a single lamella, trusting that the collection would be homogeneous (and I have yet to see an exception to this rule in the Swedish series). Rather surprisingly, the cheilocystidia proved that the copy of this exsiccatum at Uppsala represents *Mycena metata*, not *M. filipes*.

Fig. 9. Sweden, Uppland, Vänge parish, "Fiby urskog", 9 Nov. 1932, S. Lundell, among mosses and heaped-up needles in coniferous wood (*Fungi exs. suec.*, praes. upsal. 119, UPS, also C): Pileus a lighter or darker greyish brown, always with a characteristic shade of pink, most manifest in old and drying specimens.

Fig. 10. Denmark, Jylland, Alling, 6 Oct. 1966, J.J. Barkman 8303, in *Juniperus* thicket (WBS): Pileus pink at centre, pale greyish beige with slight pink shade farther outwards. Lamellae delicately pinkish grey.

Fig. 11. Germany, Rheinland-Pfalz, Eifel, Kesseling, 4 Nov. 1970, J.J. Barkman 9273, in *Juniperus* thicket (WBS): Pileus pronouncedly pink at centre, pale pinkish grey-brown farther outwards. Lamellae pallid, beige-alutaceous.

Fig. 12. Belgium, Namur, Vincémont, 7 Oct. 1977, Anonymus, among moss in *Picea* wood (L): Pileus pale sepia grey-brown at centre, isabella farther outwards. Lamellae at first dingy whitish, then pale isabella with pinkish shade, edge whitish.

Fig. 13. Switzerland, Graubünden, Molinis, 1978, E. Rahm, in *Picea* wood (L): Pileus brown at centre, pale grey-brown farther outwards. Lamellae dingy whitish.

Fig. 14. Netherlands, Friesland, Ameland, Nes, 12 Nov. 1979, J. Schreurs, in coniferous wood (L): Pileus fairly dark date brown to fairly dark sepia brown, turning somewhat flesh-coloured on drying. Lamellae pale sepia with pronounced pink shade, edge whitish.

Fig. 15. Netherlands, Noordoost-Polder, Kuinderbos, 9 Oct. 1976, P.B. Jansen, in *Picea* wood (L): Pileus pink.

Fig. 16. Netherlands, Oost-Flevoland, 9 Dec. 1976, Mrs. G.J.M.G. Tjallingii, on moss-covered stump of *Alnus* (L): Pileus pale watery sepia grey-brown at centre, paler towards margin. Lamellae pale pinkish flesh-colour, edge whitish.

Fig. 17. Netherlands, Oost-Flevoland, Abbert, 16 Oct. 1978, Mrs. G.J.M.G. Tjallingii, on fallen *Picea* needles (L): Pileus bright pink, centre brownish. Lamellae bright pink.

Fig. 18. Netherlands, Limburg, Wijlre, 29 Oct. 1979, C. Bas 7609, among moss under *Picea* (L): Pileus brownish flesh-colour, centre fulvous in some specimens, more sepia grey-brown in others. Lamellae pink with paler edge.

All figures, $\times 700$.

Pileus at centre beige, beige-brown with some vinaceous-pink hue, brownish, pale watery sepia grey-brown, dark grey-brown, dark sepia brown, darkish date brown, burnt sienna, fulvous, dark red-brown; towards the margin paler concolorous, pallid, pale dingy yellowish brownish, sepia grey-brown, pale grey-brown with pinkish shade, brownish pink, bright pink. Lamellae whitish with slight brownish shade, eventually turning pinkish (sometimes only when drying), cream with some pink hue, pale pink, pale pink flesh-colour, dingy flesh-colour, brownish pinkish, pale dingy flesh-colour but dorsally more sepia brownish; edge concolorous, paler or whitish.

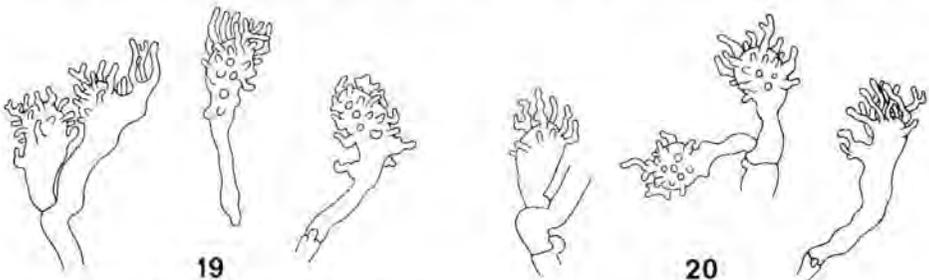
Cheilocystidia of two kinds (A and B) which are connected by intermediate types (figs. 9–18). Kind A $18-76 \times 9-27 \mu\text{m}$, numerous, clamped, clavate to obpyriform, a fair proportion usually tapering downwards to a narrow stipe, the upper part more or less densely covered with evenly spaced warts or, more often, cylindrical excrescences, commonly $0.8-1.5 \mu\text{m}$ wide, which are either fairly short (— c. $6 \mu\text{m}$) and straight or much longer (— $15 \mu\text{m}$ or even more) and curved or flexuous. Kind B — c. $40 \times 8-15 \mu\text{m}$, infrequent or rare, clamped, cylindrical, clavate or irregularly shaped, with few to fairly numerous excrescences which are unevenly spaced, simple or branched, sometimes irregularly shaped, up to c. $20 \mu\text{m}$ long and often $2 \mu\text{m}$ or somewhat more wide. Pleurocystidia numerous to scarce or perhaps even absent, usually similar to the cheilocystidia of kind A.

Known to occur in both coniferous and deciduous woods, among *Calluna* under *Juniperus*, among grass, in humus, on fallen twigs of *Salix*, on decaying wood of broad-leaved tree, on moss-covered stump of *Alnus*.

“Somewhat ambiguous” (Lundell, 1935: 10) or downright unacceptable (Kühner & Romagnesi, 1953: 114) as Fries’ description may have appeared to later authors, the colours he mentioned to describe his *A. metatus* do exist in this species; his range of colours even forms only a small proportion of the entire scale.

In the Netherlands, pink colours of the pileus are almost exclusively found in specimens growing in coniferous woods, whereas dark-coloured pilei, usually combined with lamellae which turn only tardily pinkish or which remain unchanged, tend to occur most often in specimens from other habitats.

There are two more and by no means subordinate points in favour of accepting *Mycena metata* as the correct name for the present species. These points must be seen in relation with each other and most certainly in connection with the prevailing conditions in that part of Sweden where Fries lived. (i) Fries said of this species “*praecipue sero autumnno*” (more particularly late in autumn),



Figs. 19, 20. *Mycena atroalboides*, cheilocystidia

Fig. 19. U.S.A., Washington, Lake Crescent, 20 Sept. 1935, A.H. Smith 2510, under conifers (MICH).

Fig. 20. U.S.A., California, Crescent City, 31 Oct. 1937, A.H. Smith 8276, under spruce (MICH).

and this, as I noticed in the material from Uppsala, was emphasized by several of the collectors, including Lundell. (ii) Fries also said that his species was "vulgatissimus", an opinion equally expressed by Lange (1914: 31) and Lundell (l.c.).

7. MYCENA SEPIA J. Lange

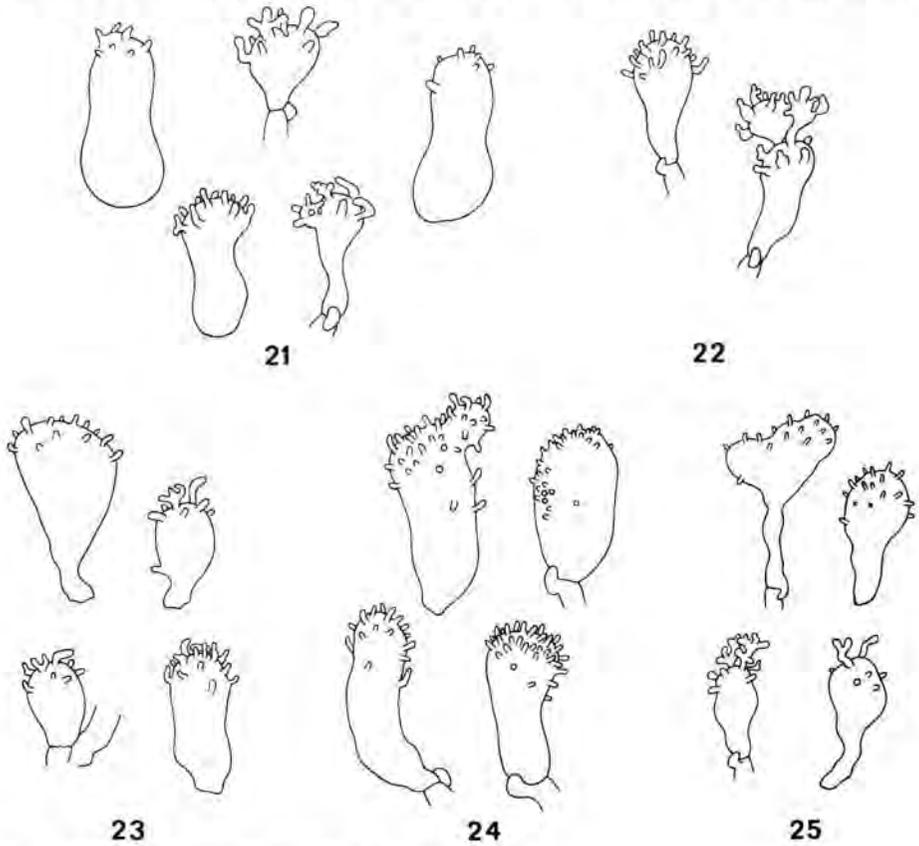
Mycena sepia J. Lange, Flora agar. dan. 2: 46, pl. 54 fig. 1. 1936 (not val. publ., no Latin descr.); Flora agar. dan. 5: V. 1940. — Type locality: Denmark, "near Aarup and Kirkeby."

Misapplied: *Mycena atroalboides* Peck sensu J. Lange in Dansk bot. Ark. 1(5): 32. 1914.

Lundell, on the label of the exsiccatum Lundell & Nannfeldt, Fungi exs. suec., praes. upsal. no. 1121, issued as *Mycena sepia*, stated that Lange's description and illustration matched the Swedish material very well. And yet, I am not at all convinced that what I propose to call *Mycena sepia* sensu Lundell is the same as the species Lange had in mind. The latter described the [cheilo]-cystidia of his species as "minutely setulose-warty," which should be visualized as having very small bristle-like, short excrescences of the length of a wart. This image does not conform to the general picture as evoked by the cheilocystidia found to occur in the various collections of *M. sepia* sensu Lundell (figs. 21–25). Instead, the excrescences as described by Lange rather suggest those of *Mycena filopes*, and the shape of the single cystidium in Lange's illustration (1936: pl. 54 fig. 1) points in the very same direction. I therefore seriously consider the possibility of the true *M. sepia* to be another synonym of *M. filopes*. This would necessitate the description of *M. sepia* sensu Lundell as a new species. Unfortunately, no action is practicable at the moment since (i) no type material of *M. sepia* was preserved; (ii) no recent, well-annotated Danish collections seem to exist that can be trusted to agree with the type; (iii) the field notes accompanying the Swedish collections are insufficient for a full description.

Kühner (1938: 285), Kühner & Romagnesi (1953: 102), and Moser (1978: 179) maintained the name *Mycena vitrea* (Fr.) Quél. sensu Ricken for *M. sepia* (in its original sense), but I find it difficult to reconcile certain parts of Fries' description of *Agaricus vitreus* (1821: 146) with Lange's species. Fries said of the pileus "etiam caesius" which, very probably, denotes the colour the surface acquires when covered with a bloom. No such bloom, however, was described by Lange. And not by Kühner either. Fries further stated "stipite striatulo livido splendente." The word which in my opinion here jars most is the one describing the colour. Lividus is a term admittedly difficult to determine (Dade, 1943: 13) but according to Wharton (1884: 26) in Friesian descriptions it stands for "bluish grey, leaden-grey." On no account can I accept these colours for the stipe of either *M. sepia* J. Lange or *M. sepia* sensu Lundell. *Agaricus vitreus* Fr. for me remains an enigmatic species, as evidently it also was for the authors of the British check list. Its name therefore should not be revived and, clearly, there is no use for a designation like *Mycena vitrea* sensu Ricken which is apt to increase the confusion.

Kühner (l.c.) and Kühner & Romagnesi (l.c.) stated that *M. vitrea* in the first stages of drying out gives off an odour resembling iodoform and, by accepting *M. sepia* as one of its synonyms, implied that the latter is similarly characterized. This is yet another uncertainty about the identity of Lange's species, and one on which the author himself gave no information. It is not without interest, however, that Lange (1936: 33) in his key to the species drew attention to the



Figs. 21–25. *Mycena sepia* sensu Lundell, cheilocystidia

Fig. 21. Sweden, Uppland, Börje parish, Holmtorpet, 10 Oct. 1974, S. Ryman, among moss in *Picea* wood (Fl. suc. 3136, UPS): Pileus blackish grey. Lamellae grey.

Fig. 22. Sweden, Småland, Almesåkra parish, c. 600 m N of Uddeberg, 16 Oct. 1947, S. Lundell & G. Haglund, among *Hylocomium* in *Picea* wood (Fungi suc. 2937, UPS): Pileus grey-brown. Lamellae pale grey.

Fig. 23. Sweden, Småland, Almesåkra parish, near Torsastena, 22 Oct. 1947, S. Lundell & G. Haglund, on decaying bark and vegetable debris (Fungi suc. 3117, UPS): Pileus pale sepia brown. Lamellae dingy grey to pale brownish grey.

Fig. 24. Sweden, Småland, Femsjö parish, Kvarnhagen, 10 Sept. 1940, S. Lundell, amongst needles, twigs, small *Polytricha* etc. on sandy soil at road-side (Fungi exs. suc., praes. upsal. 1121, UPS): Pileus in young specimens darker [than in Lange's description], almost plum-coloured, with a faint bloom.

Fig. 25. Sweden, Småland, Nässjö parish, Hunseberg, 24 Oct. 1945, G. Haglund 748, in coniferous forest (UPS).

fact that his *M. sepia* and the four-spored form of *M. filopes* may look similar. But he never thought they might represent the same species, since for him *M. filopes* possessed a "pallid dirt-gray" pileus and occurred exclusively in frondose woods. If, as suggested above, these two species prove to be the same, it would follow that the iodoform-like odour also occurs in *M. sepia* J. Lange.

In connection with Lange's *M. sepia*, another species must be discussed — *Mycena atroalboides* Peck. Lange at first thought he had found this North American species, but later decided that the Danish material was different which he then named *M. sepia*. Morten Lange, however, found among unpublished notes that his father had changed his mind back again and consequently placed (*M. Lange & Munk, 1949: 380*) *M. sepia* in the synonymy of *M. atroalboides*. Material of the latter, collected and identified by A.H. Smith, asked on loan from the herbarium at Ann Arbor (MICH) served a double purpose in that it proved to differ from both *Mycena sepia* J. Lange and *M. sepia* sensu Lundell. The cheilocystidia of *M. atroalboides* (figs. 19, 20) are so completely different from those described by Lange that there can be no doubt about *M. atroalboides* and *M. sepia* being two separate species. There may, perhaps, be some hesitation at first in distinguishing the cheilocystidia of *M. atroalboides* from some as found in *M. sepia* sensu Lundell (see next species), but there are other differences that cannot be ignored. Of all the specimens of *M. sepia* sensu Lundell studied, the dried pileus is dark sepia grey-brown and the lamellae are grey-brown, whereas in *M. atroalboides* they are fairly pale yellowish grey and bright pale ochraceous, respectively.

Kühner & Romagnesi (1953: 102) used among other things the localization of the pigment of the pileus as a differential character to distinguish *M. sepia* ("à pigment hypodermique") from *M. filopes* ("à pigment sous-hypodermique"). I very much welcome any character that could support those of the cheilocystidia as used here, but I certainly would like to see its validity first checked on the type or other authenticated material. I should add that, having mainly used dried material revived for microscopic work, I failed to notice any vacuolar pigment.

In an earlier publication (Maas Geesteranus, 1978: 131) I gave three illustrations of the cheilocystidia of what I then regarded as *Mycena sepia*. It now turns out that figs. 6 and 7 represent *M. metata*, while fig. 8 may well be *M. sepia* sensu Lundell.

8. MYCENA SEPIA J. Lange sensu Lundell

Mycena sepia J. Lange sensu Lundell apud Lundell & Nannfeldt, *Fungi exsiccati suecici, praesertim upsalienses*, fasc. 23–24: 10, 1942.

Representative collections: Lundell & Nannfeldt, *Fungi exs. suec., praes. upsal.* 1121 (UPS); Småland: Almesåkra parish, c. 600 m N of Uddeberg, 16 Oct. 1947, S. Lundell & G. Haglund (*Fungi suecici* 2937, UPS).

"Pileus convex, campanulate or not, with broad umbo, opaque, finely rugose-pruinose, young very dark, almost plum-coloured, then grey-brown. Lamellae decurrent with a tooth, pale grey. Stipe slender, darker below, often curved near the base.

Spores 7-9×4-4,5 μ. Cystidia 18-24×10-18 μ, apically echinulate or warted." (Two descriptions by Lundell accompanying the above material combined.)

Lundell, on the label of Fungi suecici 2937, added "Resembles *M. galopus* but without milk sap" – a good characterization.

The following partial redescription of *M. sepia* sensu Lundell is based on Swedish material.

Pileus young very dark, "almost plum-coloured," then blackish grey, dark grey-brown, grey-brown, pale sepia brown, pruinose or not. Lamellae pale grey, dingy grey, pale grey-brown, edge whitish.

Cheilocystidia (figs. 21-25) 18-40×7-20 μm, numerous, clamped, clavate, ellipsoid, obpyriform, or utriform, more rarely differently shaped, tapering downwards to a stipe or merely to a narrowed base, but also broadly sessile, the upper part fairly densely to sparingly covered with excrescences (more rarely warts), up to 10 μm long and 1-3 μm wide which are simple or variously branched, straight or curved, cylindrical, clavate or lageniform. Pleurocystidia numerous to scarce.

Known only from coniferous woods.

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Studies in *Mycenas* 9–14

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Kühner's observation regarding the hyphae of the pileipellis in *Mycena hemisphaerica* lacking excrescences is confirmed. This seems to be the only reliable character to distinguish this species from *M. galericulata*. There is as yet no conclusive evidence that *M. hemisphaerica* occurs in Europe.

The subsections which Singer subordinated under *Mycena* section *Hygrocyboideae* are restored to their original state of section, and their original descriptions are largely maintained. *Mycena* sect. *Fuliginellae* and sect. *Caespitosae* are new combinations.

Mycena belliae is redescribed and designated the type species of a new section, *Mycena* sect. *Calamophilae*.

Agaricus delicatellus, rather than the other way round, is reduced to the synonymy of *Hemimycena lactea*.

Mycena miserior is shown to be the same as *Mycena aetites*.

An emended description is given of *Mycena* "stirps" *Cinerella*. A key is given as an aid in distinguishing its European members. *Mycena cariciophila*, described from Canada, is considered to be better placed in "stirps" *Cinerella*, rather than in "stirps" *Polyadelfa*.

Thanks are due to the authorities of the herbaria at Ann Arbor (MICH), København (C), and Wijster (WBS) for the loan and/or gift of material. Acknowledgment is also made to the Director of the "Rijksherbarium" for providing working facilities.

9. MYCENA HEMISPHAERICA Peck

The only comparatively recent full description of *Mycena hemisphaerica* is by Smith (1947: 345) who regarded *M. parabolica* sensu Lange (J.E. Lange, 1936: 46, pl. 56, fig. D) as conformable to his concept of the species. (I may add that I

trust Smith's concept to concur with Peck's). Kühner (1938: 305), on the other hand, thought that Lange's *M. parabolica* at least in part corresponded with one of the forms of "*M. vitilis*" [sensu Kühner], a name to be replaced by *M. filipes* (Bull. ex Fr.) Kummer (see Maas Geesteranus, 1980: 176). His view will not be discussed here. Later, Kühner (apud Kühner & Romagnesi, 1953) refrained from giving an interpretation of Lange's plate.

Since neither Kühner & Romagnesi nor Moser (1978) in their floras made any mention of *M. hemisphaerica*, the question remained whether this species could be expected to occur in Europe and, if it does, how it might be told from one of its closest relatives—*Mycena galericulata*. The two keys available for the identification of *M. hemisphaerica* are those by Kühner (1938: 317–320) and Smith (1947: 230–231). The latter distinguished both species from each other by the spore width, thus: Spores 3–5 μm wide—*M. hemisphaerica*; spores 5–7 μm wide—*M. galericulata*. This distinction should work, generally speaking, but fails if *M. galericulata* is not quite mature and most of its spores are narrower than usual (such finds cannot be avoided in e.g. phytosociological work). Also, the lack of odour in *M. hemisphaerica* is not decisive and neither are the dark colours of its pileus. The farinaceous or rancid odour is sometimes weak or absent in *M. galericulata*, even when the specimen is cut in half, while its pileus originally may be very dark indeed (Kühner, 1938: 326). Kühner's key, very probably through the author's unfamiliarity with the North American species, lacks the clarity and exactness required for an undoubted decision. In his supplementary description, however, Kühner (p. 342) stated of the hyphae of the pileipellis of *M. hemisphaerica*: "Epicutis...ne semblent pas en brosse." But the verb used clearly reflects Kühner's uncertainty. Of *M. galericulata* he said that the hyphae of the pileipellis were "densément et finement grénéle en brosse" (4-spored form, p. 325) or "hérissées de minuscules diverticules piliformes, parfois ramifiés" (2-spored form, p. 328). After a thorough examination of two collections of *M. hemisphaerica* received on loan from the Herbarium at Ann Arbor (MICH) I am now able to attest the correctness of Kühner's observation and the soundness of the feature as a differential character. The only character, as it seems.

Table 1

	<i>M. galericulata</i> ¹	<i>M. hemisphaerica</i> ²
Hyphae of pileipellis	on the upper side more or less densely covered with simple, granular to cylindrical excrescences or the latter somewhat branched to intricately coralloid	smooth or, at the most, minutely transversely rugulose

¹ Numerous European collections (L).

² U.S.A.: Michigan, Ann Arbor, 18 Oct. 1932, A.H. Smith 32–611 (MICH), U.S.A.: Michigan, Dexter, 26 Oct. 1939, A.H. Smith 14968 (MICH).

Thus far, I have not seen any material or description to prove that *Mycena hemisphaerica* occurs in Europe, although the possibility should not be excluded. As Smith seemed to have relied only on Lange's description and illustration I am sceptical about the value of his assumption that *M. parabolica* sensu Lange represents *M. hemisphaerica*. Using the key by Smith as a guide I am rather inclined to believe that *M. parabolica* sensu Lange, on account of the very size of its spores, $8-10 \times 5-6 \mu\text{m}$, is nothing but a darkish form of *M. galericulata*.

10. REMARKS ON SOME SECTIONS OF MYCENA

Singer (1973: 49) introduced the sectional name *Mycena* sect. *Hygrocyboideae* (Fr.) Sing. [actually spelled *Hygrocybeoideae*] to replace the name *Mycena* sect. *Glutinipedes* (Fr.) Sing. which he had used previously (1951: 361). Two years later (1975: 394) he gave a description of the section, selected its type species [*Mycena epipterygia*], and designated its four subsections, as follows: "subsect. *Fuliginellae* A.H. Smith ut sectio; subsect. *Gummosae* (Lange) Oort; subsect. *Caespitosae* A.H. Smith ut sectio; subsect. *Roridae* Kühner ut sectio". His descriptions of subsections 1-3 read very much the same, although in reality these subdivisions appear sufficiently distinct to warrant their being maintained as sections. The descriptions given below are largely copied from the originals.

MYCENA sect. HYGROCYBOIDEAE (Fr.) Sing.

Agaricus [sect.] *Hygrocyboideae* Fr., Syst. mycol. 1: 155.1821.—*Mycena* sect. *Hygrocyboideae* (Fr.) Sing. in Beih. Sydowia 7: 49.1973.—Lectotype (Singer): *M. epipterygia* (Scop. ex Fr.) Kummer.

Agaricus [sect.] *Glutinipedes* Fr., Epicr. Syst. mycol.: 116.1838.—*Mycena* [sect.] *Glutinipedes* (Fr.) Quèl. in Mém. Soc. Emul. Montbéliard II 5: 108.1872.—Lectotype (Singer in Lilloa 22: 362.1951): *M. epipterygia*.

Mycena sect. *Gummosae* J. Lange in Dansk bot. Ark. 1 (5): 11, 16, 36.1914.—*Mycena* [subsect.] *Gummosae* (J. Lange) Oort in Meded. Ned. mycol. Ver. 16-17: 200, 242.1928.—Lectotype (Donk, unpublished): *M. epipterygia*.

Mycena [sect.] *Glutinosae* Kühn. in Bull. bi-mens. Soc. linn. Lyon 10: 125.1931.—Lectotype (Donk, unpublished): *M. epipterygia*.

Mycena sect. *Viscosae* A.H. Smith, N. Amer. spec. *Mycena* (= in Univ. Mich. Stud., Scient. ser. 17): 401, 418.1947 (not validly publ., no Latin descr.).—Lectotype (Donk, unpublished): *M. viscosa* Maire.

Pileipellis made up of thin, branched, and diverticulate hyphae embedded in a gelatinous layer. Lamellae ascending, decurrent with a tooth, edge gelatinizing, separable as an elastic-tough thread. Stipe viscid, usually with some yellowish colour, in some cases reddening with age. Cheilocystidia variously shaped but generally clavate, with shorter or longer and variously shaped excrescences.

Singer (1975: 394) selected *Mycena viscosa* as type species for subsect. *Gummosae*, but this is an incorrect choice. When Lange introduced his section *Gummosae* the two original species were *Mycena epipterygia* and *M. vulgaris*.

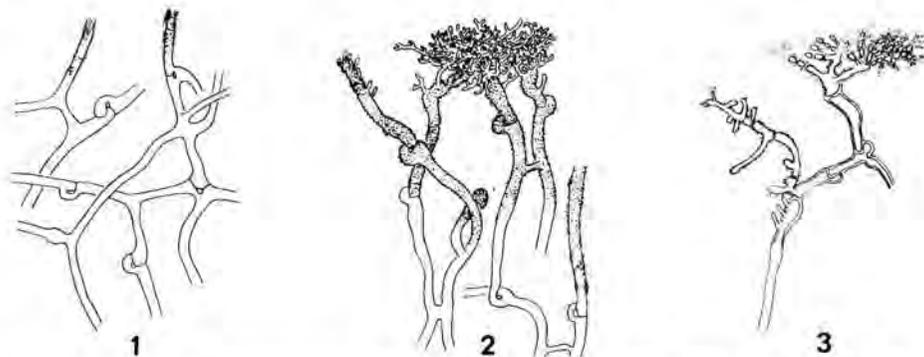
MYCENA sect. Fuliginellae (A.H. Smith ex Sing.) Maas G., nov. comb.

Mycena sect. *Fuliginellae* A.H. Smith, N. Amer. spec. *Mycena* (= in Univ. Mich. Stud., Scient. ser. 17): 401, 429. 1947 (not validly publ., no Latin descr.).—*Mycena* subsect. *Fuliginellae* A.H. Smith ex Sing. in Sydowia 15: 65. 1962.—Lectotype (Sing., 1951: 362): *Mycena vulgaris* (Pers. ex Fr.) Kummer.

Mycena "groupe" *Vulgares* Kühn. & Romagn., Flore anal. Champ. sup.: 109. 1953 (not validly publ., the term "groupe" not being admitted in Art. 4 of the Code).—Lectotype (here chosen): *Mycena vulgaris*.

Pileipellis made up of thin, branched, and diverticulate hyphae embedded in a gelatinous layer. Lamellae hardly ascending, somewhat uncinata to more or less horizontal, broadly adnate, edge gelatinizing, separable as an elastic-tough thread. Stipe viscid to glutinous, pallid to fuscous, not reddening with age. Cheilocystidia apically profusely branched.

The description of this section is largely based on that of its type species, and more particularly the excessive ramification of the apical part of the cheilocystidia seems to me to be an important feature. I am aware of the fact that the term cheilocystidia has been interpreted in various ways (see e.g. Singer, 1975: 42) but, rather than defending my opinion on this matter, I only wish to point out that the sterile elements at the edge of the lamellae in this species (here designated cheilocystidia because this term is of a topographic nature) apparently never received the proper attention they deserve. Judging from the illustrations given by Kühner (1938: 72 fig. 25; 359 fig. 112) and Smith (1947: 419 fig. 52/5) it would seem that these authors had no clear idea what the cheilocystidia really looked like. The structure of the cheilocystidia and the disintegrating processes found to occur in the course of their development (figs. 1–3) amply demonstrate the solitary position of *M. vulgaris* within the genus. I fully realize, however, that as a consequence a number of the species which Singer admitted in this group will have to be removed, since their cheilocystidia have an entirely different aspect. This is a difficulty for which I have as yet no solution and which obviously requires further study.



Figs. 1–3. *Mycena vulgaris* (NETHERLANDS: Noord-oost polder, Kuinderbos, 9 Oct. 1976, P.B. Jansen; L).—1. Hyphae embedded in the gelatinous zone which forms the edge of a lamella, 1.8–2.7 μm wide, anastomosing, branched, clamped, terminally increasingly covered with granular matter.—2. Same hyphae, with their terminal cells—the cheilocystidia—somewhat clavately enlarged and profusely branched, forming a continuous and intricately interlaced layer.—3. Terminal cells in the process of disintegration, dissolving to a slimy mass (all figs., $\times 700$).

MYCENA sect. *Caespitosae* (A.H. Smith ex Sing.) Maas G., nov. comb.

Mycena sect. *Caespitosae* A.H. Smith, N. Amer. spec. *Mycena* (= in Univ. Mich. Stud., Scient. ser. 17): 401, 406. 1947 (not validly publ., no Latin descr.).—*Mycena* subsect. *Caespitosae* (A.H. Smith ex Sing. in Sydowia 15: 65. 1962.—Lectotype (Sing., 1951: 362): *Mycena texensis* A.H. Smith.

Basidiomata usually densely caespitose. Pileipellis made up of thin hyphae embedded in a gelatinous layer. Lamellae adnate or arcuate-decurrent, with gelatinous subhymenium. Stipe viscid, often brightly coloured, not reddening with age. Cheilocystidia clavate to fusiform, smooth or apically somewhat lobed or with knob-like excrescences.

Pleurocystidia do not as a rule play a very important part in the taxonomy of *Mycena*, but it may well be pointed out that the lectotype *M. texensis* is the only species out of a group of seven, definitely accepted by Smith as members of his section, which lacks pleurocystidia.

MYCENA sect. *Roridae* Kühn.

Mycena sect. *Roridae* Kühn, in Bull. bi-mens. Soc. linn. Lyon 10: 125. 1931.—*Mycena* subsect. *Roridae* (Kühn.) Sing. in Lilloa 22: 362. [“1949”] 1951.—Type (Kühner, l.c.): *Mycena rorida* (Fr. ex Fr.) Quél.

Pileipellis dry, made up of a single layer of inflated, spherical cells. Lamellae horizontal, broadly adnate, edge not gelatinized. Stipe glutinous, not staining reddish with age. Cheilocystidia cylindrical to subfusiform, smooth.

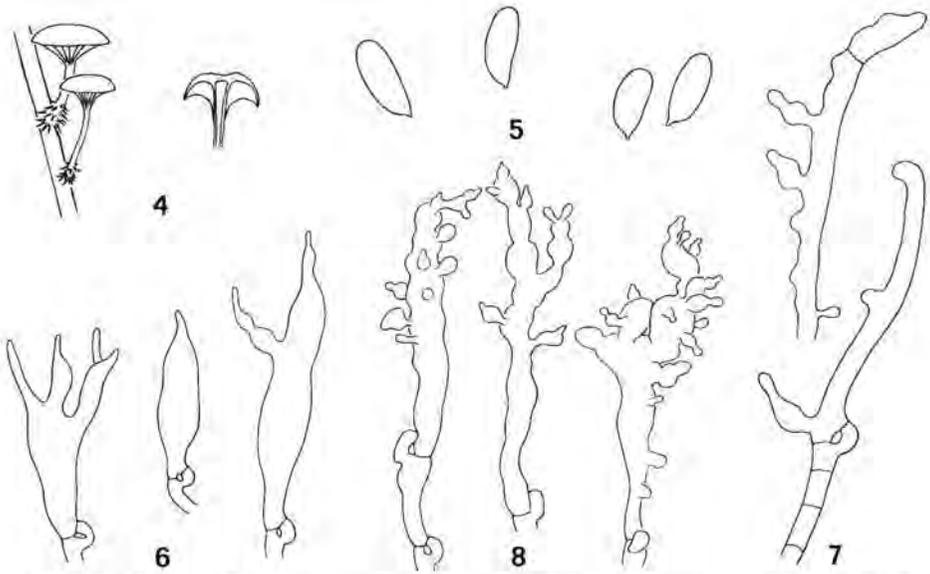
It should be clear that the position of the present section near the three foregoing ones is merely historically determined; it can only be of a temporary nature.

11. A NEW SECTION TO ACCOMMODATE *MYCENA BELLIAE*

Orton (1960: 306) enumerated a number of characters of *M. belliae*, the combination of which he considered suggestive of *Mycena* sect. *Glutinipedes*. He thereby overlooked other features of equal if not greater importance which defy inclusion of the species in the said section. For a discussion of this matter, it will be necessary to give a detailed description of *M. belliae* (which is by no means rare in this country) and to compare its more salient features with the descriptions of the sections as outlined in the foregoing chapter.

MYCENA BELLIAE (Johnst. apud Berk.) P.D. Orton

Basidiomes arising from basal mycelial patch, singly or in twos to threes, or patches confluent and basidiomes (numbering up to 15) becoming clustered. Pileus up to 20 mm across, at first convex but very soon umbilicate, sulcate, translucent-striate, originally puberulous to finely tomentose, then glabrescent from centre outwards and becoming viscid, shiny, fairly pale grey-brown to horn brown, turning reddish brown or bay or fulvous, paler at centre; margin incurved, then expanding. Flesh about 1 mm thick, pale watery brownish, darker under surface, staining weakly vinaceous in Melzer's reagent. Odour hard to describe, somewhat sour for some, and herbaceous when crushed, agreeable for others. Lamellae 21–26, up to 3 mm broad, fairly thick,



Figs. 4–8. *Mycena belliae* (NETHERLANDS: prov. Zuid-Holland, Nieuwkoopse Plassen, 9 Oct. 1979, Mrs C.M. den Held; L).—4. Basidiomes.—5. Spores.—6. Cheilocystidia.—7. Pileocystidia.—8. Caulocystidia (fig. 4, $\times \frac{1}{2}$; all others, $\times 700$).

somewhat elastic, arcuate-decurrent, smooth or somewhat transversely venose, dingy white to very pale sepia brownish, edge without elastic-tough thread, concolorous. Stipe 5–60 \times 0.6–3 mm, equal, apically somewhat broadened, hollow, somewhat elastic, straight to curved, smooth, more rarely with one or two longitudinal grooves, densely white-puberulous for the greater part, then glabrescent and becoming somewhat viscid, at first pure white, then darkening, finally dingy whitish above, yellow-brown farther down, dark red-brown towards the base; base originally surrounded by fine, radiating, whitish fibrils which later become agglutinate to form coarse bundles of long, brown fibrils.

Basidia 4-spored, clamped. Spores 13.5–15.2 (–17.0) \times 5.5–6.7 μm , elongate pip-shaped to almost cylindrical, amyloid. Cheilocystidia 32–55 \times 7–10.5 μm , clamped, fusiform to clavate, simple to more or less branched, smooth. Pleurocystidia none. Pleurocystidia none. Cortical layer of pileus an ixotrichodermium, forming a viscid, tough, separable pellicle. Cortical layer of stipe also an ixotrichodermium, but gelatinization of hyphae less pronounced. Subhymenium not gelatinized. Stipe continuous with pileus.

Growing at about water level on standing stems of *Phragmites* in stagnant water.

LOCALITIES IN THE NETHERLANDS³

Province Friesland: Isl. Ameland, Hollum, 27 Oct. 1973, C. Bas 6243 (L).

Province Gelderland: Wageningen, 23 Sept. 1970, H.S.C. Huijsman (L).

Province Utrecht: Loosdrechtse plassen, 15 Oct. 1957, C. Bas 1305 (L); Soest, estate Pijnenburg, 15 Oct. 1944, G.A. de Vries (L).

Province Noord-Holland: Amsterdam, 28 Oct. 1941, D. Piet (L); Callantsoog, Zwanenwater, 21 Oct. 1979, C. Bas 7579 (L); Kortenhoeft, 't Hol, 8 Nov. 1956, J. Daams (L); Naardermeer,

³ One of the objects of giving these localities is to supplement the distributional map published by Horak (1964: 100).

7 Nov. 1972, H. van Dam & M. Veerkamp (L); Isl. Texel, De Geul, 31 Oct. 1971, C. Bas 5624 (L); 25 Oct. 1977, M.E. Noordeloos 562 (L).

Province Zuid-Holland: Nieuwkoopse plassen, 24 Nov. 1968, J. den Held (L); 30 Nov. 1968, C. Bas 5112 (L); 9 Oct. 1979, Mrs. C.M. den Held (L).

The characters in my opinion to be considered typical of this species are the following. (i) Basidiomes arising from a mycelial patch; (ii) pileus umbilicate, (iii) with the pileipellis an ixotrichodermium which forms a viscid, tough, separable pellicle; (iv) lamellae arcuate-decurrent; (v) stipe more or less viscid, (vi) with age staining red-brown at the base; (vii) subhymenium not gelatinous, hyphae at most somewhat agglutinate; (viii) spores 13–15 (–17) μm long, amyloid; (ix) cheilocystidia fusiform to clavate, simple to more or less branched.

There is no doubt that these characters identify *M. belliae* as a species of the genus *Mycena* but, although it is obviously related to some of the sections described in the preceding pages, the very combination of its features sets it apart as a section of its own:

MYCENA sect. *Calamophilae* Maas G., *nov. sect.*⁴

Species phragmiticola. Basidiomata e pulvinulo mycelioso nata. Pileus umbilicatus, e hyphis tenuibus strato gelatinoso circumfusus. Lamellae arcuato-decurrentes. Stipes viscidus, in aetate basi rubescens. Subhymenium haud gelatinosum. Sporae elongatae, amyloideae. Cheilocystidia fusiformia vel clavata, simplicia vel subramosa.—Typus: *Mycena belliae*.

12. HEMIMYCENA LACTEA (Pers. ex Fr.) Sing.

Agaricus lacteus Pers., Syn. meth. Fung.: 394.1801; ex Fr., Syst. mycol. 1: 152.1821.—*Mycena lactea* (Pers. ex Fr.) Kummer, Führ. Pilzk.: 110.1871.—*Hemimycena lactea* (Pers. ex Fr.) Sing. in Revue Mycol. 3: 195.1938.—*Marasmiellus lacteus* (Pers. ex Fr.) Ito, Mycol. Flora Japan 2(5): 185.1959.—Type locality: Germany, presumably around Göttingen.

Agaricus delicatellus Peck in Ann. Rep. N.Y. State Mus. 30: 39.1878.—*Collybia delicatella* (Peck) Sacc., Syll. Fung. 5: 224.1887.—*Gymnopus delicatellus* (Peck) Murrill in N. Amer. Flora 9: 354.1916.—*Mycena delicatella* (Peck) A.H. Smith, N. Amer. spec. *Mycena* (= in Univ. Mich. Stud., Scient. Ser. 17): 161, pl. 11 D, textfig. 15 (3–6). 1947.—*Marasmiellus delicatellus* (Peck) Sing. in Lilloa 22: 298. [“1949”] 1951.—*Hemimycena delicatella* (Peck) Sing., Agaricales, 2nd ed.: 369.1962.—Type species in NYS.

Smith (1947: 163) was strongly opposed to the use of the epithet *lactea* for the species he knew as *Mycena delicatella*, since “the fungus as I know it can by no stretch of the imagination be reconciled with Fries’s illustration of *M. lactea* in *Icones Selectae Hymenomycetum*.” However, Smith overlooked an important piece of information which is included in the last line of Fries’ account (1867: 85): “Tab. 79. f.3 [which is the picture Smith had in mind] *Ag. lactei* var. *pulchellam* sistit.” Fries’ illustration represents var. *pulchella*, not *Agaricus lacteus*.

⁴ Etymology: *κάλamos*, reed; *φιλος*, loving

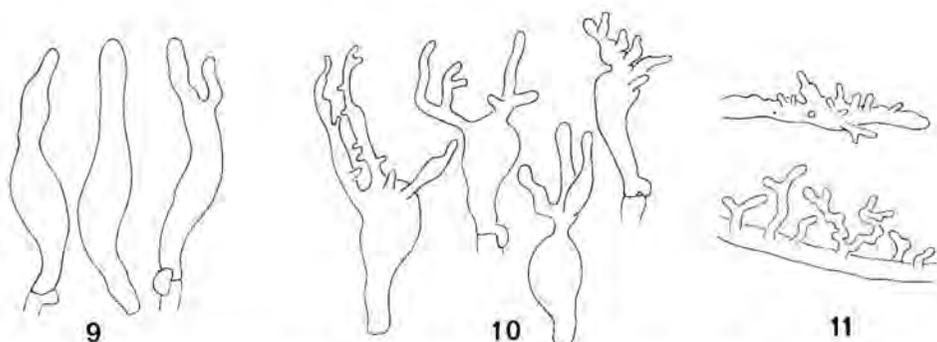
It is certainly true that some confusion existed in early European literature about the interpretation of the species so very briefly described by Persoon, but rejection of a name accepted by Fries should be chosen in the very last resort. Ricken (1915: 435), as one of the influential authors, described a species under the name *M. lactea*, but since he introduced a character ("Hut. . . kahl und nackt") not mentioned by Persoon and, on the other hand, was silent about a characteristic feature specified in the original description ("... stipite . . . basi hirsuto"), it must be clear that Ricken's and Persoon's species cannot be the same. Ricken's species is now known as *Hemimycena rickenii* (A.H. Smith) Sing. Kühner (1938: 632, 688) subsequently described a new species, *M. pseudolactea*, which he had previously mistaken for the true *M. lactea*. Although this would seem to be another source of confusion, it should be remembered that, whereas Persoon's species described in the Synopsis very likely had been collected in the low-altitude surroundings of Göttingen, *Mycena pseudolactea* is an alpine species not known to occur below 1000 m altitude (Kühner, l.c.; Kühner & Valla, 1972: 26).

The situation, briefly, is as follows. (i) Persoon added the information "Hinc inde in pinetis crescit" and the chance of finding a white *Mycena*, answering to Persoon's description and growing in a low-altitude coniferous wood, other than *M. lactea* seems remote; (ii) Lange's publication (1914) is, at least in Europe, accepted as the correct interpretation of Persoon's species; (iii) Kühner's description (1938: 625; see also Kühner & Valla, 1972: 27, 29) is the most detailed one in European literature of recent times and (iv) agrees in most respects with Smith's description of *M. delicatella*. (v) Singer, without any comment, synonymized *Hemimycena lactea* with *H. delicatella* but, as may be clear by now, the epithet *lactea* must prevail.

13. MYCENA MISERIOR Huijsm.

Mycena miserior Huijsm. in *Persoonia* 1: 332, figs. 1-5. 1960.

Since my re-examination of the holotype of this species has yielded a most unexpected result, I may state at the outset that I was present at the moment, in 1957, when the material was collected. The specimens were found so close together as to dispel any possible thought of their representing anything else but a homogeneous group. There can be no doubt, therefore, that Huijsman and I, twenty years apart, investigated members of a single species, although the lageniform cheilocystidia I first happened to see under the microscope (fig. 9) will explain my initial incredulity. It appeared, however, that these cheilocystidia are of the kind usually found nearer the stipe, whereas the other and more branched kind (fig. 10), often in appreciable numbers and similar to the ones depicted by Huijsman, occurs nearer the margin of the pileus. Towards the very margin, these cheilocystidia were seen to grow gradually narrower and eventually pass into the diverticulate hyphae of the pileipellis (fig. 11). I also found the proportions of both kinds of cheilocystidia to vary from one pileus-fragment to the other (Huijsman used to break the fresh pileus into fragments



Figs. 9-11. *Mycena miserior* (holotype).—9. Cheilocystidia found nearer the stipe.—10. Cheilocystidia occurring nearer the margin of the pileus.—11. Hyphae of the pileipellis (all figs., $\times 700$).

to speed up the drying process) and it seems only reasonable to assume that Huijsman chanced upon a fragment whose cheilocystidia were predominantly of the branched kind. On the strength of the features he found in his material, Huijsman identified his collection as *Mycena misera* sensu A.H. Smith but, considering this binomial a misapplication, he coined the name *M. miserior*. As Smith had placed *M. miserior* in the same section with such species like *M. cinerella* (P. Karst.) P. Karst, and *M. concolor* (J. Lange) Kühn., it follows that *M. miserior* was thought to belong to the same group. Before disclosing the identity of *M. miserior*, it seems appropriate first to establish the name of the group.

Kühner & Romagnesi (1953: 109) called this group the *Vulgares*, comprising the species *M. cinerella*, *M. concolor*, *M. pseudopicta* (J. Lange) Kühn., *M. clavicularis* (Fr.) Gillet, and *M. vulgaris* (Pers. ex Fr.) Kummer. As indicated above, I prefer to regard the last-named species as the type of a monotypic subdivision—section *Fuliginellae* (Smith ex Sing.) Maas G., of which “groupe” *Vulgares* is a synonym. This procedure necessitates redistribution of the other species mentioned by Kühner & Romagnesi. Two of these, *Mycena cinerella* and *M. concolor*, had previously been placed by Singer (1951: 360) in his “stirps” *Cinerella*, and little change of its original description is required to make it fit also to include *M. pseudopicta* and, provisionally, *M. clavicularis*. The emended description now reads thus:

MYCENA “STIRPS” CINERELLA

Habit more or less omphalioid. Pileus dry to more or less lubricous. Lamellae horizontal and broadly adnate to arcuate-decurrent. Stipe dry to viscid. Pigments grey to fuscous. Cheilocystidia clavate, more rarely almost cylindrical, apically covered with shorter or longer, often variously shaped and branched excrescences.

It is clear that *Mycena miserior* on account of its ascending, rather narrowly adnate lamellae and its cheilocystidia cannot be a member of “stirps” *Cinerella*. Instead, it keys out as *Mycena aetites* (Fr.) Quél; it is here formally placed in the synonymy of that species. Kühner’s drawings (1938: figs. 160 and 161) are further illustrations of the variability of the cheilocystidia.

A few words must be said about the pleurocystidia. Kühner (1938: 478) stated that the pleurocystidia in *M. aetites* are "toujours ± nombreuses." This is definitely not always the case, since the pleurocystidia may be so scarce as to be hard to find. *Mycena miserior* is yet another example to prove my point. The pleurocystidia are not absent, as described by Huijsman, but they are very rare and, hence, easily missed.

14. THE EUROPEAN MEMBERS OF "STIRPS" CINERELLA

As indicated in the preceding chapter, this subdivision, as far as Europe is concerned, is taken to comprise the species *Mycena cinerella*, *M. concolor*, *M. pseudopicta* and—provisionally, as will be explained below—*M. clavicularis*. Further members, found outside Europe, e.g. *Mycena subconcolor* A.H. Smith (1947: 365) in North America, *M. cariciophila* Redhead (1980: no. 165) in Canada⁵ and, possibly, *M. pseudopicta* sensu Malençon & Bertault (1975: 292) in Morocco, will not be discussed here. Certain comments and observations in literature give clear evidence that even in so small a group there exists some confusion, the species having caused the most trouble being *M. pseudopicta*.

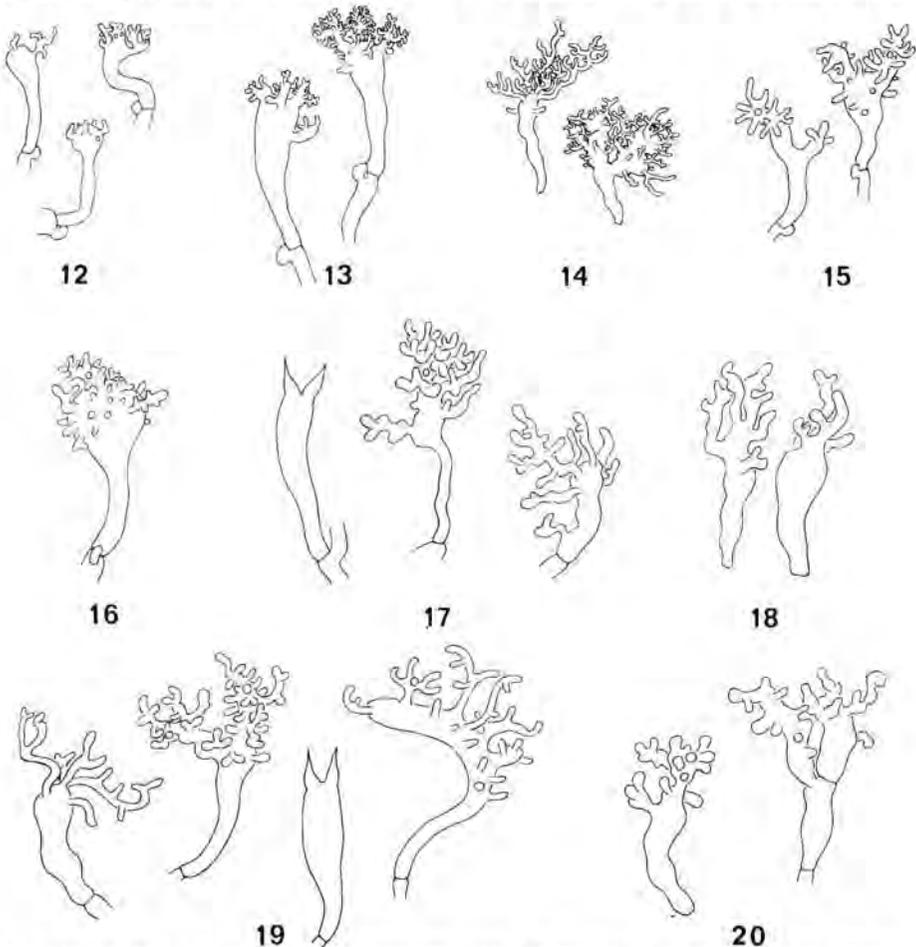
Smith (1947: 369), albeit with a question-mark, placed *M. pseudopicta* in the synonymy of *M. misera*, although there are a number of differences that should have been a signal. Singer (1951, 1975) avoided consideration of *M. pseudopicta* altogether. Kühner & Romagnesi (1953: 110), trying to differentiate *M. pseudopicta* from *M. clavicularis*, failed to give truly apposite characteristics, while their assumption that these species can be told from each other by the length of the excrescences of the cheilocystidia is an incorrect generalization (see figs. 17–20 and 21–25). M. Lange (1955: 49) who found, apparently somewhat deviating, Greenland material of *M. pseudopicta* suggested that "it may be an inodorous form" of *M. cinerella*, which is an assertion that cannot be maintained.

The best way to obviate these difficulties is by selecting a neotype and it is a fortunate coincidence that Mr Knudsen (Copenhagen) kindly informed me that his collection of *M. pseudopicta* (some of the cheilocystidia of which are depicted in fig. 17) "... is in good agreement with Lange's description and drawing... which is here at the Museum..." This gathering, amply collected and in excellent condition, is hereby chosen as neotype of *M. pseudopicta*.

The following key is an attempt at using ecological data along with morphological and other features for the distinction of the species. Readers who wish to

⁵ Redhead stated that "*Mycena cariciophila* is one of a number of rare species in *Mycena*... stirps *Polyadelpha*", showing "some affinities to stirps *Cinerella*..." I have not studied "stirps" *Polyadelpha* as defined by Singer (1975: 390), but would say that it seems logical to expect a subdivision so named to be typified by *Mycena polyadelpha* (Lasch) Kühn. The features of this species, however, and above all the aspect of its cheilocystidia (figs. 26, 27) plainly repudiate any relation with *M. cariciophila*. Rather do I think that the latter fits quite well in "stirps" *Cinerella* as redefined in the present paper.

consult some of the more recent literature containing information on the habitats typical of the species concerned are referred to the following authors, cited in brackets under the species. *Mycena cinerella* (Favre, 1948: 92; Pearson, 1955: 58–59; Einhellinger, 1976: 117), *M. clavicularis* (Pearson, 1955: 56–57; Bon, 1970: 145), *M. concolor* (Favre, 1948: 92; M. Lange, 1955: 48; Einhellinger, 1976: 118), *M. pseudopicta* (M. Lange, 1955: 48; Huijsman, 1960:



Figs. 12–14. *Mycena cinerella*, cheilocystidia.—12. NETHERLANDS: prov. Drente, Beilen, Beilersluis, 4 Nov. 1974, E. Arnolds 3305 (WBS).—13. NETHERLANDS: prov. Utrecht, Langbroek, Leeuwenburg, 23 Nov. 1978, T. Boekhout (L).—14. NETHERLANDS: prov. Noord-Holland, Heiloo, 2 Nov. 1963, E. Kits van Waveren (herb. K.v.W.).

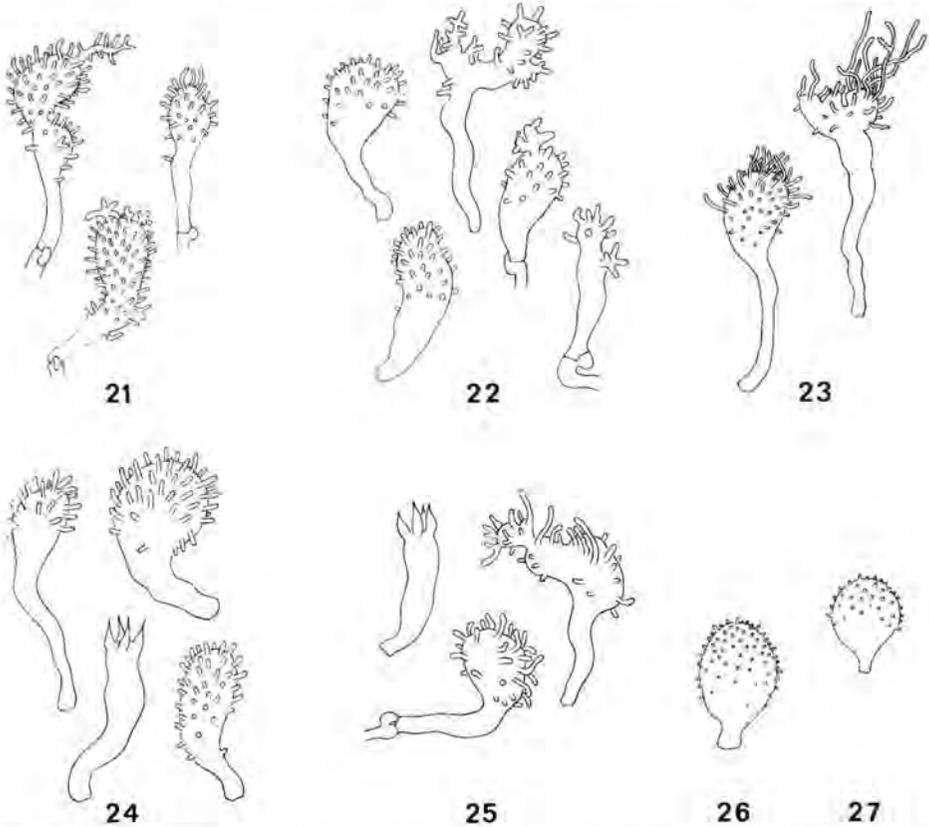
Figs. 15, 16. *Mycena concolor*, cheilocystidia.—NETHERLANDS: prov. Drente, Lheebroek, 14 Nov. 1962, J.J. Barkman 7456a (L).—16. NETHERLANDS: prov. Noord-Holland, Halfweg, Spaarnwouderveen, 18 Nov. 1951, W.J. Reijnders (L).

Figs. 17–20. *Mycena pseudopicta*, cheilocystidia and occasional basidium. 17.—DENMARK: Jylland, Tornby Klitplantage, 16 Oct. 1978, H. Knudsen, neotype (C, part in L).—18. GERMANY (D.D.R.): near Waren, "Ostufcr der Müritz", 21 Oct. 1976, B. de Vries 3241 (WBS).—19. SWITZERLAND: canton Neuchâtel, Planayse, 26 Nov. 1961, H.S.C. Huijsman (L).—20. NETHERLANDS: prov. Zuid-Holland, Rockanje, 25 Oct. 1970, C. Bas 5476 (L). All figs., $\times 700$.

334; Bon, 1970: 145; Jahn, 1970: 26; Röllin & Monthoux, 1975: 100; Winterhoff, 1977: 87).

KEY TO THE SPECIES

1. Odour none or insignificant, even when cut or crushed.
2. Basidia consistently 4-spored, clamped.
 3. Stipe dry. Cheilocystidia of the *cinerella*-type (figs. 15, 16). Typically growing in peat moor or among *Sphagnum*: *M. concolor*
 3. Stipe viscous. None of the cheilocystidia or occasionally only a minority of the *cinerella*-type (figs. 21–25). Associated exclusively with conifers; usually (?) in dry habitats: *M. clavicularis*



Figs. 21–25. *Mycena clavicularis*, cheilocystidia and occasional basidium.—21. SWEDEN: Lundell & Nannfeldt, Fungi exs. suec., præes. upsal. 2545 (C).—22. SWITZERLAND: canton Neuchâtel, Cachot, 5 Sept. 1966, Mrs. L. Huijsman (L); some of the cheilocystidia showing affinities to those of the *cinerella*-type!—23. NETHERLANDS: prov. Noord-Holland, Santpoort, Duin-en-Kruidberg, 14 Nov. 1959, E. Kits van Waveren (L).—24. NETHERLANDS: prov. Noord-Holland, Texel, De Koog, 27 Oct. 1976, F. & G. Tjallingii (L).—25. NETHERLANDS: prov. Zeeland, Westenschouwen, 23 Oct. 1966, F.B. Jansen (L).

Figs. 26, 27. *Mycena polyadelpha*, cheilocystidia.—26. NETHERLANDS: prov. Drente, Elp, De Reitma, 15 Nov. 1976, E. Arnolds 3770 (WBS).—27. NETHERLANDS: prov. Limburg, Wijre, In den Elzerstond, 8 Nov. 1974, P.B. Jansen (L). All figs., $\times 700$.

2. Basidia 2-spored (rarely with some 3-spored ones intermixed), without clamps. Cheilocystidia of the *cinerella*-type (figs. 17–20). Characteristic of open places with low or sparse graminous vegetation or under low shrubs: *M. pseudopicta*
1. Odour of meal, more rarely raphanoid, when cut. Stipe dry. Cheilocystidia, see figs. 12–14. In various types of habitats: *M. cinerella*.

The distinction between cheilocystidia of the *cinerella*-type and those not of the *cinerella*-type is a feature not heretofore used for the differentiation of species, but it may well prove a refinement capable of being put to good use. This may eventually lead to *Mycena clavicularis* after all being excluded from "stirps" *Cinerella*, the more readily so since the mucilaginous covering of its stipe is a feature much less pronounced or lacking in the other species.

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STUDIES IN MYCENAS—15

A tentative subdivision of the genus *Mycena* in the
northern Hemisphere

R. A. MAAS GEESTERANUS

Oegstgeest

The genus *Mycena* is subdivided into 23 sections, three of which are further subdivided into subsections. A number of these sections are described as new or proposed as new combinations, as follows. *Mycena* sect. *Luculentae* (with the subsections *Elegantes*, *Rosellae*, and *Pterigenae*), *M.* sect. *Polyadelphia*, *M.* sect. *Monticola*, *M.* sect. *Cinerellae*, *M.* sect. *Intermediae*, *M.* sect. *Pudicae*, *M.* sect. *Rubromarginatae*, subsections *Purae* and *Violacellae* (of sect. *Calodontes*), subsections *Hiemales* and *Omphaliariae* (of sect. *Hiemales*).

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PREFACE, ACKNOWLEDGMENTS

Perhaps it is no exaggeration to state that great effort is involved in finding one's way in the genus *Mycena*. Of course, there are two excellent monographs, by R. Kühner (1938) and A. H. Smith (1947), while much and useful work has been done by such authors as J. E. Lange, P. Konrad & A. Maublanc, R. Singer, and several others. But, none the less, the difficulties remained. Some of these difficulties, I am convinced, originate from the fact that as far as the subdivision of the genus is concerned every author seemed to speak a mycologically different language. Inevitably, this resulted in a great many synonyms which to sort out has been the aim of the present paper.

In order to remove all doubts, the genus *Mycena* in this paper is largely taken in the sense and circumscription as given by Singer (1975). I also followed to some extent his taxonomic arrangement. However, as is apparent from the subtitle of this paper, the names of the subgeneric taxa accommodating the species of *Mycena* of the southern Hemisphere have been left out of account. Even with my field confined within so much narrower limits, I have not been able to assign every single species to its proper place.

It is to be regretted that because of belated delivery of the Bull. mens. Soc. linn. Lyon I have been unable to take into account the part on *Mycena* in Kühner's series entitled 'Les grandes lignes de la classification des Agaricales'. The instalments published in 1979 were received after I had completed my manuscript.

I owe a great debt to the late Dr. M. A. Donk whose preliminary work on subdivisional names in *Mycena* stored away in his card index saved me many months of patiently combing the literature; in many cases I have followed his suggestions as to the choice of lectotypes. Special thanks are given to Dr. M. Svrček (Praha) for the gift of some of Velenovský's works. Acknowledgment is also made to the Director of the 'Rijksherbarium' for providing working facilities.

KEY TO SECTIONS AND SUBSECTIONS

1. Pileus viscid, hyphae of pileipellis forming a gelatinous, separable layer.
 2. Basidiomata with bluish or blue-green colours, usually at the base of the stipe, sometimes also at the margin of the pileus: § *Viscipelles*, p. 98
 2. Basidiomata without bluish colours.
 3. Cheilocystidia smooth or forked to somewhat branched, or apically with few excrescences.
 4. Lamellae remaining attached to the stipe. Stipe without basal disc.
 5. Pileus glabrous. Spores pip-shaped: § *Caespitosae*, p. 110
 5. Pileus puberulous to tomentose. Spores elongate to almost cylindrical: § *Calamophilae*, p. 111
 4. Lamellae free or stellately seceding from the stipe. Stipe with more or less pronounced, pubescent basal disc: § *Basipedes*, p. 97
 3. Cheilocystidia with numerous, shorter or longer and variously shaped, often contorted excrescences.
 - 5*. Basidiomata with yellowish, more rarely purplish, colours. Lamellae ascending, decurrent with a tooth: § *Hygrocyboideae*, p. 109
 - 5*. Basidiomata with brownish, more rarely whitish, colours. Lamellae arcuate to more or less horizontal: § *Fuliginellae*, p. 110
1. Pileus dry or moist, in some cases becoming lubricous, but pileipellis not separable as a gelatinous layer.
 6. Basidiomata growing on woody substrata. Pileus with granular to floccose surface, white to greyish, densely covered with vesiculose to elongate, diverticulate cells. Lamellae ascending, narrowly adnate: § *Sacchariferae*, p. 96
 6. Basidiomata differently characterized.
 7. Entire pileus brightly coloured (bright pink, orange, red; not yellow or white). Stipe not brownish. Odour, on drying, not of iodoform. Spores amyloid.
 8. Lamellae subhorizontal, broadly adnate. Pleurocystidia present. Pileipellis somewhat gelatinized: § *Luculentae-Rosellae*, p. 102
 8. Lamellae ascending-uncinate. Pleurocystidia absent. Pileipellis not gelatinized: § *Luculentae-Pterigenae*, p. 102
 7. Differently characterized.
 9. Stipe bright pink. Spores hardly, if at all, amyloid. Cheilocystidia diverticulate. Pleurocystidia absent. Pileipellis somewhat gelatinized (but not separable): § *Monticola*, p. 103
 9. Differently characterized.
 10. Spores practically always amyloid; where spores are (or seem to be) non-amyloid, lamellar trama stains vinaceous to purplish brown in Melzer's reagent.

11. Lamellae with the edge of a different colour (deep yellow, pinkish brown, red-brown, purplish brown, olive brown, blackish, dark greenish) and usually more intensely coloured than the sides, except in one case where the stipe is deep yellow throughout. Lamellae ascending, not tinged purplish on the sides. Stipe not exuding red juice when cut. Cheilocystidia either smooth or somewhat branched or variously covered with long and often contorted excrescences. Hyphae of the pileipellis usually diverticulate.
§ *Rubromarginatae*, p. 106
11. Differently characterized.
12. Lamellae with the edge yellow, orange, orange-red, or purplish brown.
13. Cheilocystidia more or less densely, only apically, and usually very regularly covered with warts or longer excrescences (cheilocystidia with long, irregularly shaped and/or branched excrescences being rare and always mixed with the usual warted kind). Lamellae ascending:
§ *Luculentae-Elegantes*, p. 101
13. Cheilocystidia smooth. Lamellae more or less horizontal, tinged purplish. Hyphae of the pileipellis smooth: . . . § *Calodontes-Marginatae*, p. 112
12. Lamellae with the edge concolorous with the sides or paler to whitish.
14. Cheilocystidia apically, more rarely ventrally, covered with shorter or longer excrescences; the former (shorter) kind usually very numerous, the latter often variously shaped, branched and/or contorted.
15. Spores pip-shaped.
16. Cheilocystidia with apical excrescences.
17. Basidiomata small to minute, growing on non-woody stems or dead leaves. Stipe insititious or with mycelial filaments radiating from the base: . . . § *Polyadelphia*, p. 103
17. Differently characterized.
18. Lamellae ascending; edge convex.
19. Stipe fragile. Cheilocystidia as a rule densely and regularly covered with warts or somewhat longer (but mostly narrow) excrescences: . . . § *Filipedes*, p. 99
19. Stipe rigid or elastic-tough. Cheilocystidia sparingly to moderately covered with variously shaped, not infrequently branched and contorted excrescences:
§ *Mycena*, p. 100
18. Lamellae horizontal to arcuate-decurrent; edge in some species more pronouncedly concave than in others:
§ *Cinerellae*, p. 104
16. Cheilocystidia with warts or longer excrescences usually in the ventral part: . . . § *Intermediae*, p. 104
15. Spores spherical or almost so: . . . § *Supinae*, p. 98
14. Cheilocystidia smooth, not infrequently apically attenuated to form a neck, sometimes with a furcate neck, or somewhat branched or with few prominent excrescences.
20. Basidiomata small, fragile, white. Pileus and stipe puberulous. Lamellae horizontal to somewhat arcuate: . . . § *Pudicae*, p. 105
20. Differently characterized.
21. Lamellae ascending.
22. Stipe exuding a watery, milky or coloured juice when cut:
§ *Lactipedes*, p. 108
22. Stipe not thus characterized: . . . § *Fragilipedes*, p. 106
21. Lamellae more or less horizontal, mostly tinged lilac to purplish. Stipe not exuding a copious juice when cut. Hyphae of the pileipellis smooth.

23. Spores amyloid. Edge of the lamellae smooth to fimbriate:
 § *Calodontes-Purae*, p. 112
23. Spores non-amyloid. Edge of the lamellae coarsely corroded-
 crenate: § *Calodontes-Violacellae*, p. 112
10. Spores non-amyloid. Lamellae not flesh-coloured or violaceous. Lamellar trama not staining vinaceous in Melzer's reagent or only weakly reddish.
24. Pileus whitish, generally tinged brownish, never violaceous, centrally sometimes very dark; exceptionally pure white but then pileus not hygrophanous.
25. Lamellae ascending, edge convex: § *Hiemales-Hiemales*, p. 114
25. Lamellae more or less horizontal to arcuate, edge concave:
 § *Hiemales-Omphaliariae*, p. 115
24. Pileus brightly coloured (yellow, orange, red, pink, pure white), hygrophanous, at least in the white forms.
26. Hyphae of the stipe continuous with those of the pileus: . . . § *Adonideae*, p. 112
26. Hyphae of the stipe abruptly distinct from those of the pileus:
 § *Aciculae*, p. 114

SYNONYMY AND DESCRIPTIONS
 OF THE SUBDIVISIONS

MYCENA (Pers. ex Fr.) S. F. Gray

Agaricus [sect.] *Mycena* Pers., Tent. Fung. Suppl.: 69. 1797. — *Agaricus* sect. *Mycena* Pers., Syn. meth. Fung.: xvi, 375. 1801. — *Agaricus* trib. *Mycena* Pers. ex Fr., Syst. mycol. 1: 9, 140. 1821. — *Mycena* (Pers. ex Fr.) S. F. Gray, Nat. Arr. Br. Pl. 1: 619. 1821. — Lectotype (Donk, 1962: 190): *Mycena galericulata* (Scop. ex Fr.) S. F. Gray.

Basidiomata small to large, of mycenoid or omphalioid habit, more rarely collybioid. Pileus glabrous, granular, floccose, puberulous, or pruinose, sometimes covered with a gelatinous, separable pellicle. Lamellae ascending, horizontal or arcuate, almost free or narrowly adnate to decurrent. Stipe fragile to cartilaginous or elastic-tough, in part or entirely pruinose or puberulous, or glabrous, sometimes dilated below to form a basal disc, often basally covered with long, coarse fibrils. Basidia 2- or 4-spored. Spores usually pip-shaped, less frequently almost cylindrical or spherical, generally amyloid, more rarely non-amyloid. Cheilocystidia clavate, obpyriform, fusiform, lageniform or, more rarely, cylindrical, smooth, branched or with variously shaped, simple or branched excrescences. Pleurocystidia numerous, scarce or absent. Hyphae of the pileipellis diverticulate, less frequently smooth. Lamellar trama staining vinaceous to purplish brown in Melzer's reagent, in a few cases remaining unaltered.

1. Sect. SACCHARIFERAE Kühn. ex Sing.

Mycena [sect.] *Sacchariferae* Kühn., Genre *Mycena*: 159, 205. 1938 (not val. publ.: no Latin descr.); Sing. in *Annls mycol.* 41: 137. 1943 (formally accepted as section; not val. publ.: no Latin descr.); *Mycena* sect. *Sacchariferae* Kühn. ex Sing. in *Sydowia* 15: 65. 1962. — *Mycena* subsect. *Sacchariferae* (Kühn.) Métrod in *Prodr. fl. mycol. Madagasc.* 3: 19, 21, 26. 1949 (not val. publ.: no Latin descr.). — Lectotype (Sing., 1951: 356): *Mycena tenerrima* (Berk.) Quéf.

Pseudomyцена Cejp in *Publ. Fac. Sci. Univ. Charles* 104: 138, 157. 1930. — *Mycena* subgen. *Pseudomyцена* (Cejp) A. H. Smith, N. Am. spec. *Mycena*: 38, 44. 1947. — Lectotype (Donk, 1962: 254): *Mycena tenerrima*.

Mycena sect. *Tenerrimae* A. H. Smith, N. Am. spec. *Mycena*: 38, 44, 45. 1947 (not val. publ.: no Latin descr.). — Lectotype (Donk, unpublished): *Mycena tenerrima*.

Mycena stirps *Tenerrima* A. H. Smith, N. Am. spec. *Mycena*: 38. 1947 (nomen nudum). — Lectotype (here chosen): *Mycena tenerrima*.

Basidiomata delicate, never blue. Pileus not gelatinizing, powdered with vesiculose cells which are covered with warts or minute cylindrical excrescences. Lamellae ascending. Stipe covered with hairs below or somewhat woolly, with slightly incrassate base or widened into basal disc. Basidia 2- or 4-spored. Spores amyloid. Cheilocystidia clavate to fusiform, covered with warts or minute cylindrical excrescences.

SPECIES.—*Mycena nucicola* Huijism., *M. osmundicola* J. E. Lange, *M. tenerrima* (Berk.) Quél.

Imazeki & Toki (1955: 8) described a *Mycena cryptomeriaecola* which they took to be related to the other members of the present section, although they were well aware of the differences, one of the more serious of which is that the spores of their species were said to be non-amyloid.

2. Sect. BASIPEDES (Fr.) Quél.

Agaricus [sect.] *Basipedes* Fr., Epicr. Syst. mycol.: 117. 1838; Cooke, Handb. Br. Fungi 1: 75. 1871 (formally accepted as section). — *Mycena* [sect.] *Basipedes* (Fr.) Quél., Champ. Jura Vosges: 109. 1872; Sing. in Annlis mycol. 41: 137. 1943 (formally accepted as section). — *Pseudomycena* sect. *Basipedes* (Fr.) Cejp in Publ. Fac. Sci. Univ. Charles 104: 139. 1930. — Lectotype (Kühn., 1931: 125): *Mycena stylobates* (Pers. ex Fr.) Kummer.

Basidopus Earle in Bull. N. Y. bot. Gdn 5: 426. 1909. — Type species (Earle, l.c.): *Mycena stylobates*.

Mycena stirps mucor A. H. Smith, N. Am. spec. *Mycena*: 39. 1947 (nomen nudum). — Lectotype (here chosen): *Mycena mucor* (Batsch ex Fr.) Gillet.

Mycena stirps longiseta A. H. Smith, N. Am. spec. *Mycena*: 39. 1947 (nomen nudum). — Monotype: *Mycena longiseta* Höhn.

Mycena stirps stylobates A. H. Smith, N. Am. spec. *Mycena*: 39. 1947 (nomen nudum). — Lectotype (here chosen): *Mycena stylobates*.

Basidiomata fairly small, without blue or green colours. Pileus often not exceeding 10 mm, pileipellis gelatinous. Lamellae ascending to subhorizontal, free or stellately seceding from the stipe. Stipe with more or less pronounced, pubescent basal disc made up of inflated hyphae; hyphae at the apex of the stipe abruptly distinct from those of the pileus. Basidia 4-spored. Spores amyloid or, in one case, inamyloid. Cheilocystidia somewhat variable, usually more or less clavate, smooth or sparingly branched or with few plump to very slender excrescences.

SPECIES.—*Mycena bulbosa* (Cejp) Kühn., *M. clavularis* (Batsch ex Fr.) Sacc., *M. longiseta* Höhn., *M. mucor* (Batsch ex Fr.) Gillet, *M. stylobates* (Pers. ex Fr.) Kummer, *M. tenuispinosa* Favre.

Kobayasi (1951: 4) described a new species which he called *Mycena pseudostylobates* (an earlier homonym of *M. pseudostylobates* Sing. unless the latter is actually meant as an anagram!) and which he thought 'to be very near to *Mycena stylobates* Fr. and *Mycena mucor* Fr.' However, he failed to mention the presence, on the pileus, of a detachable gelatinous pellicle, and the apparent lack of cheilocystidia renders it doubtful whether the species belongs at all to *Mycena*.

Another species placed in this section is *M. gaultheri* A. H. Smith (1947: 51), which was followed by Singer (1951: 357; 1975: 388), but this disposition may well prove to be untenable. (i) Smith did not indicate whether the stipe in *M. gaultheri* is separable from the pileus, a character which he did not fail to observe in *M. stylobates*, and which appears to be a feature common to the members of the present section enumerated above. (ii) The cheilocystidia of *M. gaultheri* as depicted by Smith (fig. 1: 9) are altogether different from the kind prevailing in the species of sect. *Basipedes*.

3. Sect. VISCIPELLES Kühn.

Mycena [sect.] *Viscipelles* Kühn. in Bull. bimens. Soc. linn. Lyon 10: 125. 1931; Sing. in Lilloa 22: 357. ('1949') 1951 (formally accepted as section). — Lectotype (Sing., 1951: 357): *Mycena cyanorhiza* Quél. sensu Kühn.

Mycena subgen. *Insiticia* Kühn. in Botaniste 17: 93. 1926. — *Mycena* [rank?] *Insiticia* (Kühn.) Kühn., Genre *Mycena*: 172. 1938. — Lectotype (Donk, unpublished): *Mycena pachyderma* Kühn.

Mycena [sect.] *Insititiae* Kühn. in Botaniste 17: 93. 1926 (illegitimate: later homonym); not *Mycena* sect. *Insititiae* (Fr.) Quél., 1872: 109. — Type species (Kühn., l.c.): *Mycena pachyderma*.

Mycena [sect.] *Cyanescens* Kühn., Genre *Mycena*: 159, 190. 1938 (not val. publ.: no Latin descr.); Sing. in Annls mycol. 41: 137. 1943 (formally accepted as section; not val. publ.: no Latin descr.). — Lectotype (Donk, unpublished): *Mycena cyanorhiza* sensu Kühn.

Mycena stirps *Amicta* A. H. Smith, N. Am. spec. *Mycena*: 39. 1947 (nomen nudum). — Lectotype (here chosen): *Mycena amicta* (Fr.) Quél.

Basidiomata small to moderately large, with bluish or blue-green pigment, usually at the base of the stipe, less frequently also at the margin of the pileus. Pileus viscid. Lamellae ascending. Stipe without basal disc, puberulous to tomentose. Basidia 4-spored. Spores amyloid. Cheilocystidia (i) short, clavate or ovoid, and covered with few, flexuous excrescences, or (ii) elongate, cylindrical to somewhat fusiform, smooth. Hyphae of the pileipellis embedded in a gelatinous, separable layer.

SPECIES. — *Mycena amicta* (Fr.) Quél., *M. cyanorhiza* Quél. sensu Kühn., *M. pachyderma* Kühn., *M. subcaerulea* (Peck) Sacc.

Kühner (1938: 202) held the opinion that *Mycena cyanescens* Vel. also belonged to this section, although it differs appreciably from the other members (the stipe shows no bluish pigment but turns blue only when rubbed; the cheilocystidia have a broadly rounded head and are said to have yellow contents). Later on (Kühner & Romagnesi, 1953) the name of the species was dropped.

Singer (1951: 356) pointed out that the binomial *M. cyanescens* of Velenovský, being a later homonym of *M. cyanescens* (Mont.) Sacc., could not be used and turned to *M. cyanipes* Godey which he thought to be synonymous. I am by no means convinced, however, that *M. cyanescens* Vel. and *M. cyanipes* really are identical. The descriptions of both, reproduced by Kühner (1938: 202–203), show discrepancies too serious to be disregarded.

Even with these two species removed, the section seems to me to be an oddly disparate assemblage.

4. Sect. SUPINAE Konr. & Maubl.

Mycena sect. *Supinae* Konr. & Maubl., Ic. sel. Fung. 6: 274. 1934. — Lectotype (Donk, unpublished): *Mycena supina* (Fr.) Gillet.

Mycena [rank?] *Exsuccae* Kühn., Genre *Mycena*: 160, 237. 1938 (not val. publ.: no Latin descr.). — *Mycena* sect. *Exsuccae* (Kühn.) Sing. in Annls mycol. 41: 138. 1943 (not val. publ.: no Latin descr.). — Lectotype (here chosen): *Mycena supina*.

Mycena [subsect?] *Corticolae* Kühn., Genre *Mycena*: 160, 237. 1938 (not val. publ.: no Latin descr.). — *Mycena* stirps *Corticola* (Kühn.) Sing. in Annls mycol. 41: 138. 1943; in Lilloa 22: 358. ('1949') 1951 (inadmissible term denoting rank). — *Mycena* sect. *Corticolae* (Kühn.) A. H. Smith, N. Am. spec. *Mycena*: 39, 60, 66. 1947 (not val. publ.: no Latin descr.). — *Mycena* subsect. *Corticolae* (Kühn.) Sing., Agar. mod.

taxon., 3rd ed.: 389. 1975 (not val. publ.: no Latin descr.). — Lectotype (Sing., 1975: 389): *Mycena corticola* sensu Pat., Kühn.

Mycena [ser?] *Calodontes* Kühn., Genre *Mycena*: 238. 1938 (nomen nudum). — Monotype: *Mycena venustula* Quél.

Mycena [ser?] *Concolores* Kühn., Genre *Mycena*: 240. 1938 (nomen nudum). — Lectotype (here chosen): *Mycena supina*.

Mycena stirps Corticola A. H. Smith, N. Am. spec. *Mycena*: 39. 1947 (nomen nudum). — Lectotype (here chosen): *Mycena corticola* sensu Kühn.

Mycena stirps Supina A. H. Smith, N. Am. spec. *Mycena*: 39. 1947 (nomen nudum). — Lectotype (here chosen): *Mycena supina*.

Basidiomata small, inhabiting wood or bark of living trees. Pileus pruinose to floccose, more rarely glabrous. Lamellae little ascending, usually more or less horizontal and broadly adnate. Stipe with the base pubescent, tomentose or strigose. Basidia 2- or 4-spored. Spores spherical or almost so, amyloid. Cheilocystidia clavate to pyriform, apically covered with short to fairly long, simple to branched, and sometimes irregularly shaped excrescences. Pleurocystidia scarce or absent.

SPECIES.—*Mycena corticalis* A. H. Smith, ?*M. madronicola* A. H. Smith, *M. meliigena* (Berk. & Cooke apud Cooke) Sacc. (= *M. corticola* sensu Kühn.), *M. pseudocorticola* Kühn., *M. supina* (Fr.) Kummer, *M. venustula* Quél.

In connection with the present section, attention must be drawn to an old sectional name. This is sect. *Institiata* (Fr.) Quél., originally published by Fries (1838: 118) as *Agaricus* [sect.] *Institiiti* ('*Institiata*'). Earle (1909: 425) was prompted to raise this section to generic level under the name *Institicia*, of which he indicated *Agaricus corticola*, as Fries must have known it, as the type species. It is not difficult to see that this choice has led Donk (unpublished) to select the same species as the lectotype of sect. *Institiata*. As explained in a previous paper (Maas Geesteranus, 1979: 280), there are two concepts regarding the interpretation of the specific epithet *corticola*: (i) Singer had pointed out that the species as redescribed by Kühner must be renamed *M. meliigena* (Berk. & Cooke apud Cooke) Sacc., with which I agree; (ii) *Agaricus corticola* as understood by Fries, however, is a nomen ambiguum. It follows that the name of a section typified by an unidentifiable species cannot be used.

5. SECT. FILIPEDES (Fr.) Quél.

Agaricus [sect.] *Filipedes* Fr., Epicr. Syst. mycol.: 111. 1838 ('*Filopedes*'); Cooke, Handb. Br. Fungi 1: 70. 1871 ('*Filopedes*', formally accepted as section). — *Mycena* [sect.] *Filipedes* (Fr.) Quél., Champ. Jura Vosges: 106. 1872 ('*Filopedes*'). — *Mycena* [subject?] *Filipedes* (Fr.) Kühn., Genre *Mycena*: 161, 279. 1938. — *Mycena* subject. *Filipedes* (Fr.) Métrod in Prodr. fl. mycol. Madagasc. 3: 20, 21, 33. 1949. — Lectotype (here chosen): *Mycena filopes* (Bull. ex Fr.) Kummer.

Linopodium Earle in Bull. N. Y. bot. Gdn 5: 427. 1909. — Type species (Earle, l.c.): *Mycena filopes*.

Mycena stirps Vitilis Sing. in Annls mycol. 41: 138. 1943 (inadmissible term denoting rank). — Lectotype (here chosen): *Mycena vitilis* sensu Kühn. (= *Mycena filopes*).

Mycena stirps Metata A. H. Smith, N. Am. spec. *Mycena*: 40. 1947 (nomen nudum). — Lectotype (here chosen): *Mycena metata* (Fr.) Kummer.

Mycena stirps Filipes A. H. Smith, N. Am. spec. *Mycena*: 40. 1947 (nomen nudum). — Lectotype (here chosen): *Mycena filopes*.

Basidiomata fairly small to medium large. Pileus dry. Lamellae ascending, narrowly adnate, usually rather narrow but with the edge always convex. Stipe usually elongate, narrow, fragile, never viscid, at the base covered with long, coarse fibrils. Basidia 2- or 4-spored. Spores amyloid. Cheilocystidia clavate to obpyriform or vesiculose, more rarely somewhat irregularly shaped, more or less densely covered apically with warts or elongate excrescences. Pleurocystidia more or less similar or absent. Hyphae of the pileipellis (as far as known) diverticulate.

SPECIES.—? *Mycena alcaliniformis* (Murrill) Murrill, *M. alexandri* Sing., *M. atroulboides* Peck, *M. filopes* (Bull. ex Fr.) Kummer, *M. hudsoniana* A. H. Smith, ? *M. lineata* (Bull. ex Fr.) Kummer (a species about which I am as yet somewhat uncertain), *M. metata* (Fr.) Kummer, *M. mirata* (Peck) Sacc., *M. oortiana* Hora, *M. peyerimhoffii* Maire, *M. rapiolens* Favre, *M. sepia* sensu Lundell (see Maas Geesteranus, 1980b: 185), *M. urania* (Fr. ex Fr.) Quél., *M. xantholeuca* Kühn.

'*Filipedes*' is the grammatically correct form, and Fries (1874: 4, 144) changed the sectional name accordingly. But the specific epithet of *Mycena filopes*, being the time-honoured notation, is maintained.

6. Sect. *Mycena*

Agaricus trib. *Propriae* Fr., Obs. mycol. 2: 155. 1818. — Lectotype (Donk, unpublished): *Agaricus galericulatus* Scop.

Agaricus [sect?] *Mycenae-genuinae* Fr., Syst. mycol. 1: 140. 1821. — Lectotype (here chosen): *Agaricus galericulatus*.

Agaricus [sect.] *Rigidipedes* Fr., Epicr. Syst. mycol.: 104. 1838; Cooke, Handb. Br. Fungi 1: 67. 1871 (formally accepted as section). — *Mycena* [sect.] *Rigidipedes* (Fr.) Quél., Champ. Jura Vosges: 104. 1872; Sing. in Lilloa 22: 357. ('1949') 1951 (formally accepted as section). — *Mycena* [subsect?] *Rigidipedes* (Fr.) Kühn., Genre *Mycena*: 161, 317. 1938. — *Mycena* groupe *Rigidipedes* (Fr.) Konr. & Maubl., Agar.: 321. 1948 (inadmissible term denoting rank). — Lectotype (Sing., 1951: 357): *Agaricus galericulatus*.

Stereopodium Earle in Bull. N. Y. bot. Gdn 5: 426. 1909. — Type species (Earle, l.c.): *Mycena galericulata*.

Mycena subgen. *Eu-Mycena* J. E. Lange in Dansk bot. Ark. 1 (5): 11, 12, 18. 1914 (inadmissible name: Art. 21. 3). — Lectotype (here chosen): *Mycena galericulata*.

Mycena sect. *Granulatae* J. E. Lange in Dansk bot. Ark. 1 (5): 11, 15, 28. 1914. — *Mycena* [rank?] *Granulatae* (J. E. Lange) Kühn., Genre *Mycena*: 237. 1938. — *Mycena* subsect. *Granulatae* (J. E. Lange) Sing. in Anns mycol. 41: 138. 1943; in Lilloa 22: 358. ('1949') 1951; Agar. mod. taxon., 3rd ed.: 390. 1975 (illegitimate: later homonym); not *Mycena* subsect. *Granulatae* (Kühn.) Sing., 1943: 137. — Lectotype (Sing., 1951: 358): *Mycena galericulata*.

Mycena [subsect.] *Concolores* J. E. Lange in Dansk bot. Ark. 1 (5): 15, 28. 1914 (illegitimate: later homonym); not *Mycena* [subsect.] *Concolores* J. E. Lange, 1914: 13, 20. — Lectotype (here chosen): *Mycena galericulata*.

Mycena subgen. *Eumycena* Kühn. in Botaniste 17: 93. 1926 (inadmissible name: Art. 21. 3). — Lectotype (here chosen): *Mycena galericulata*.

Mycena [sect.] *Typicae* Kühn. in Botaniste 17: 93. 1926; in Bull. bimens. Soc. linn. Lyon 10: 123. 1931. — Lectotype (Donk, unpublished): *Mycena galericulata*.

Mycena [subsect.] *Agummosae* Oort in Meded. Ned. mycol. Ver. 16-17: 200, 228. 1928. — Lectotype (Donk, unpublished): *Mycena galericulata*.

Mycena subgen. *Mycenopsis* Cejp in Publ. Fac. Sci. Univ. Charles 104: 4, 7, 153. 1930. — *Mycena* [rank?] *Mycenopsis* (Cejp) Kühn., Genre *Mycena*: 160, 212. 1938; not *Mycenopsis* Vel., 1947: 35; not *Delicatula* [sect.] *Mycenopsis* Locq., 1956: 118. — Lectotype (here chosen): *Mycena galericulata*.

Mycena sect. *Typicae* Cejp in Publ. Fac. Sci. Univ. Charles 104: 4, 7. 1930. — Lectotype (here chosen): *Mycena galericulata*.

Mycena sect. *Galericulatae* Konr. & Maubl., Ic. sel. Fung. 6: 271. 1934. — Lectotype (Donk, unpublished): *Mycena galericulata*.

Mycena [subsect.] *Typicae* J. E. Lange, Fl. agar. dan. 2: 32, 43. 1936. — Lectotype (Donk, unpublished): *Mycena galericulata*.

Mycena stirps *Galericulata* Sing. in *Annlis mycol.* 41: 139. 1943; in *Lilloa* 22: 359. ('1949') 1951; Agar. mod. taxon., 3rd ed.: 390. 1975 (inadmissible term denoting rank). — Lectotype (here chosen): *Mycena galericulata*.

Mycena stirps *Pusilla* A. H. Smith, N. Am. spec. *Mycena*: 40. 1947 (nomen nudum). — Lectotype (here chosen): *Mycena pusilla* A. H. Smith.

Mycena stirps *Fagetorum* A. H. Smith, N. Am. spec. *Mycena*: 40. 1947 (nomen nudum). — Monotype: *Mycena fagetorum* (Fr.) Gillet.

Mycena stirps *Megaspora* A. H. Smith, N. Am. spec. *Mycena*: 41. 1947 (nomen nudum). — Lectotype (here chosen): *Mycena megaspora* Kauffm.

?*Mycena* stirps *Parabolica* A. H. Smith, N. Am. spec. *Mycena*: 41. 1947 (nomen nudum). — Lectotype (here chosen): *Mycena parabolica* sensu Kauffm.

Mycena stirps *Inclinata* A. H. Smith, N. Am. spec. *Mycena*: 41. 1947 (nomen nudum). — Lectotype (here chosen): *Mycena inclinata* (Fr.) Quél.

Mycena stirps *Galericulata* A. H. Smith, N. Am. spec. *Mycena*: 41. 1947 (nomen nudum). — Lectotype (here chosen): *Mycena galericulata*.

Mycena subgen. *Mycena*; Locq., Petite fl. champ. Fr. 1: 174. 1956. — Lectotype (here chosen): *Mycena galericulata*.

Basidiomata fairly large to large, sometimes densely fasciculate. Pileus without gelatinous, detachable pileipellis but in some cases lubricous when wet. Lamellae ascending, with age tending to become subhorizontal. Stipe usually rigid and tenacious, or elastic-tough, the base covered with long, coarse fibrils, not infrequently radicating. Basidia 2- or 4-spored. Spores amyloid. Cheilocystidia clavate to subfusiform or irregularly shaped, simple to somewhat branched, more or less densely covered with short to long and then often flexuous excrescences, more rarely smooth. Pleurocystidia none.

SPECIES.—*Mycena atrochalybaea* Huijsm., *M. fagetorum* (Fr.) Gillet, *M. flos-nivium* Kühn., *M. galericulata* (Scop. ex Fr.) S. F. Gray, *M. hemisphaerica* Peck, *M. inclinata* (Fr.) Quél., *M. maculata* P. Karst., *M. megaspora* Kauffm., *M. occidentalis* Murrill, *M. pusilla* A. H. Smith, *M. radicatella* (Peck) Sacc., *M. rugulosiceps* (Kauffm.) A. H. Smith, *M. tintinnabulum* (Fr.) Quél.

7. Sect. *Luculentae* Maas G., sect. nov.

Basidiomata statura media. Pileus omnino vel margine saltem laete coloratus, haud in stratum gelatinosum vergens, plerumque tamen hyphis superficialibus parietibus submucosis praeditis. Lamellae acie laete coloratae, haud albae. Stipes plus minusve elongatus. Basidia 4-sporigera. Sporae amyloideae. Cheilocystidia apice verrucis vel setulis praedita, saepius suco colorato repleta. Hyphae pileipellis verrucosae vel spinulis tenuibus munitae. — Species typica: *Mycena aurantiomarginata* (Fr.) Quél.

Basidiomata medium large. Pileus entirely or at least marginally brightly coloured, without gelatinous, detachable pellicle but frequently the hyphae of the pileipellis more or less gelatinizing. Lamellae with the edge brightly coloured but not white. Stipe more or less elongate. Basidia 4-spored. Spores amyloid. Cheilocystidia apically warted or with longer excrescences, often with coloured contents. Hyphae of the pileipellis verrucose or finely spinulose.

7.1. Subsect. *Elegantes* Sing. ex Maas G., subsect. nov.

Mycena [subsect.] *Marginatae* J. E. Lange in *Dansk bot. Ark.* 1 (5): 15, 28. 1914 (illegitimate; later homonym); not *Mycena* [subsect.] *Marginatae* J. E. Lange, 1914: 13, 18. — Lectotype (here chosen): *Mycena elegans* (= *M. aurantiomarginata*).

Mycena [subject?] *Calodontes* Kühn., Genre *Mycena*: 161, 265. 1938 (illegitimate: later homonym); not *Mycena* [sect.] *Calodontes* (Fr. ex Berk.) Quél., 1872: 102. — Lectotype (here chosen): *Mycena elegans*.

Mycena [ser?] *Filipedes* Kühn., Genre *Mycena*: 268. 1938 (nomen nudum). — Lectotype (here chosen): *Mycena elegans*.

Mycena stirps *Elegans* Sing. in *Annls mycol.* 41: 138. 1943; in *Lilloa* 22: 358. ('1949') 1951; Agar. mod. taxon., 3rd ed.: 390. 1975 (inadmissible term denoting rank). — Lectotype (here chosen): *Mycena elegans*.

Mycena subsect. *Granulatae* A. H. Smith, N. Am. spec. *Mycena*: 40, 196. 1947 (illegitimate: later homonym); not *Mycena* sect. *Granulatae* J. E. Lange, 1914: 15, 28. — Lectotype (here chosen): *Mycena aurantiomarginata*.

Mycena stirps *Elegans* A. H. Smith, N. Am. spec. *Mycena*: 40. 1947 (nomen nudum). — Lectotype (here chosen): *Mycena elegans*.

Mycena (subject?) *Echinidae* Locq., *Petite fl. champ. Fr.* 1: 174. 1956 (not val. publ.: no Latin descr.). — Lectotype (here chosen): *Mycena flavescens* Vel.

Basidiomata characteribus sicut in sect. *Luculentae* sed lamellae adscendentes angusteque adnatae, pleurocystidiis nullis vel clavatis verrucosisque.

Basidiomata with features as in sect. *Luculentae* but lamellae ascending and narrowly adnate, and either without pleurocystidia or pleurocystidia with warted apices.

SPECIES.—*Mycena aurantiomarginata* (Fr.) Quél., *M. chlorantha* (Fr. ex Fr.) Kummer, *M. flavescens* Vel., *M. strobilinoides* Peck.

7.2. Subsect. **Rosellae** Sing. ex Maas G., *subsect. nov.*

Mycena stirps *Rosella* A. H. Smith, N. Am. spec. *Mycena*: 40. 1947 (nomen nudum). — *Mycena* stirps *Rosella* Sing. in *Lilloa* 22: 359. ('1949') 1951; Agar. mod. taxon., 3rd ed.: 390. 1975 (inadmissible term denoting rank). — Monotype: *Mycena rosella* (Fr.) Kummer.

Basidiomata characteribus sicut in sect. *Luculentae* sed lamellae subhorizontales lateque adnatae, pleurocystidiis ampullaceo-fusiformibus laevibus munitae. Pileipellis subgelatinosa.

Basidiomata with features as in sect. *Luculentae* but lamellae subhorizontal and broadly adnate, and characterized in having ampullaceous to fusiform, smooth pleurocystidia. Pileipellis somewhat gelatinized (but not separable).

SPECIES.—*Mycena rosella* (Fr.) Kummer.

7.3. Subsect. **Pterigenae** Maas G., *subsect. nov.*

Mycena [ser?] *Insittiae* Kühn., Genre *Mycena*: 267. 1938 (nomen nudum). — Monotype: *Mycena pterigena* (Fr. ex Fr.) Kummer.

Mycena stirps *Pterigena* A. H. Smith, N. Am. spec. *Mycena*: 39. 1947 (nomen nudum). — Lectotype (here chosen): *Mycena pterigena*.

Mycena subsect. *Subincarnatae* A. H. Smith, N. Am. spec. *Mycena*: 103. 1947 (nomen nudum). — Lectotype (here chosen): *Mycena pterigena*.

Basidiomata characteribus sicut in sect. *Luculentae* sed lamellae adscendentes-uncinatae, cheilocystidia setulis longis praedita, pleurocystidia absentia. Pileipellis haud gelatinosa. — Species typica: *Mycena pterigena*.

Basidiomata with features as in sect. *Luculentae* but lamellae ascending-uncinate, cheilocystidia with long excrescences, and pleurocystidia lacking. Pileipellis not gelatinized.

SPECIES.—*Mycena pterigena* (Fr. ex Fr.) Kummer.

Singer (1943: 138) first placed this species in stirps *Elegans*, later (1951: 358; 1975: 390) in stirps *Polyadelpha*, but it differs from both in some characters that cannot be ignored. This has led me to regard *M. pterigena* as a species in a somewhat solitary position.

8. Sect. **Polyadephia** Sing. ex Maas G., *sect. nov.*

Mycena [subject?] *Insittiae* Kühn., Genre *Mycena*: 161, 248. 1938 (illegitimate: later homonym); not *Mycena* [sect.] *Insittiae* (Fr.) Quél., 1872: 109.

Mycena stirps *Polyadelpha* Sing. in *Annls mycol.* 41: 138. 1943; in *Lilloa* 22: 358. ('1949') 1951; Agar. mod. taxon., 3rd ed.: 390. 1975 (inadmissible term denoting rank). — Lectotype (here chosen): *Mycena polyadelpha* (Lasch) Kühn.

Mycena stirps *Capillaris* A. H. Smith, N. Am. spec. *Mycena*: 39. 1947 (nomen nudum). — Lectotype (here chosen): *Mycena capillaris* (Schum. ex Fr.) Kummer.

Mycena subsect. *Fuscae* A. H. Smith, N. Am. spec. *Mycena*: 109. 1947 (nomen nudum). — Lectotype (here chosen): *Mycena capillaris*.

Mycena [subject?] *Foliticolae* Locq., *Petite fl. champ.* Fr. 1: 174. 1956 (not val. publ.: no Latin descr.). — Lectotype (here chosen): *Mycena polyadelpha*.

Basidiomata parva vel minuta, ad caules vel ad folia dejecta. Pileus usque ad c. 7 mm latus, glaber vel rarius granulatus vel subpubescens, albus vel cinereofuscus vel non raro lactius coloratus. Lamellae haud numerosae, adscendentes vel horizontales vel subarcuatae, acie lateribus concolore. Stipes insiticius vel basi filamentis radiantibus instructus. Basidia 2- vel 4-sporigera. Sporae amyloideae sed interdum haud manifeste. Cheilocystidia clavata vel obpyriformia, apice verrucosa. Hyphae pileipellis diverticulatae.

Basidiomata small to very small, growing on non-woody stems or fallen leaves. Pileus up to c. 7 mm wide, glabrous, more rarely granular to somewhat pubescent, white to greyish brown but not infrequently with brighter colours. Lamellae not numerous, ascending or horizontal or subarcuate, with the edge concolorous with the sides. Stipe insititious or with mycelial filaments radiating from the base. Basidia 2- or 4-spored. Spores amyloid but discolouring sometimes hardly noticeable. Cheilocystidia clavate to obpyriform, apically verrucose. Hyphae of the pileipellis diverticulate.

SPECIES.—*Mycena capillaris* (Schum. ex Fr.) Kummer (not *M. capillaris* P. Karst.), *M. juncicola* (Fr.) Gillet, *M. lohwegii* Sing., *M. polyadelpha* (Lasch) Kühn., *M. quercus-ilicis* Kühn., *M. smithiana* Kühn., *M. tubarioides* (Maire) Kühn., *M. typhae* (Schweers) Kotlaba.

9. Sect. **Monticola** Sing. ex Maas G., *sect. nov.*

Mycena stirps *Monticola* A. H. Smith, N. Am. spec. *Mycena*: 40. 1947 (nomen nudum). — *Mycena* stirps *Monticola* Sing. in *Lilloa* 22: 359. ('1949') 1951; Agar. mod. taxon., 3rd ed.: 390. 1975 (inadmissible term denoting rank). — Lectotype (here chosen): *Mycena monticola* A. H. Smith.

Basidiomata statura media. Pileus glaber, ruber. Lamellae crebrae, adscendentes-adnatae, denique horizontales, acie lateribus concolore. Stipes primo roseus, basi sparsim fibrillosus. Basidia 4-sporigera. Sporae vix amyloideae. Cheilocystidia spinulis sat longis munita. Pleurocystidia absentia. Pileipellis subgelatinosa.

Basidiomata medium large. Pileus glabrous, red. Lamellae numerous, ascending-adnate, becoming horizontal, with the edge concolorous with the sides. Stipe at first bright pink, sparsely

fibrillose at the base. Basidia 4-spored. Spores very weakly amyloid (Singer, l.c.) or perhaps non-amyloid (Smith, l.c.). Cheilocystidia with fairly long excrescences. Pleurocystidia none. Pileipellis subgelatinous, but not separable.

SPECIES.—*Mycena monticola* A. H. Smith.

10. Sect. *Cinerellae* Sing. ex Maas G., *sect. nov.*

Mycena [subsect?] *Omphaliariae* Kühn., Genre *Mycena*: 161, 354, 1938 (not val. publ.: no Latin descr.). — Lectotype (here chosen): *Mycena cinerella* (P. Karst.) P. Karst.

Mycena stirps *Misera* A. H. Smith, N. Am. spec. *Mycena*: 41, 1947 (nomen nudum). — Lectotype (here chosen): *Mycena misera* sensu A. H. Smith.

Mycena stirps *Cinerella* A. H. Smith, N. Am. spec. *Mycena*: 41, 1947 (nomen nudum). — *Mycena* stirps *Cinerella* Sing. in Lilloa 22: 360. ('1949') 1951; Agar. mod. taxon., 3rd ed.: 391, 1975 (inadmissible term denoting rank). — Lectotype (here chosen): *Mycena cinerella*.

?*Mycena* stirps *Subconcolor* A. H. Smith, N. Am. spec. *Mycena*: 41, 1947 (nomen nudum). — Monotype: *Mycena subconcolor* A. H. Smith.

?*Mycena* stirps *Clavicularis* A. H. Smith, N. Am. spec. *Mycena*: 41, 1947 (nomen nudum). — Monotype: *Mycena clavicularis* (Fr.) Gillet.

Basidiomata aliquantula, habitu plus minusve omphalioideo, austere colorata. Pileus siccus vel plus minusve lubricus. Lamellae horizontales, late adnatae vel arcuato-decurrentes. Stipes siccus vel viscosus. Basidia 2- vel 4-sporigera. Sporae amyloideae. Cheilocystidia clavata vel raro subcylindracea, apice surculis brevibus vel longioribus, saepius diverse formatis atque ramosis instructa. Pleurocystidia absentia vel rara.

Basidiomata fairly small, more or less omphalioid, with dull colours, greyish to subfuscous. Pileus dry to fair or less lubricous. Lamellae horizontal, broadly adnate to arcuate-decurrent. Stipe dry to viscosus. Basidia 2- or 4-spored. Spores amyloid. Cheilocystidia clavate, more rarely almost cylindrical, apically covered with shorter or longer, often variously shaped and branched excrescences. Pleurocystidia lacking or rare.

SPECIES.—*Mycena aleurioma* Favre, *M. cariciophila* Redhead, *M. cinerella* (P. Karst.) P. Karst., *M. cineroides* Hintikka, *M. clavicularis* (Fr.) Gillet, *M. concolor* (J. E. Lange) Kühn., *M. pseudopicta* (J. E. Lange) Kühn.

Singer (1951: 360, 1975: 391) considered *Mycena subconcolor* to be a member of this section, but the description by Smith (1947: 366) of a 'wide band ... of distinctly gelatinous hyphae, occurring beneath the hypoderm ...' seems to be an anomalous feature. *Mycena clavicularis* may be yet another species that had better be removed (Maas Geesteranus, 1980c: 415).

11. Sect. *Intermediae* Kühn. ex Maas G., *sect. nov.*

Mycena [subsect?] *Intermediae* Kühn., Genre *Mycena*: 160, 375, 1938 (not val. publ.: no Latin descr.). — Lectotype (here chosen): *Mycena latifolia* (Peck) A. H. Smith.

Mycena stirps *Intermedia* Sing. in Anns mycol. 41: 140, 1943 (inadmissible term denoting rank). — Lectotype (here chosen): *Mycena latifolia*.

Mycena stirps *Latifolia* A. H. Smith, N. Am. spec. *Mycena*: 40, 1947 (nomen nudum). — *Mycena* stirps *Latifolia* Sing. in Lilloa 22: 360. ('1949') 1951; Agar. mod. taxon., 3rd ed.: 391, 1975 (inadmissible term denoting rank). — Lectotype (here chosen): *Mycena latifolia*.

?*Mycena* stirps *Borealis* A. H. Smith, N. Am. spec. *Mycena*: 41, 1947 (nomen nudum). — *Mycena* stirps *Borealis* Sing. in Lilloa 22: 360. ('1949') 1951; Agar. mod. taxon., 3rd ed.: 391, 1975 (inadmissible term denoting rank). — Lectotype (here chosen): *Mycena borealis* A. H. Smith.

Basidiomata statura media vel magna, colore griseofusco vel multo obscuriore. Pileus siccus vel lubricus dicitur. Lamellae adscendentes vel subhorizontales, anguste vel late adnatae vel paulo uncinatae. Stipes plus minusve cartilagineus. Basidia 2- vel 4-sporigera. Sporae amyloideae. Cheilocystidia obovata, clavata, subcylindracea, fusiformia vel lageniformia, vulgo in parte ventricosa verrucis vel spinulis ornata. Pleurocystidia interdum numerosa.

Basidiomata medium large to large, greyish brown to very dark coloured. Pileus dry or said to be lubricous. Lamellae ascending to subhorizontal, narrowly to broadly adnate or decurrent with a tooth. Stipe more or less cartilaginous. Basidia 2- or 4-spored. Spores amyloid. Cheilocystidia obovate, clavate, subcylindrical, fusiform or lageniform, usually in the ventral part covered with warts or longer excrescences. Pleurocystidia present, sometimes numerous.

SPECIES—? *Mycena borealis* A. H. Smith, *M. font-queri* Maire, *M. latifolia* (Peck) A. H. Smith.

It has long been assumed that Saccardo (1887: 268) was the author who made the recombination *Mycena latifolia*, but this is an error. The binomial as published by Saccardo was preceded by an asterisk, which could be interpreted as the indication of a subspecies, as did e.g. Reid (1968: 14). Later (1911: 146), however, and referring to his earlier publication, Saccardo made it perfectly clear that *latifolia* was meant as a varietal epithet. As far as I am aware A. H. Smith (1935: 599) was (unwittingly) the first author to have published the recombination *Mycena latifolia*.

12. Sect. **Pudicae** Maas G., *sect. nov.*

Mycena stirps Quisquiliaris Sing. in Lilloa 22: 360. ('1949') 1951; Agar. mod. taxon., 3rd ed.: 392. 1975 (inadmissible term denoting rank). — Lectotype (here chosen): *Mycena quisquiliaris* (Joss.) Kühn. (= *Mycena pudica* Hora).

Basidiomata parva, fragillima, alba. Pileus siccus, puberulus. Lamellae horizontales vel subarcuatae, late adnatae. Stipes puberulus. Basidia 4-sporigera. Sporae amyloideae. Cheilocystidia fusiformia vel lageniformia, laevia, interdum apice capitata. Pleurocystidia nulla. — Species typica: *Mycena pudica* Hora.

Basidiomata small, very fragile, white. Pileus dry, puberulous. Lamellae horizontal or somewhat arcuate, broadly adnate, Stipe puberulous. Basidia 4-spored. Spores amyloid. Cheilocystidia fusiform to lageniform, smooth, sometimes apically capitate. Pleurocystidia absent.

SPECIES.—*Mycena pudica* Hora.

Singer (l.c.) included several species more in his stirps *Quisquiliaris*, such as *Mycena brownii* A. H. Smith and *M. pseudoclavicularis* A. H. Smith. However, both these species differ too much from *M. pudica* to consider them even remotely related. *Mycena brownii* (Smith, 1947: 363) was described as having a well-pigmented pileus, moderately pliant flesh, a fairly long stipe with abruptly bulbous base, and often contorted or branched cheilocystidia. *Mycena pseudoclavicularis* was stated to have a pileus with viscid surface, pliant-cartilaginous flesh, a long, cartilaginous-pliant, and glabrous stipe which becomes lubricous when wet, and too short spores if compared with those of *M. pudica*.

13. Sect **Rubromarginatae** Sing. ex Maas G., *sect. nov.*

Mycena [subsect?] *Calodontes* Kühn., Genre *Mycena*: 162, 394. 1938 (illegitimate: later homonym); not *Mycena* [sect.] *Calodontes* (Fr. ex Berk.) Quél., 1872: 102. — Lectotype (here chosen): *Mycena capillaripes* Peck.

Mycena stirps *Rubromarginata* Sing. in *Annl. mycol.* 41: 140. 1943; in *Lilloa* 22: 360. ('1949') 1951; Agar. mod. taxon., 3rd ed.: 392. 1975 (inadmissible term denoting rank). — Lectotype (here chosen): *Mycena rubromarginata* (Fr. ex Fr.) Kummer.

Mycena subsect. *Ciliatae* A. H. Smith, N. Am. spec. *Mycena*: 40, 196, 206. 1947 (illegitimate: later homonym); not *Mycena* sect. *Ciliatae* J. E. Lange, 1914: 11, 13, 18. — Lectotype (here chosen): *Mycena capillaripes*.

Mycena stirps *Capillaripes* A. H. Smith, N. Am. spec. *Mycena*: 40. 1947 (nomen nudum). — Lectotype (here chosen): *Mycena capillaripes*.

Mycena stirps *Elegantula* A. H. Smith, N. Am. spec. *Mycena*: 40. 1947 (nomen nudum). — Lectotype (here chosen): *Mycena elegantula* Peck.

Mycena [subsect?] *Marginatae* Locq., Petite fl. champ. Fr. 1: 174. 1956 (illegitimate: later homonym); not *Mycena* [subsect.] *Marginatae* J. E. Lange, 1914: 13, 18. — Lectotype (here chosen): *Mycena rubromarginata*.

Basidiomata aliquantula vel statura media. Pileus vulgo hygrophanus, pigmentis diversissimis coloratus. Lamellae adscendentes, anguste vel late adnatae, plus minusve ventricosae, acie haud concava, fere semper intensius colorata. Stipes elongatus, tenuis, media parte plerumque glaber, basi tamen vulgo fibrillis crassis longisque munitus. Basidia (raro 2-) 4-sporigera. Sporae amyloideae. Cheilocystidia numerosa, obpyriformia, clavata, subcylindracea, fusiformia vel lageniformia, laevia vel surculis diverse formatis atque ramosis instructa. Pleurocystidia nulla vel cheilocystidiis similia. Pileipellis e hyphis vulgo diverticulatis.

Basidiomata fairly small to medium large. Pileus pruinose or glabrous, usually hygrophanous, variously coloured. Lamellae ascending, narrowly to broadly adnate, more or less ventricose, with the edge never concave and almost always more intensely coloured than the sides. Stipe elongate, slender, often glabrous in the middle part, but with the base usually covered in long and coarse fibrils. Basidia (rarely 2-) 4-spored. Spores amyloid. Cheilocystidia numerous to abundant, obpyriform, clavate, subcylindrical, fusiform or lageniform, smooth or with variously shaped and branched excrescences. Pleurocystidia lacking or similar to the cheilocystidia. Hyphae of the pileipellis usually diverticulate.

SPECIES.—*Mycena albidolilacea* Kühn. & Maire apud Kühn., *M. atromarginata* (Lasch) Kummer, *M. capillaripes* Peck, *M. cheboyganensis* A. H. Smith, *M. citrinomarginata* Gillet, *M. elegantula* Peck, *M. luteoalcalina* sensu Kühn., *M. olivaceobrunnea* A. H. Smith, *M. olivaceomarginata* (Massee apud Cooke) Massee (and *M. neoavenacea* Hongo which may be only a form), *M. purpureofusca* (Peck) Sacc., *M. renati* Quél., *M. roseomarginata* Hongo (if distinct from the next), *M. rubromarginata* (Fr. ex Fr.) Kummer, *M. seynii* Quél., *M. viridimarginata* P. Karst.

Singer (l.c.) also included *Mycena luteoalcalina* Sing. but, according to Moser (1978: 18), this is the same as *M. renati*.

As regards *M. thymicola* Vel., also taken to be a member of the present section, I have insufficient experience to be certain whether or not it is a distinct species.

14. Sect. **FRAGILIPEDES** (Fr.) Quél.

Agaricus [sect.] *Fragilipedes* Fr., Epicr. Syst. mycol.: 108. 1838; Cooke, Handb. Br. Fungi 1: 68. 1871 (formally accepted as section). — *Mycena* [sect.] *Fragilipedes* (Fr.) Quél., Champ. Jura Vosges: 105. 1872: — *Mycena* [ser?] *Fragilipedes* (Fr.) Kühn., Genre *Mycena*: 457. 1938. — *Mycena* groupe *Fragilipedes* (Fr.)

Konr. & Maubl., Agar.: 319. 1948 (inadmissible term denoting rank). — Lectotype (here chosen): *Agaricus alcalinus* Fr. ex Fr.

Mycena sect. *Ciliatae* J. E. Lange in Dansk bot. Ark. I (5): 11, 13, 18. 1914. — *Mycena* [rank?] *Ciliatae* (J. E. Lange) Kühn., Genre *Mycena*: 383. 1938. — *Mycena* subsect. *Ciliatae* (J. E. Lange) Sing. in Annlis mycol. 41: 140. 1943; in Lilloa 22: 360. ('1949') 1951; Agar. mod. taxon., 3rd ed.: 392. 1975. — Lectotype (Sing., 1951: 360): *Mycena alcalina*.

Mycena [subsect.] *Concolores* J. E. Lange in Dansk bot. Ark. I(5): 13, 20. 1914. — Lectotype (here chosen): *Mycena alcalina*.

Mycena sect. *Alcalinae* Konr. & Maubl., Ic. sel. Fung. 6: 270. 1934. — Lectotype (Donk, unpublished): *Mycena alcalina*.

Mycena sect. *Polygrammae* Konr. & Maubl., Ic. sel. Fung. 6: 271. 1934. — Lectotype (Donk, unpublished): *Mycena polygramma* (Bull. ex Fr.) S. F. Gray.

Mycena [subsect?] *Fuscescentes* Kühn., Genre *Mycena*: 162, 453. 1938 (not val. publ.: no Latin descr.). — Lectotype (here chosen): *Mycena alcalina*.

Mycena [ser?] *Rigidipedes* Kühn., Genre *Mycena*: 494. 1938 (illegitimate: later homonym); not *Mycena* sect. *Rigidipedes* (Fr.) Quél., 1872: 104. — Lectotype (here chosen): *Mycena filopes* sensu Kühn. (= *Mycena vitilis*).

Mycena stirps *Alcalina* Sing. in Annlis mycol. 41: 141. 1943; in Lilloa 22: 361. ('1949') 1951; Agar. mod. taxon., 3rd ed.: 392. 1975 (inadmissible term denoting rank). — Lectotype (here chosen): *Mycena alcalina*.

Mycena stirps *Polygramma* Sing. in Annlis mycol. 41: 143. 1943 (inadmissible term denoting rank). — Lectotype (here chosen): *Mycena polygramma*.

Mycena stirps *Subcana* A. H. Smith, N. Am. spec. *Mycena*: 39. 1947 (nomen nudum). — Monotype: *Mycena subcana* A. H. Smith.

?*Mycena* stirps *Subsupina* A. H. Smith, N. Am. spec. *Mycena*: 39. 1947 (nomen nudum). — Lectotype (here chosen): *Mycena subsupina* A. H. Smith.

Mycena stirps *Leptocephala* A. H. Smith, N. Am. spec. *Mycena*: 40. 1947 (nomen nudum). — Lectotype (here chosen): *Mycena leptocephala* (Pers. ex Fr.) Gillet.

Mycena stirps *Praelonga* A. H. Smith, N. Am. spec. *Mycena*: 40. 1947 (nomen nudum). — Lectotype (here chosen): *Mycena praelonga* (Peck) Sacc.

Mycena stirps *Vitilis* A. H. Smith, N. Am. spec. *Mycena*: 40. 1947 (nomen nudum). — Lectotype (here chosen): *Mycena vitilis* (Fr.) Quél.

Mycena stirps *Polygramma* A. H. Smith, N. Am. spec. *Mycena*: 40. 1947 (nomen nudum). — Monotype: *Mycena polygramma*.

Mycena stirps *Algeriensis* A. H. Smith, N. Am. spec. *Mycena*: 41. 1947 (nomen nudum). — Lectotype (here chosen): *Mycena algeriensis* Maire apud Kühn.

Mycena stirps *Laevigata* A. H. Smith, N. Am. spec. *Mycena*: 41. 1947 (nomen nudum). — Lectotype (here chosen): *Mycena laevigata* (Lasch) Gillet.

?*Mycena* subsect. *Cinereae* A. H. Smith, N. Am. spec. *Mycena*: 126. 1947 (nomen nudum). — Lectotype (here chosen): *Mycena subsupina* A. H. Smith.

Basidiomata medium large to large. Pileus glabrous to fibrillose, often hygrophanous, grey-brown in various shades, not infrequently very dark to almost black at the centre, more rarely pale to whitish. Lamellae ascending, narrowly to broadly adnate, sometimes decurrent with a tooth, grey to grey-brown or whitish, sometimes becoming stained with reddish brown spots, edge always convex, concolorous to whitish. Stipe elongate, fissile or fragile in some species, firm to tenacious and somewhat cartilaginous in others, glabrous for the greater part, but as a rule pubescent or with coarse fibrils at the base, largely concolorous with the pileus. Basidia 4-spored. Spores amyloid. Cheilocystidia numerous, often large, clavate, subcylindrical, fusiform or lageniform, frequently apically attenuated to form a narrow neck, smooth to somewhat branched or with several prominent excrescences. Pleurocystidia numerous to absent. Hyphae of the pileipellis smooth to more or less densely diverticulate.

SPECIES.—*Mycena aetites* (Fr.) Quél., *M. alcalina* (Fr. ex Fr.) Kummer, *M. algeriensis* Maire apud Kühn., *M. alnetorum* Favre, *M. atrocyanea* (Batsch ex Fr.) Gillet, *M. avellaneibrunnea*

Thiers, *M. excisa* (Lasch) Kummer, *M. fragillima* A. H. Smith, *M. fusco-ocula* A. H. Smith, *M. griseiconica* Kauffm., *M. jacobi* Maire, *M. kauffmaniana* A. H. Smith, *M. laevigata* (Lasch) Gillet, *M. leptcephala* (Pers. ex Fr.) Gillet, *M. niveipes* Murrill, *M. polygramma* (Bull. ex Fr.) S. F. Gray, *M. overholtsii* Smith & Solheim, *M. praelonga* (Peck) Sacc., *M. radicata* Thiers, *M. strobilicola* Favre & Kühn. apud Kühn., *M. subcana* A. H. Smith, ?*M. subcucullata* A. H. Smith, *M. subfumosa* A. H. Smith, *M. subfusca* A. H. Smith, ?*M. subsupina* A. H. Smith, *M. vitilis* (Fr.) Quél., *M. zephirus* (Fr. ex Fr.) Kummer.

The section as it is conceived here may be judged to be somewhat too inclusive. Species like *M. subcucullata* and *M. subsupina*, both of which are members of Smith's stirps *Subsupina*, were described to possess 'rigid' to 'rather tough and cartilaginous' stipes, which is contrary to the description of the section by Fries (1838: 108): 'Stipes fragilis'. On the other hand, it should be remembered that Kühner apparently was in no doubt about the correct position of *M. algeriensis* (1938: 490, 'stipe ... fibro-cartilagineux élastique') and *M. excisa* (1938: 493, 'stipe ... tenace, cartilagineux') in a group which also comprises such species as *M. abramsii* (= *M. praecox*) (1938: 482, 'stipe ... non tenace, mais au contraire tendre et cassant') and *M. aetites* (1938: 475, 'stipe ... fragile'), in other words, species that he considered true *Fragilipedes*. Yet, it may be necessary to look into this matter at some time in the near future.

15. Sect. LACTIPEDES (Fr.) Quél.

Agaricus [sect.] *Lactipedes* Fr., Epicr. Syst. mycol.: 114. 1838; Cooke, Handb. Br. Fungi 1: 72. 1871 (formally accepted as section). — *Mycena* [sect.] *Lactipedes* (Fr.) Quél., Champ. Jura Vosges: 107. 1872; Sing. in Lilloa 22: 361. ('1949') 1951; Agar. mod. taxon., 3rd ed.: 393. 1975 (formally accepted as section). — *Mycena* subsect. *Lactipedes* (Fr.) Métrod in Prodr. fl. mycol. Madagasc. 3: 20, 21, 57. 1949. — Lectotype (Sing., 1951: 361): *Agaricus galopus* Pers. ex Fr.

Galactopus Earle in Bull. N. Y. bot. Gdn 5: 426. 1909. — Lectotype (Donk, unpublished): *Mycena haematopus* (Pers. ex Fr.) Kummer.

Mycena [rank?] *Genuinae* Kühn., Genre *Mycena*: 160, 212. 1938 (not val. publ.: no Latin descr.). — Lectotype (here chosen): *Mycena galopus*.

Mycena [rank?] *Granulatae* Kühn., Genre *Mycena*: 160, 213. 1938 (not val. publ.: no Latin descr.). — *Mycena* subsect. *Granulatae* (Kühn.) Sing. in Annl. mycol. 41: 137. 1943 (not val. publ.: no Latin descr.). — Lectotype (Sing., l.c.): *Mycena crocata* (Schrad. ex Fr.) Kummer.

Mycena [rank?] *Ciliatae* Kühn., Genre *Mycena*: 161, 216. 1938. — *Mycena* subsect. *Ciliatae* (Kühn.) Sing. in Annl. mycol. 41: 137. 1943 (illegitimate: later homonym); not *Mycena* sect. *Ciliatae* J. E. Lange, 1914: 11, 13, 18. — Lectotype (here chosen): *Mycena sanguinolenta*.

Mycena [rank?] *Calodontes* Kühn., Genre *Mycena*: 216. 1938 (nomen nudum). — Lectotype (here chosen): *Mycena sanguinolenta*.

Mycena [rank?] *Concolores* Kühn., Genre *Mycena*: 223. 1938 (nomen nudum). — Lectotype (here chosen): *Mycena galopus*.

Mycena stirps *Galopus* A. H. Smith, N. Am. spec. *Mycena*: 39. 1947 (nomen nudum). — Lectotype (here chosen): *Mycena galopus*.

Mycena stirps *Haematopus* A. H. Smith, N. Am. spec. *Mycena*: 39. 1947 (nomen nudum). — Lectotype (here chosen): *Mycena haematopus*.

Basidiomata medium large to large. Pileus dry (somewhat viscid in one case), more or less hygrophanous, variously coloured. Lamellae ascending, adnate, often decurrent with a tooth, edge concolorous with the sides or paler, in one case more intensely coloured. Stipe dry, glabrous to more or less pubescent, exuding a watery, milky or coloured juice when cut or broken. Basidia 2- or 4-spored. Spores amyloid. Cheilocystidia numerous, clavate, subcylindrical, fusiform or

lageniform, usually smooth but not infrequently also with irregularly placed and/or shaped excrescences. Pleurocystidia absent to fairly numerous. Hyphae of the pileipellis more or less densely diverticulate.

SPECIES.—*Mycena abramsii* (Murrill) Murrill (syn. *M. praecox* Vel.), *M. atkinsoniana* A. H. Smith, *M. cayugaensis* A. H. Smith, *M. crocata* (Schrad. ex Fr.) Kummer, *M. erubescens* Höhn., *M. galopus* (Pers. ex Fr.) Kummer, *M. haematopus* (Pers. ex Fr.) Kummer, *M. sanguinolenta* (Alb. & Schw. ex Fr.) Kummer, *M. subsanguinolenta* A. H. Smith.

In my opinion *M. abramsii* is better placed in section *Lactipedes* instead of section *Fragilipedes* as considered by Kühner (1938: 482).

On account of its more or less viscid pileus and, more especially, its rather small and differently shaped cheilocystidia, *Mycena crocata* stands apart from the other members of the present section.

Smith (1947: 39) introduced a stirps *Anomala* (a nomen nudum, to be sure) which he considered intermediate between his stirpes *Galopus* and *Haematopus*. It would seem, however, that its lectotype (here chosen)—*Mycena anomala* Beardslee—is better placed in the genus *Hydropus* (Kühn.) Sing.

16. Sect. HYGROCYSBOIDEAE (Fr.) Sing.

Agaricus [sect.] *Hygrocyboideae* Fr., *Syst. mycol.* 1: 155. 1821. — *Mycena* sect. *Hygrocyboideae* (Fr.) Sing. in *Beih. Sydowia* 7: 49. 1973 ('*Hygrocyboideae*'). — Lectotype (Singer, 1975: 394): *Mycena epipterygia* (Scop. ex Fr.) S. F. Gray.

Agaricus [sect.] *Glutinipedes* Fr., *Epicr. Syst. mycol.*: 116. 1838; Cooke, *Handb. Br. Fungi* 1: 73. 1871 (formally accepted as section). — *Mycena* [sect.] *Glutinipedes* (Fr.) Quél., *Champ. Jura Vosges*: 108. 1872; Singer in *Lilloa* 22: 362. ('1949') 1951 (formally accepted as section). — *Mycena* [subsect?] *Glutinipedes* (Fr.) Kühn., *Genre Mycena*: 161, 346. 1938. — Lectotype (Sing., 1951: 362): *Mycena epipterygia*.

Collopus Earle in *Bull. N. Y. bot. Gdn* 5: 426. 1909. — Monotype: *Mycena epipterygia*.

Mycena sect. *Gummosae* J. E. Lange in *Dansk bot. Ark.* 1(5): 11, 16, 36. 1914. — *Mycena* [subsect.] *Gummosae* (J. E. Lange) Oort in *Meded. Ned. mycol. Ver.* 16–17: 200, 242. 1928. — Lectotype (Donk, unpublished): *Mycena epipterygia*.

Mycena [sect.] *Glutinosae* Kühn. in *Bull. bimens. Soc. linn. Lyon* 10: 125. 1931. — Lectotype (Donk, unpublished): *Mycena epipterygia*.

Mycena stirps *Epipterygia* Sing. in *Annls mycol.* 41: 139. 1943 (inadmissible term denoting rank). — Lectotype (here chosen): *Mycena epipterygia*.

Mycena subgen. *Glutinipes* A. H. Smith, *N. Am. spec. Mycena*: 41, 43, 401. 1947 (not val. publ.: no Latin descr.). — Lectotype (here chosen): *Mycena epipterygia*.

?*Mycena* stirps *Insignis* A. H. Smith, *N. Am. spec. Mycena*: 41. 1947 (nomen nudum). — Monotype: *Mycena insignis* A. H. Smith.

Mycena stirps *Epipterygia* A. H. Smith, *N. Am. spec. Mycena*: 41. 1947 (nomen nudum). — Lectotype (here chosen): *Mycena epipterygia*.

Mycena stirps *Griseoviridis* A. H. Smith, *N. Am. spec. Mycena*: 41. 1947 (nomen nudum). — Monotype: *Mycena griseoviridis* A. H. Smith.

Mycena sect. *Viscosae* A. H. Smith, *N. Am. spec. Mycena*: 41, 401, 418. 1947 (not val. publ.: no Latin descr.). — Lectotype (Donk, unpublished): *Mycena viscosa* Maire.

?*Mycena* stirps *Tenax* A. H. Smith, *N. Am. spec. Mycena*: 42. 1947 (nomen nudum). — Lectotype (here chosen): *Mycena tenax* A. H. Smith.

Mycena subsect. *Gummosae* Sing. in *Lilloa* 22: 362 ('1949') 1951; *Agar. mod. taxon.*, 3rd ed.: 394. 1975 (illegitimate: later homonym); not *Mycena* sect. *Gummosae* J. E. Lange, 1914: 11, 16, 36. — Type species (Sing., 1951: 362): *Mycena viscosa* Maire.

Mycena [subject?] *Viscosae* Locq., Petite fl. champ. Fr. 1: 175. 1956 (not val. publ.: no Latin descr.). — Type species (Locq., l.c.): *Mycena epipterygia*.

Basidiomata medium large. Pileus viscid, never orange. Lamellae ascending, decurrent with a tooth, with gelatinizing edge which is separable as an elastic-tough thread. Stipe viscid, usually with some yellowish colour, sometimes reddening with age. Basidia 2- or 4-spored. Spores amyloid. Cheilocystidia variously shaped but generally clavate, with shorter or longer and variously shaped excrescences. Pleurocystidia none. Hyphae of the pileipellis diverticulate, embedded in a gelatinous, separable layer.

SPECIES.—*Mycena epipterygia* (Scop. ex Fr.) S. F. Gray with its numerous varieties (see Maas Geesteranus, 1980a), *M. simia* Kühn. apud Kühn. & Lamoure, *M. subnamyloidea* Sing.

Some of the stirpes mentioned by Smith have been included in the present section with some doubt, and it may well be asked whether stirps *Tenax* would not deserve to be removed to form a separate group. Kühner (1938: 383) apparently was equally uncertain where to place *Mycena tenax* A. H. Smith.

Mycena lilacifolia (Peck) A. H. Smith (1947: 414) might be considered related to the members of the present section on account of the yellow colours of pileus and stipe, but it deviates in that the edge of the lamellae does not gelatinize, in the lack of cheilocystidia, and in the non-amyloid spores. Smith placed the species in his section *Caespitosae*, where it is equally anomalous.

17. Sect. FULIGINELLAE (A. H. Smith ex Sing.) Maas G.

Mycena stirps *Vulgaris* Sing. in Anns mycol. 41: 139. 1943 (inadmissible term denoting rank). — Lectotype (here chosen): *Mycena vulgaris* (Pers. ex Fr.) Kummer.

Mycena sect. *Fuliginellae* A. H. Smith, N. Am. spec. *Mycena*: 42, 401, 429. 1947 (not val. publ.: no Latin descr.). — *Mycena* subsect. *Fuliginellae* (A. H. Smith) Sing. in Lilloa 22: 362. ('1949') 1951 (not val. publ.: no Latin descr.). — *Mycena* subsect. *Fuliginellae* A. H. Smith ex Sing. in Sydowia 15: 65. 1962. — *Mycena* sect. *Fuliginellae* (A. H. Smith ex Sing.) Maas G. in Proc. K. Ned. Akad. Wet. (C) 83: 406. 1980. — Lectotype (Sing., 1951: 362): *Mycena vulgaris*.

Mycena stirps *Vulgaris* A. H. Smith, N. Am. spec. *Mycena*: 42. 1947 (nomen nudum). — Lectotype (here chosen): *M. vulgaris*.

Mycena groupe *Vulgares* Kühn. & Romagn., Fl. analyt. champ. sup.: 109. 1953 (inadmissible term denoting rank). — Lectotype (here chosen): *Mycena vulgaris*.

Basidiomata medium large. Pileus viscid. Lamellae hardly ascending, arcuate to more or less horizontal, broadly adnate, edge gelatinizing and separable as an elastic-tough thread. Stipe viscid to glutinous, pallid to fuscous, not reddening with age. Basidia 4-spored. Spores amyloid. Cheilocystidia apically profusely branched. Pleurocystidia absent. Hyphae of the pileipellis diverticulate, embedded in a gelatinous, separable layer.

SPECIES.—*Mycena vulgaris* (Pers. ex Fr.) Kummer.

18. Sect. CAESPITOSAE (A. H. Smith ex Sing.) Maas G.

Mycena sect. *Caespitosae* A. H. Smith, N. Am. spec. *Mycena*: 41, 401, 406. 1947 (not val. publ.: no Latin descr.). — *Mycena* subsect. *Caespitosae* (A. H. Smith) Sing. in Lilloa 22: 362. ('1949') 1951 (not val. publ.: no Latin descr.). — *Mycena* subsect. *Caespitosae* A. H. Smith ex Sing. in Sydowia 15: 65. 1962. — *Mycena* sect. *Caespitosae* (A. H. Smith ex Sing.) Maas G. in Proc. K. Ned. Akad. Wet. (C) 83: 407. 1980. — Lectotype (Sing., 1951: 362): *Mycena texensis* A. H. Smith.

Mycena stirps *Leaiana* A. H. Smith, N. Am. spec. *Mycena*: 41. 1947 (nomen nudum). — Lectotype (here chosen): *Mycena leaiana* (Berk.) Sacc.

Mycena stirps *Subepipterygia* A. H. Smith, N. Am. spec. *Mycena*: 41. 1947 (nomen nudum). — Monotype: *Mycena subepipterygia* Murrill.

Basidiomata fairly large to large, lignicolous and usually cespitose. Pileus glabrous, viscid, entirely white or with the centre grey-brown, orange in one species. Lamellae adnate to somewhat decurrent (with the subhymenium in at least some species known to be gelatinous). Stipe viscid to glutinous. Basidia apparently 2- or 4-spored. Spores pip-shaped, at least in some species known to be amyloid. Cheilocystidia clavate, fusiform or lageniform, smooth or apically somewhat lobed or with a few, irregularly shaped, blunt excrescences. Pleurocystidia scattered or absent. Hyphae of the pileipellis embedded in a gelatinous, separable layer.

SPECIES.—*Mycena austinii* (Peck) Kühn., *M. euspeirea* (Berk. & Curt.) Sacc., *M. glutinosa* Beardslee, *M. hondurensis* A. H. Smith, *M. leaiana* (Berk.) Sacc., *M. subepipterygia* Murrill, *M. texensis* A. H. Smith.

19. Sect. CALAMOPHILAE Maas G.

Mycena sect. *Calamophilae* Maas G. in Proc. K. Ned. Akad. Wet. (C) 83: 409. 1980. — Monotype: *Mycena belliae* (Johnst. apud Berk.) P. D. Orton.

Basidiomata medium large, arising from a mycelial patch. Pileus soon becoming umbilicate, puberulous to tomentose, then glabrescent and becoming viscid. Lamellae arcuate-decurrent, somewhat elastic. Stipe densely puberulous, then glabrescent and becoming somewhat viscid, reddening at the base with age. Basidia 4-spored. Spores elongate to almost cylindrical, amyloid. Cheilocystidia fusiform to clavate, smooth or forked to somewhat branched. Pleurocystidia absent. Cortical layer of the pileus an ixotrichodermium, forming a viscid, tough, separable pellicle. Hyphae of the stipe continuous with those of the pileus. Subhymenium not gelatinized.

SPECIES.—*Mycena belliae* (Johnst. apud Berk.) P. D. Orton.

The present section and sect. *Caesпитosae* clearly have much in common. Unfortunately, several members of the latter are incompletely known, which renders it difficult to decide whether these sections had not better be subordinated as subsections within a larger entity.

20. Sect. CALODONTES (Fr. ex Berk.) Quél.

Agaricus subtrib. *Calodontes* Fr., Syst. mycol. I: 111. 1821 (inadmissible term denoting rank). — *Agaricus* [sect.] *Calodontes* Fr. ex Berk. in J. E. Smith, Engl. Fl. 5 (2): 43. 1836; Fr., Epicr. Syst. mycol.: 99. 1838; Cooke, Handb. Br. Fungi I: 63. 1871 (formally accepted as section). — *Mycena* [sect.] *Calodontes* (Fr. ex Berk.) Quél., Champ. Jura Vosges: 102. 1872. — *Mycena* subsect. *Calodontes* (Fr. ex Berk.) Métrod, Prodr. fl. mycol. Madagasc. 3: 20, 32. 1949. — Lectotype (Donk, unpublished, but see also Berk., l.c.): *Agaricus pelianthinus* Fr.

Basidiomata medium large to large, collybioid. Pileus moist but not viscid (said to be lubricous in one species), hygrophanous. Lamellae more or less horizontal, sinuate-adnate, broadly adnate or decurrent with a tooth. Stipe fragile. Basidia 4-spored. Spores amyloid or non-amyloid. Cheilocystidia clavate, subcylindrical, more or less fusiform or lageniform with broadly rounded apex. Pleurocystidia, if present, silimular. Hyphae of the pileipellis smooth.

20.1. Subsect MARGINATAE J. E. Lange

Prunulus S. F. Gray, Nat. Arrang. Br. Pl. 1: 63. 1821. — Lectotype (Earle, 1909: 393, 427): *Agaricus denticulatus* [= *Mycena pelianthina* (Fr.) Quél.].

Mycena sect. *Ciliatae* [subsect.] *Marginatae* J. E. Lange in Dansk bot. Ark. 1 (5): 13, 18. 1914. — Lectotype (Donk, unpublished): *Mycena pelianthina*.

Mycena stirps *Pelianthina* A. H. Smith, N. Am. spec. *Mycena*: 40. 1947 (nomen nudum). — *Mycena* stirps *Pelianthina* Sing. in Lilloa 22: 363. ('1949') 1951 (inadmissible term denoting rank). — Lectotype (here chosen): *Mycena pelianthina*.

Mycena [subsect.] *Pelianthinae* Locq., Petite fl. champ. Fr. 1: 174. 1956 (not val. publ.: no Latin descr.). — Lectotype (Donk, unpublished): *Mycena pelianthina*.

Basidiomata with features as in sect. *Calodontes*, but lamellae with the edge more intensely coloured than the sides. Spores amyloid.

SPECIES.—*Mycena pelianthina* (Fr.) Quél., *M. rutilantiformis* (Murrill) Murrill.

20.2. Subsect. **Puræ** (Konr. & Maubl.) Maas G., *comb. nov.*

Mycena sect *Puræ* Konr. & Maubl., Ic. sel. Fung. 6: 269. 1934. — Lectotype (Sing., 1951: 363): *Mycena pura* (Pers. ex Fr.) Kummer.

Mycenula P. A. Karst. in Medd. Soc. Fauna Fl. fenn. 16: 89. 1889. — Type species (Donk, 1962: 193): *Mycena pura*.

Mycena [subsect?] *Janthinae* Kühn., Genre *Mycena*: 162, 445. 1938 (not val. publ.: no Latin descr.). — *Mycena* subsect. *Janthinae* (Kühn.) A. H. Smith, N. Am. spec. *Mycena*: 40, 149, 185. 1947 ('*Janthinae*', not val. publ.: no Latin descr.). — Lectotype (Donk, unpublished): *Mycena pura*.

Mycena stirps *Janthina* Sing. in Anns mycol. 41: 141. 1943 (inadmissible term denoting rank). — Lectotype (here chosen): *Mycena pura*.

Mycena stirps *Pura* A. H. Smith, N. Am. spec. *Mycena*: 40. 1947 (nomen nudum). — *Mycena* stirps *Pura* Sing. in Lilloa 22: 363. ('1949') 1951; Agar. mod. taxon., 3rd ed.: 395. 1975 (inadmissible term denoting rank). — Lectotype (here chosen): *Mycena pura*.

Basidiomata with features as in sect. *Calodontes*, but lamellae with the edge concolorous with the sides or paler. Spores amyloid.

SPECIES.—*Mycena kuehneriana* A. H. Smith, *M. pura* (Pers. ex Fr.) Kummer, *M. subaquosa* A. H. Smith.

20.3. Subsect. **Violacellæ** Sing. ex Maas G., *subsect. nov.*

Mycena stirps *Violacella* Sing., Agar. mod. taxon., 3rd ed.: 395. 1975 (inadmissible term denoting rank). — Lectotype (here chosen): *Mycena violacella* (Speg.) Sing.

Basidiomata with features as in sect. *Calodontes*, but spores non-amyloid.

SPECIES.—*Mycena pearsoniana* Dennis ex Sing.

21. Sect. **ADONIDEAE** (Fr.) Quél.

Agaricus [sect.] *Adonidei* Fr., Epicr. Syst. mycol.: 101. 1838 ('*Adonideae*'); Cooke, Handb. Br. Fungi 1: 65. 1871 (formally accepted as section). — *Mycena* [sect.] *Adonideae* (Fr.) Quél., Champ. Jura Vosges: 103. 1872; Sing., Agar. mod. taxon., 3rd ed.: 395. 1975 (formally accepted as section). — *Mycena* [subsect?] *Adonideae*

(Fr.) Kühn., Genre *Mycena*: 163, 546. 1938 ('*Adonidae*'). — *Hemimycena* sect. *Adonideae* (Fr.) Sing. in *Annls mycol.* 41: 120, 123. 1943 ('*Adonidae*'). — *Marasmiellus* sect. *Adonidei* (Fr.) Sing. in *Lilloa* 22: 301. ('1949') 1951 ('*Adonidi*'). — Lectotype (Sing., 1951: 301): *Agaricus adonis* Bull. ex Fr.

Mycena sect. *Flavoalbae* Konr. & Maubl., Ic. sel. Fung. 6: 276. 1934. — Lectotype (Donk, unpublished): *Mycena flavoalba* (Fr.) Quéf.

Mycena [sect?] *Genuinae* Kühn., Genre *Mycena*: 163, 538. 1938. — Lectotype (here chosen): *Mycena flavoalba*.

Mycena subsect. *Typicae* A. H. Smith, N. Am. spec. *Mycena*: 40. 1947 (nomen nudum). — Lectotype (here chosen): *Mycena adonis* (Bull. ex Fr.) S. F. Gray.

Mycena stirps *Luteopallens* A. H. Smith, N. Am. spec. *Mycena*: 40. 1947 (nomen nudum). — Monotype: *Mycena luteopallens* (Peck) Sacc.

Mycena stirps *Flavoalba* A. H. Smith, N. Am. spec. *Mycena*: 40. 1947 (nomen nudum). — Lectotype (here chosen): *Mycena flavoalba*.

Mycena stirps *Adonis* A. H. Smith, N. Am. spec. *Mycena*: 40. 1947 (nomen nudum). — Lectotype (here chosen): *Mycena adonis*.

Mycena stirps *Amabilissima* A. H. Smith, N. Am. spec. *Mycena*: 40. 1947 (nomen nudum). — Lectotype (here chosen): *Mycena amabilissima* (Peck) Sacc.

Mycena subsect. *Euadonidae* A. H. Smith, N. Am. spec. *Mycena*: 149. 163. 1947 (not val. publ.: no Latin descr.). — Lectotype (here chosen): *Mycena adonis*.

Mycena [subsect.] *Amabilissimae* Locq., Petite fl. champ. Fr. 1: 174. 1956 (not val. publ.: no Latin descr.). — Lectotype (here chosen): *Mycena flavoalba*.

Basidiomata fairly small to medium large. Pileus glabrous to pruinose, more or less moist, in one species somewhat lubricous, hygrophanous, mostly very brightly coloured, usually very much paling with age. Lamellae ascending at first, becoming more or less horizontal, adnate to somewhat unciniate, usually brightly coloured. Stipe glabrous to puberulous, at the base as a rule covered with long fibrils, usually brightly coloured, hyphae continuous with those of the pileus. Basidia 2- or 4-spored. Spores weakly amyloid or non-amyloid. Cheilocystidia fusiform to lageniform, smooth. Pleurocystidia similar. Hyphae of the pileipellis as far as known diverticulate.

SPECIES.—*Mycena adonis* (Bull. ex Fr.) S. F. Gray, *M. amabilissima* (Peck) Sacc., *M. argillascens* Mitchel & Smith, *M. aurantiidisca* Murrill (if distinct from *M. adonis*), *M. flavoalba* (Fr.) Quéf., ?*M. fusipes* Murrill, *M. leptophylla* (Peck) Sacc., *M. luteopallens* (Peck) Sacc., *M. roseipallens* Murrill, ?*M. roseocandida* (Peck) Sacc.

Among the stirpes here taken to be synonymous with sect. *Adonideae*, Smith (1947: 40) also mentioned stirps *Flavifolia*, of which *Mycena flavifolia* Peck is the monotype. However, this species with its clavate and densely diverticulate cheilocystidia is definitely not a member of the present section. It may be judged to have some relation with sect. *Polyadelphia*.

Stirps *Carolinensis* A. H. Smith (1947: 40), typified by *Mycena carolinensis* Smith & Hesler, is another dubious group, about which I can say no more than that it does not belong to the *Adonideae*.

I am reluctant to follow Kühner who placed *Mycena roseipallens* (1938: 565) and *M. leptophylla* (1938: 581) in the section *Hiemales*.

M. Lange (1955: 41) described a *Mycena citrinovirens* which he compared with some members of the section *Adonideae*. A serious barrier, however, is the fact that the cheilocystidia are shown to have fairly long excrescences, much in the way of those found in section *Hygrocyboideae*. But Lange stated that the pileus has a 'pellicle ... hardly subgelatinous in KOH', while he also made no mention of the tough, thread-like edge that can be lifted from the lamellae. Clearly, *M. citrinovirens* needs re-examination.

22. Sect. *ACICULAE* Kühn. ex Sing.

Mycena [subject?] *Aciculae* Kühn., Genre *Mycena*: 163, 602. 1938 (not val. publ.: no Latin descr.). — *Hemimycena* sect. *Aciculae* (Kühn.) Sing. in *Annls mycol.* 41: 120, 121, 123. 1943 (not val. publ.: no Latin descr.). — *Marasmiellus* sect. *Aciculae* (Kühn.) Sing. in *Lilloa* 22: 301. ('1949') 1951 (not val. publ.: no Latin descr.). — *Mycena* sect. *Aciculae* Kühn. ex Sing. in *Sydowia* 15: 65. 1962. — Lectotype (Sing., 1951: 301): *Mycena acicula* (Schaeff. ex Fr.) Kummer.

Mycena stirps *Acicula* A. H. Smith, N. Am. spec. *Mycena*: 39. 1947 (nomen nudum). — Lectotype (here chosen): *Mycena acicula*.

Mycena subsect. *Rubrae* Métrod in *Prodr. fl. mycol. Madagasc.* 3: 20, 21, 88. 1949. — Lectotype (Donk, unpublished): *Mycena acicula*.

Basidiomata fairly small. Pileus pruinose, becoming glabrous, brightly coloured. Lamellae ascending, adnate to more or less decurrent with a tooth, brightly coloured. Stipe firm, puberulous, with long fibrils at the base, brightly coloured, hyphae abruptly distinct from those of the pileus. Basidia 2- or 4-spored. Spores narrowly pip-shaped, non-amyloid. Cheilocystidia clavate, subcylindric to fusiform, smooth, more rarely apically forked. Pleurocystidia similar. Hyphae of the pileipellis densely branched or diverticulate.

SPECIES.—*Mycena acicula* (Schaeff. ex Fr.) Kummer, *M. oregonensis* A. H. Smith.

23. Sect. *HIEMALES* Konr. & Maubl.

Mycena [sect.] *Hiemales* Konr. & Maubl., Ic. sel. Fung. 6: 274. 1934; Sing., Agar. mod. taxon., 3rd ed.: 396. 1975 (formally accepted as section). — *Marasmiellus* sect. *Hiemales* (Konr. & Maubl.) Sing. in *Lilloa* 22: 302. ('1949') 1951. — Lectotype (Sing., 1951: 302): *Mycena hiemalis* (Osb. apud Retz. ex Fr.) Quéf.

Mycena [subject?] *Hiemales* Kühn., Genre *Mycena*: 164, 564. 1938 (not val. publ.: no Latin descr.). — *Hemimycena* sect. *Hiemales* (Kühn.) Sing. in *Annls mycol.* 41: 120, 121, 123. 1943 (not val. publ.: no Latin descr.). — Lectotype (Donk, unpublished): *Mycena hiemalis*.

Basidiomata fairly small to medium large, usually corticolous or lignicolous. Pileus glabrous to somewhat pruinose, never brightly coloured. Lamellae narrowly to broadly adnate. Stipe glabrous to puberulous, white to whitish or horn-coloured, apically bright yellow in one variety. Basidia 2- or 4-spored. Spores as far as known non-amyloid. Cheilocystidia cylindrical, fusiform or somewhat lageniform, smooth or apically forked. Pleurocystidia absent or similar. Hyphae of the pileipellis smooth or diverticulate.

23.1. Subsect. *HIEMALES* Maas G., subsect. nov.

Mycena [sect?] *Epiphloae* Kühn., Genre *Mycena*: 163, 564. 1938 (not val. publ.: no Latin descr.). — Lectotype (here chosen): *Mycena hiemalis*.

Mycena [subject?] *Typicae* Kühn., Genre *Mycena*: 164, 564. 1938 (not val. publ.: no Latin descr.). — *Marasmiellus* subsect. *Typici* (Kühn.) Sing. in *Lilloa* 22: 302. ('1949') 1951 (not val. publ.: no Latin descr.). — *Mycena* subsect. *Typicae* (Kühn.) Sing., Agar. mod. taxon., 3rd ed.: 396. 1975 (not val. publ.: no Latin descr.). — Lectotype (Sing., 1951: 302): *Mycena hiemalis*.

Basidiomata characteribus sicut in sect. *Hiemales* sed lamellae adscendentes, acie convexa. — Species typica: *Mycena hiemalis*.

Basidiomata with features as in sect. *Hiemales*, but lamellae ascending and with the edge convex.

SPECIES.—*Mycena grisellina* Favre, *M. hiemalis* (Osb. apud Retz. ex Fr.) Quél., *M. olida* Bres., *M. radiciifer* Favre.

22.2. Subsect. *Omphaliariae* Kühn. ex Maas G., *subsect. nov.*

Mycena [subject?] *Omphaliariae* Kühn., Genre *Mycena*: 164. 582. 1938 (not val. publ.: no Latin descr.). — *Marasmiellus* subsect. *Omphaliarii* (Kühn.) Sing. in *Lilloa* 22: 302. ('1949') 1951 (not val. publ.: no Latin descr.). — *Mycena* subsect. *Omphaliariae* (Kühn.) Sing., Agar. mod. taxon., 3rd ed.: 396. 1975 (not val. publ.: no Latin descr.). — Lectotype (Sing., 1951: 302): *Mycena speirea* (Fr. ex Fr.) Gillet.

Mycena stirps Speirea A. H. Smith, N. Am. spec. *Mycena*: 41. 1947 (nomen nudum). — Monotype: *Mycena speirea*.

Basidiomata characteribus sicut in sect. *Hiemales* sed lamellae subhorizontales vel arcuatae, acie concava.

Basidiomata with features as in sect. *Hiemales*, but lamellae more or less horizontal to arcuate, with the edge concave.

SPECIES.—*Mycena alba* (Bres. apud Sacc.) Kühn., *M. atropapillata* Kühn. & Maire apud Kühn., *M. phaeophylla* Kühn., *M. speirea* (Fr. ex Fr.) Gillet.

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Studies in Mycenas 16–25

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Mycena adscendens is proposed as a new combination, in the synonymy of which are placed *Mycena tenerrima* and *Agaricus farinellus*. *Hemimycena angustispora* is a first record for the Netherlands. *Mycena dissimulabilis*, *Agaricus permixtus*, and *M. uracea* are discussed in connection with *M. megaspora* which is the correct name for the species. *Mycena fagicola* Grog. referred to by A.H. Smith but not enlarged upon, is a nomen nudum. *Mycena osmundicola* falls into the synonymy of *M. floccifera*, and *M. phenolica* turns out to be the same as *M. metata*. *Mycena megalospora* does not belong to *Mycena*; it may be a pink-spored agaric, if not a *Hydropus*. *Agaricus rhizogeus* is a nomen ambiguum, and so is any recombination based on its type material. *Mycena speirea* is discussed and a neotype is selected; the suggestion by Singer to use the binomial *M. camptophylla* to replace *M. speirea* is rejected.

My gratitude is expressed to the authorities of the herbaria at Uppsala (UPS) and Wijster (WBS), as well as to Dr. F. and Mrs. G.J.M.G. Tjallingii (Wageningen) for the loan of material. Acknowledgment is also made to the Director of the 'Rijksherbarium' for providing working facilities.

16. *Mycena adscendens* (Lasch) Maas G., *comb. nov.*

Agaricus adscendens Lasch in *Linnaea* 4: 536. 1829 (basionym). – Type locality: Germany, province Brandenburg.

Agaricus tenerrimus Berk. in Hook., *Engl. Flora* 5(2): 61. 1836. – *Mycena tenerrima* (Berk.) Quél. in *Mém. Soc. Emul. Montbél.* II 5: 109. 1872. – *Prunulus tenerrimus* (Berk.) Murrill in *N. Amer. Flora* 9: 322. 1916. – *Pseudomycena tenerrima* (Berk.) Cejp in *Publ. Fac. Sci. Univ. Charles* 98: 32. 1929; 104: 151. 1930. – Type: not seen; type locality: England.

Fries (1838: 119) was convinced that *Agaricus adscendens* was the same as *A. hiemalis* Osb. apud Retz., as was testified by his exclamation mark. He was wrong for Lasch described his species as entirely white, with a floccose pileus, and characterized by its general delicacy, but the result of Fries's misjudgment was that no one ever since bothered to take a second look at the description by Lasch.

No material of *A. adscendens* appears to have been distributed in the exsiccata series issued by Rabenhorst.

17. HEMIMYCENA ANGUSTISPORA (Joss. ex Orton) Sing.

The collection indicated below is a first record for the Netherlands. Apart from Jossierand's original account (1937: 81) there exist two more recent descriptions, by Orton (1960: 305) and by Kühner & Valla (1972: 52). The interesting point in the Dutch collection is that in some respects it matches the description of the former author (O.), in others that of the two latter (K. & V.), showing the variability of the species.

Pileus up to 2.5 mm across (O.: 1–3 mm; K. & V.: 3.5–9 mm). Lamellae 6 (O.: 5–9; K. & V.: 14–16 [!]), not reaching the margin of the pileus (O.: no special mention; K. & V.: "extrémité antérieure atteignant ou presque la marginelle..."), arcuate (O.: arcuate-decurrent; K. & V.: "faiblement arquées, subhorizontales"). Basidia with clamp. Lamellar trama not stained in Melzer's reagent. Hyphae in cortical layers of stipe with clamps. Found growing among moss on rotten fragment of fallen branch in wood of *Quercus*, *Fraxinus*, *Acer* (O.: on vegetable debris of beech; K. & V.: on fallen leaves of beech and oak).

Netherlands: province Gelderland, Valburg, estate Oosterhout, 23 Aug. 1980, Mrs. R. Swart (L.).

18. MYCENA DISSIMULABILIS, M. MEGASPORA, M. URACEA

Mycena megaspora Kauffm. (apud Kauffman & Smith, 1933: 182) and *M. uracea* Pearson (1938: 32) have been regarded as two separate species by some authors, whereas it was the assured belief of others that both names covered one and the same species. It would seem that in later years the attention paid to this controversy has been superseded by the introduction of the name of a third species, *M. dissimulabilis* (Britz.) Sacc. Before the relation of these three species can be discussed, it will be necessary once again to turn to the two last-named as some details seem to be in need of greater emphasis than they have received so far.

Pearson (1943: 38) maintained that his and Kauffman's species differed in their habitats. Information received from Dr. A.H. Smith strengthened his opinion, but further particulars were not given. Orton (Dennis, Orton & Hora, 1960: 222) fully accepted Pearson's view. Kühner & Romagnesi (1953: 108), also treating both species as distinct, offered the following differences.

"... croissant dans les tourbières à sphaignes. St[ipe]... gris-brun foncé ou bistré au moins dans la moitié inférieure... Lam[elles] grises. Chair... insipide. Sp[ores] 10,5–13 × 7–8 μm (race tétra-sporique) ou 12,5–16 × 6,5–9 μm (race bisporique)..." ... *megaspora* Kauffm.

"... croissant sur le sol brûlé, ordinairement attachée sous la terre aux racines brûlées des bruyères. St[ipe]... gris-rougeâtre. Lam[elles] blanc sale ou grises, prenant avec l'âge une teinte rosée. Saveur un peu rance. Sp[ores] 8–9 × 6–6,5 μm..." ... *uracea* Pearson.

Since Kühner & Romagnesi's book is one of the leading floras, profoundly influencing the opinion of many European mycologists, it is important to analyse the statements cited above. The data given for the identification of *M. megaspora* appear to be those published by Favre in Kühner's monograph (1938: 329), not those of Kauffman, neither of Smith (1947: 296), which one would expect to be the obvious sources. The information "croissant dans les tourbières à sphaignes," while correct in itself, does not show the wide range which exists between the extreme conditions of growing among living *Sphagnum* plants ("...des sphagnaies aux parties plus ou moins dessechées", Favre, 1948: 93; "...zahlreiche Ex. an Torfmoos", Kreisel, 1957: 155, as "*M. permixta*") and occurring on naked peat ("Sur la tourbe complètement nue et dure", Favre in Kühner, 1938: 329; "on the black muck of swamps", Kauffman & Smith, 1933: 182). These examples should have given already some idea of the ecological amplitude of *M. megaspora*.

Pearson (1943: 38) said that he had gathered *M. uracea* "in various places always on land where the heather has been burnt." But he did not mention other localities beyond those listed in his earlier publication (1938: 32). These localities lie in Surrey and Sussex, two adjoining counties in the southern part of England, forming a very small area indeed of the British Isles as a whole.

It should be clear that the picture Pearson had formed of *M. uracea* of necessity showed a much smaller variability than it would have if its author had been able to see specimens from a far greater area. As an illustration the following examples are given, taken from material collected in the Netherlands. Two collections (basidia 4-spored), on account of their being gathered in burnt heaths, could be named *M. uracea*, but their spores are much larger ($10.2-12.2 \times 6.7-7.8 \mu\text{m}$) than those described by Pearson. Two other collections (basidia equally 4-spored) which would appear to be typical *M. megaspora* since they were found among *Sphagnum* have the spores $8.0-9.8 \times 5.5-6.7 \mu\text{m}$, thus exactly of the size as described for *M. uracea*. It is not known what determines the variation in spore size or, for that matter, the variation of any other character in *M. megaspora/uracea*, but there seems to be nothing to suggest it is the habitat. Leaving out the intermediate cases, the following different types of habitat have been recorded out of a total of 41 collections (1 each from Norway and Sweden, 2 each from West and East Germany, 33 from the Netherlands, 2 from Belgium) which with one or two exceptions are of the 4-spored kind: (i) bare peat; (ii) peat with young growth of *Calluna* and *Erica*; (iii) dense vegetation of *Molinia* on peaty soil; (iv) vegetation of low grasses and moss on peaty soil; (v) among *Sphagnum*; (vi) burned heath; (vii) sandy soil with scattered chips of burned pine wood, (viii) loamy soil of path in frondose wood; (ix) *Picea* forest at edge of swamp.¹ Unfortunately, not all collections investigated were annotated, but in those that were it was found that, contrary to the differ-

¹ Further information on habitats was given by Lange (1946: 203; 1948: 131; both as *M. uracea*), Lange & Munk (1948: 379), Hintikka (1963: 84), Einhellinger (1976: 118, as *M. permixta* sensu Moser), and Moser (1978: 15).

ential characters indicated in Kühner & Romagnesi's key, the stipe was never reddish grey; the lamellae were paler or darker grey or grey-brown irrespective of the habitat, and so were the rancid taste and/or smell of the flesh. Also, no relation can be shown to exist between the habitat and the differences in spore size. I therefore fully subscribe to the opinions of Lange (1955: 46) and Reid (1958: 424) who considered *M. uracea* to be a synonym of *M. megaspora*.

Somewhat unobtrusively and completely without giving their reasons, Stangl & Bresinsky (1969: 67) reduced *M. megaspora* to the synonymy of *M. dissimulabilis*, and their lead was followed by Singer (1975: 391) and, with certain misgivings, by Moser (1978: 15). Britzelmayr gave a diagnosis (1893: 38) and subsequently a more detailed description (1898: 208) of his *Agaricus dissimulabilis* but the former, even though very brief, suffices for a conclusion to be drawn. It said that the stipe was violet-brown, and that the species was related to *Agaricus dissiliens* Fr. Britzelmayr's reference to *A. dissiliens* is interesting for the very first word with which Fries (1838: 108) characterized his species is "fragillimus." Fries further said: "... stipes... compressus in lacinias elasticè revolutas dissilit (stipe, on being pinched, disrupts elastically into revolute strips)." It seems reasonable to assume that Britzelmayr had found these two features to be applicable to his own species. If this assumption is acceptable, *Agaricus dissimulabilis* cannot be the same as *Mycena megaspora* which is characterized by a "very cartilaginous and tough" stipe (Smith, 1947: 297). If the assumption is considered unacceptable, there still is the question of the colour of the stipe. Violet-brown is a colour not noted in the stipe of any collection of *M. megaspora* gathered in the Netherlands and other European countries, nor have I seen it mentioned in the literature consulted. In my eyes Britzelmayr's species lacks adequate information and cannot be interpreted with any degree of certainty; *Agaricus dissimulabilis* is a nomen dubium.

Moser (1978: 16) suggested still another of Britzelmayr's species as possibly identical with *M. megaspora*, but *Agaricus permixtus* Britz. can be simply dismissed here because its author (1898: 209) described the stipe as very brittle.

19. MYCENA FAGICOLA Grog. apud Roum.

Mycena fagicola Grog. apud Roumeguère in Revue mycol. 7 (25): 18. 1885 (nomen nudum).

A.H. Smith who had described a new species under the name *Mycena fagicola* abandoned the epithet in favour of *M. atkinsoniana* (1947: 144) because of the earlier *M. fagicola* Grog. apud Roum. He omitted to say whether he had seen the publication.

Since there are more than one species of *Mycena* typical of beech woods, investigation seemed to be required. Material of Grognot's species was issued as no. 3104 in Fungi gallici exsiccati of Roumeguère and a little later this number, along with others, was enumerated in the journal indicated above, but in either case without a description. The single specimen in the copy of the exsiccatum at the 'Rijksherbarium' is too poor for examination.

20. AGARICUS (MYCENA) FARINELLUS Feltgen

Agaricus (Mycena) farinellus Feltgen in C.r. Soc. natn. Luxemb. 16: 145. 1906. — Type locality: Luxemburg, Pfaffenthal-Höhl.

Auf faulendem Pinusstock.

Fruchtkörper gesellig, zerstreut, bisweilen einige büschelig zusammenstehend. Hut, Stiel und Lamellen reinweiss, allenthalben schimmernd feinhelig bestäubt. Hut glockenförmig, etwas gebuckelt, glatt, ganzrandig, Rand von Anfang an gestreckt, nicht eingerollt, 0,2–4 mm breit, 2–3 mm hoch; Stiel 0,6–1 cm lang, 0,08–0,12 mm dick, unten etwas verdickt und allmählig dünner werdend, am obern Ende wieder verdickt, an der Basis von einem weissen, scheibenförmigen, strahligen Filz umgeben, dem Holze angeheftet, aussen knorpelig, voll; Lamellen entfernt stehend, schmal, angewachsen; Sporen länglich-ei-, fast keulenförmig, mit kegelförmigem, unterm ($2\ \mu$ br.) Ende, oben stumpf verschmälert, $8\text{--}10/4\text{--}5\ \mu$.

Feltgen's description is here copied in full since few may be in the position to consult the journal in which it was published. This description leaves no doubt about the identity of the species: *A. farinellus* is the same as *Mycena adscendens* (Lasch) Maas G. and is here reduced to the synonymy of the latter.

The occurrence on a stump of *Pinus* may be judged unusual, but a coniferous substratum for the species is not unknown. There is one gathering in the 'Rijks-herbarium' found on a fallen twig of *Picea*.

21. MYCENA FLOCCIFERA Mez

Mycena floccifera Mez in Jber. Schles. Ges. vaterl. Cult. (II Abt. Naturw., zool.-bot. Sect.) 76: 16. 1899. — Type locality: Breslau (now Poland), in hothouse.

Mycena osmundicola J.E. Lange in Dansk bot. Ark. 1(5): 35, pl. 1 fig. J, pl. 2 fig. 51. 1914; Flora agar. dan. 2: 49, pl. 57 fig. A. 1936. — Type locality: Denmark, Odense, in hothouse.

Mycena osmundicola subsp. *imieriana* Kühn., Genre *Mycena*: 210. 1938 (no Latin descr.). — *Mycena osmundicola* var. *imieriana* (Kühn.) Pearson in Trans. Br. mycol. Soc. 35: 100. 1952. — Type locality: Belgium, Antwerp, in hothouse.

Fragillimus, fugax; pileo tenerrimo, fere diaphano, minute lateque umbonato, campanulato, margine grosse crenato, toto profunde sulcato, ubique sed praesertim ad umbonem dense flocculis niveis, minutis, furfuraceis oblecto, micaceo; lamellis laxiuscule dispositis, liberis, candidis; stipite gracillimo, albo, diaphano, dense flocculis patentibus niveis crinito.

Hut ausserordentlich dünn, schneeweiss (wie der ganze Pilz), glockenförmig mit ganz schwachem Buckel, am Rand grob gezähnt und bis zum Centrum tief furchig gestreift, überall, doch besonders in der Mitte, mit weissen, feinen, kleiigen Schüppchen bedeckt, bis 0,75 cm breit. Lamellen ziemlich locker stehend, frei, schneeweiss. Stiel cylindrisch, wie der ganze Pilz äusserst gebrechlich, saftlos, bis 8 cm lang und 1 mm dick, durchscheinend weiss, dicht mit haarigen, rein weissen Schüppchen bedeckt.

Warmhaus des botanischen Gartens, an Farnstrünken (wohl von Samoa eingeschleppt); October 1896.

The above is a copy of the original account which I do not expect to be easily accessible. The description gives excellent information on the macroscopically visible elements of the fungus. Even if it is admitted that the lack of microscopic data is unfortunate, there is no difficulty in recognizing *M. floccifera* as an earlier name for the species described by J.E. Lange as *M. osmundicola* which is hereby reduced to the synonymy of *Mycena floccifera*.

Differences in spore width in various later gatherings of *M. osmundicola*

which caused some uncertainty (Moser, 1977: 157), have not thus far led to the segregation of another species or even variety. Also, the description of a new subspecies *imleriniana* by Kühner (1938: 210; but designated as variety in his index, p. 700) proves unwarranted as was (hesitantly) expressed by Imler (1959: 97, "...il est à craindre que la sous-espèce soit plus que chancelante'") and is evidenced by Andersson's fig. 2 (1961: 344) and Moser's fig. C (1977) which show spherical and elongated elements of the pileus covering at the same time. There is no question, therefore, of the existence in European hothouses of two similar looking fungi growing on fern roots (or trunks) which might render the identification of *M. floccifera* doubtful.

Lange alluded to another small agaric once found to grow in a hothouse, *Agaricus chlorinus* P. Henn. (1898: 141). This species which Hennings considered to be a *Mycena*, differs from *M. floccifera* in having a yellow-green pileus, lamellae which from pallid turn grey, and a tenacious stipe with a sub-bulbous base.

The fungus described by Singer (1937: 233) from a hothouse at Leningrad under the name *M. osmundicola* is an altogether different species, characterized by a dark coloured pileus, collariate lamellae, and a glabrous stipe.

22. MYCENA PHENOLICA Mez

Mycena phenolica Mez in Jber. schles. Ges. vaterl. Cult. (II Abt. Naturw., zool.-bot. Sect.) 76: 15. 1899. — Type locality: environs of Breslau.

Fragillimus, graveolens, pileo submembranaceo, campanulato vel campanulato-expanso, umbonato, fere medium usque sulcatim striato, juniore pruinoso, opaco; lamellis remotiusculis, (cinerascenti-) albidis exsiccantibus rubescentibus, dente affixis; stipite aequali, laevi, glabro, nitidulo, concolore.

Hut fast häutig, glockenförmig bis glockenförmig-ausgebreitet, beinahe bis zur Mitte stark und fast furchig gestreift, am Rande nicht gekerbt, in der Farbe wechselnd: graubraun bis rötlich braun in der Mitte, nach dem Rande zu heller, im jungen Zustand fein grau bereift, sehr gebrechlich, bis 2,5 cm breit. Lamellen etwas entfernt stehend, weisslich, beim Austrocknen gelblich, dann rötlich werdend, beim trockenen Pilz fast fleischroth (doch Sporenpulver weiss!), mit einem kleinen Zähnnchen angeheftet. Stiel ausserordentlich gebrechlich, steif aufrecht, glatt und kahl, etwas glänzend, trocken und ohne Milchsaft, bis 6 cm lang, 1–1,5 mm breit, der Hutmitte gleich gefärbt. Sporen 12–13,5 μ lang, 6–7 μ breit.

Der ganze Pilz riecht intensiv nach Carbolsäure; dieser Geruch ist besonders beim Welken sehr penetrant und verbreitet sich von wenigen Exemplaren weithin. — Dem *Ag. leptocephalus* Fr. nächst verwandt.

Umgebung von Breslau, auf Sandboden mehrfach: Ransern, Schwedenschanze bei Oswitz, bot. Garten. October 1898.

For the same reason as advanced in the preceding case the description of the present species is here copied in full. Apart from the odour (which, of course, is highly subject to personal experience), the species is easily recognizable as *Mycena metata* (Fr.) Kummer, under the synonymy of which it is here placed. To judge from the large size of the spores, the author must have described the 2-spored form.

23. MYCENA MEGALOSPORA Oort

Mycena megalospora Oort in Meded. Ned. mycol. Ver. 16-17: 226, 254. 1928. — Type locality: Netherlands, Hengelo.

Although the author stated that dried material was preserved at the 'Rijksherbarium' (Leiden), none can be found.

The pileipellis was said to consist of ovoid-pyriform cells, some of which contained a dark brown sap. This structure constitutes a character which excludes the species from the genus *Mycena*. Since the lamellae were said to become pink with age, while also the spores had been observed to be pale pink, the affinity of *M. megalospora* might be sought with the pink-spored agarics. Oort stated, however, that he had failed to confirm the pink colour, in which case the species could be a *Hydropus*.

24. AGARICUS RHIZOGEUS Pers.

Agaricus rhizogeus Pers., Mycol. eur. 3: 249. 1828. — *Mycena rhizogea* (Pers.) Sing. in Beih. Sydowia 7: 49. 1973. — Type (Sing., 1961: 42): No 910. 255-329, L).

Singer who had studied the type (1961: 42) said that Persoon's material (consisting of two specimens glued to a sheet of paper) represented "a *Mycena* in the narrowest sense, perhaps *M. parabolica* in the sense of J.E. Lange, or aff. *M. filopes* sensu Kühner." Later he proposed the recombination *Mycena rhizogea* and shortly afterwards (1975: 393) placed the binomial in his stirps *Alcalina* between *M. rosaceifolia* Sing. and *M. polygramma* (Bull. ex Fr.) S.F. Gray. This amounts to Singer having offered three different suggestions, the two former of which can be dismissed briefly.

As I have pointed out in a previous publication (Maas Geesteranus, 1980: 405), *Mycena parabolica* sensu J.E. Lange is probably nothing but a darkish form of *M. galericulata* (Scop. ex Fr.) S.F. Gray. In this species, however, the lamellae, both fresh and remoistened after drying, have a peculiar elastic-tough quality like bacon rind. By contrast, what is left of the lamellae of *Agaricus rhizogeus* turns out to be soft when soaked in water.

Mycena filopes sensu Kühner, a misapplied name for *M. vitilis* (Fr.) Quél, is well characterized by the conspicuous gelatinization of the hyphal walls in the cortical layer of the stipe which, in cross section, makes the hyphae appear completely disconnected from each other. There is no trace of gelatinization of the hyphal walls in the stipe of *A. rhizogeus*.

As regards Singer's third suggestion, no evidence can be found to prove the identity of the type material. Singer (1961: 43) apparently failed to find a single spore that was not collapsed (or else he would not have said that the "spores are about medium sized"), while on re-examination of Persoon's specimens I found that the hymenium and the edge of all lamellae had been completely eaten by insects. Several parts in Persoon's description are actually suggestive of *M. polygramma*, but as it appears impossible either to prove or disprove the identity of *A. rhizogeus* with this species, it seems best to reject the binomial as a nomen ambiguum.

25. MYCENA SPEIREA (Fr. ex Fr.) Gillet

Kühner (1938: 589) doubted whether the species he described could be the true *M. speirea* of Fries, and the obstacle that made him think so was the latter author's observation (1867: 81): "Dense disseminatus supra truncos muscosos Quercus." Kühner proceeded by saying that nevertheless he had decided to maintain the specific epithet in the sense of Ricken. Singer (1959: 384), referring to Kühner's doubt but rejecting his compromise, chose another course and proposed the recombination *M. camptophylla* (Berk.) Sing. for the species. Dennis, Orton & Hora (1960: 122, 177) refrained from making any comment and treated *camptophylla* as a synonym of *speirea*, while Moser (1978: 173) hesitated to follow Singer.

The first description of *Agaricus speireus* was published by Fries in his *Observationes* (1815: 90), repeated (and validated) in his *Systema* (1821: 159). A second redescription appeared in the *Icones* (1867: 81) accompanying pl. 78 fig. 2. This illustration pictures two groups of basidiomes which bear no resemblance to each other and which will be discussed presently.

However slight the alteration in the 1867 redescription of Fries may seem (e.g. "...pileo...pallido, disco papillato obscuriori..." and "Pileus...umbone obscuriore fusco, ceterum pallidus albidusve..."), for the correct interpretation of the species I insist on the necessity of keeping to the original, the 1815 description (e.g. "...pileo...cinerascenti, disco fusco" and "Pileus...pallide cinereus vertice fusco..."). This difference in colour shades, in connection with the illustration under discussion, leaves no doubt that Fries in his later years has confused two species. As far as the left side group of pl. 78 fig. 2 is concerned (showing specimens with a very pale, almost white pileus and dark brown centre) I favour Kühner's view that *A. speireus* sensu Fries 1867 represents *Mycena alba*; the right side group is something different, and may be considered to be a passable rendering of the true *M. speirea*. The following points provide additional proof of Fries's confusion. His remark (1867) "Dense disseminatus..." is an appropriate description of the manner *M. alba* grows, whereas *M. speirea* is generally found single or in small groups; Fries (1815) actually described the latter species as "Solitarius rarius subgregarius". Fries (1867) also stated "Tam in Suecia, quam apud exteros sat vulgaris (Fairly common both in Sweden and abroad)." This clearly applies to *M. speirea*, not to *M. alba* which seems to be rare in Sweden and was reported only in recent times (Nathorst-Windahl, 1967).

In my opinion there is nothing in the 1815 description by Fries that stands in the way of an identification of his *Agaricus speireus* with the concept of the species of modern times. To consolidate this concept, the material of *Mycena speirea* in Lundell & Nannfeldt, *Fungi exs. suec., praes. upsal.* 2542 (UPS), which I have checked microscopically, is here chosen as neotype.

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Studies in Mycenas 26*The Mycenas described by P.A. Karsten*

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A revision is given of the material in P.A. Karsten's herbarium of the *Mycenas* described by this author. As far as herbarium specimens appeared to be absent, the identity of the taxon is judged from its description.

I am grateful to the authorities of the Herbarium at Helsinki (H) for the loan of Karsten's specimens. Acknowledgement is also made to the Director of the "Rijksherbarium" for providing working facilities.

MYCENA AMICTA var. LEUCOPSIS P. Karst.

Mycena amicta var. *leucopsis* P. Karst. in Bidr. Känn. Finl. Nat. Folk 32: 549. 1879; Icon. sel. Hym. Fenn. 2: 3, fig. 32. 1887 (= in Acta Soc. Sci. fenn. 16: 517. 1888). — Type: non-existent. — Type locality: Mustiala

In Karsten's former description the pileus was said to be white, to which in the second were added the shades pallid and yellowish. It was also stated that the pileus was usually cernuous. Neither the nodding pileus nor its pale colour seem to me to be of particular consequence; var. *leucopsis* is here reduced to the synonymy of *M. amicta*.

MYCENA AMICTA var. TRUNCATA P. Karst.

Mycena amicta var. *truncata* P. Karst. in Acta Soc. Fauna Flora fenn. 9: 4. 1893. — Type: non-existent. — Type locality: Syrjäås, near Mustiala.

Karsten considered this variety to be different from typical *amicta* mainly on account of its short, blunt, non-tortuous root enveloped in a tomentum. This is

another of those slightly deviating forms of *M. amicta* which in my opinion do not deserve special naming.

MYCENA ATROMARGINATA var. FUSCOPURPUREA P. Karst.

Mycena atromarginata var. *fuscopurpurea* P. Karst. in Bidr. Känn. Finl. Nat. Folk 32: 99. 1879.
– Type: non-existent. – Type locality: Scandinavia.

Karsten's description (translated from Swedish) runs thus: "Pileus coffee brown, bordering on purplish red, striate at the margin; lamellae white. Coniferous wood, rare."

Since Karsten considered this taxon to be a variety of *M. atromarginata* which he knew to have black edges to the lamellae, it follows that the edge of the lamellae in var. *fuscopurpurea* must have been very dark too.

To me it would seem that a fungus of this description agrees rather well with a species which Peck was to describe in 1885 from North America, *Mycena purpureofusca* (Peck) Sacc., and I have little hesitation in placing var. *fuscopurpurea* under the synonymy of the latter species.

The epithets may cause some confusion, so it is a precautionary measure to point out that *M. purpureofusca* has no connection with *M. fuscopurpurea* P. Henn., described in 1901 from Cameroun.

MYCENA CAPILLARIS P. Karst.

Mycena capillaris P. Karst. in Acta Soc. Fauna Flora fenn. 27(4): 3. 1905. – Type: non-existent.
– Type locality: near the Russian village Ufa.

This is a later homonym of *Mycena capillaris* (Schum. ex Fr.) Kummer, 1871, and would deserve being renamed if only it could be identified. Karsten's description, however, is unusually brief, he had failed to find spores, and there is no mention whatever of cystidia. This lack of information may have been the cause that the binomial was ignored in literature.

MYCENA CINERELLA (P. Karst.) P. Karst. – Figs. 1–4.

Agaricus cinerellus P. Karst. in Hedwigia 18: 22. [Febr.] 1879. – *Mycena cinerella* (P. Karst.) P. Karst. in Bidr. Känn. Finl. Nat. Folk 32: 113 [after June] 1879; in Acta Soc. Sci. fenn. 15: 192, fig. 24. 1888. – *Omphalia cinerella* (P. Karst.) J.E. Lange, Flora agar. dan. 2: 61, pl. 61 fig. H. 1936 – Holotype: "Agaricus (*Myc.*) *cinerellus* Karst. / Syrjä, 5 Nov. 1877" (H, no. 1603).

In the description of February 1879, which was in Latin, Karsten omitted the locality and said nothing of the odour of the species. These omissions were restored in the second description (published in Swedish and after June of the same year) which, although differently worded, is not in contradiction with the first. The month of collecting was indicated by the number 11, which stands for November.

Of the three packets received for examination, one (no. 1593) can be dismissed, as the material was collected in 1882. The date of collecting of the material in both remaining packets (nos. 1595 and 1603) appears to be 5 November 1877, but the annotation "det. P. Karsten 1883" on the envelope of n. 1595

proves that its contents cannot have been used for the descriptions of 1879. It is true that on the envelope of no. 1603 the locality is said to be Syrjä, whereas it is indicated as Mustiala in the second description of 1879, but Syrjä (not far, as it seems, from Mustiala) reappears in the description of 1888.

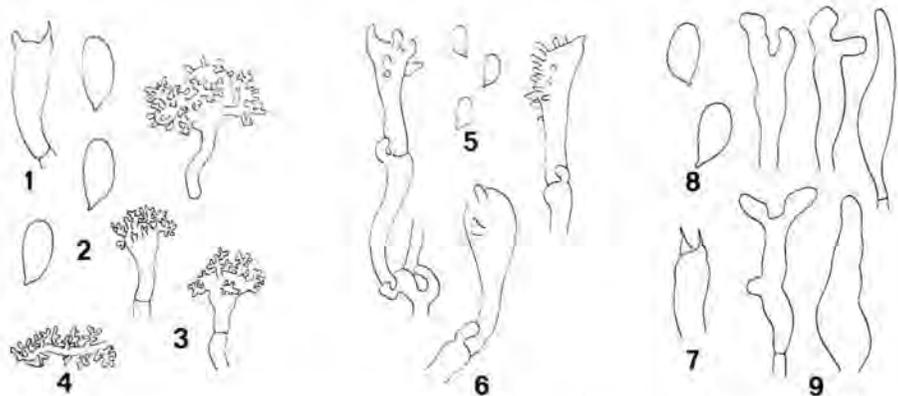
The microscopic details of the holotype (two specimens examined) are as follows.

Basidia $\pm 20 \times 7-9 \mu\text{m}$, few seen fully developed, clavate, 2-spored, without clamp, with sterigmata up to $4.5-5.5 \mu\text{m}$ long. Spores $11.6-12.5 \times 5.5-6.3 \mu\text{m}$, pip-shaped, smooth, weakly amyloid. Cheilocystidia $8-22.5 \times 5.5-9 \mu\text{m}$, clavate to irregularly shaped, without clamp, with simple to variously shaped and branched excrescences, up to $9 \mu\text{m}$ long. Pleurocystidia absent. Hyphae of the pileipellis covered with simple to branched excrescences which may grow out to densely coral-oid structures. Lamellar trama reddening in Melzer's reagent.

The striking feature of Karsten's type material is that the basidia are two-spored and lack clamps, which seems to have passed unnoticed. It is quite probable that this 2-spored condition is rare. All of the *M. cinerella* material from the Netherlands so far examined (16 collections) turned out to be 4-spored, and together with this go clamps at the base of the basidia and smaller spores. Lange's illustration (pl. 61 fig. H) likewise shows a 4-spored basidium, while the descriptions by Kühner (1938: 368) and Høiland (1977: 144) mention only 4-spored basidia. It is true that Bon & Chevassut (1975: 27) found the basidia to be 2- and 4-spored, and Smith (1947: 366) "occasionally two- and four-spored", but I do not doubt that the basidia of their material possessed clamps.

MYCENA COPRINOIDES P. Karst.

Mycena coprinoides P. Karst. in Grevillea 7: 63. (Dec.) 1878; in Bidr. Känn. Finl. Nat. Folk 32: 121. 1879; Icon. sel. Hym. Fenn. 1: 183, fig. 2. 1888. — Holotype: "*Mycena coprinoides* Karst. / Mla [=Mustiala] in cort. *Sal. capr.*, 9 Sept. 1878" (H, no. 2268).



Figs. 1-4. *Agaricus cinerellus* (holotype). — 1. Basidium. — 2. Spores. — 3. Cheilocystidia. — 4. Hypha of pileipellis with excrescences.

Figs. 5, 6. *Mycena galericulata* var. *nana* (lectotype). — 5. Spores. — 6. Cheilocystidia.

Figs. 7-9. *Mycena latebricola* (holotype) — 7. Basidium. — 8. Spores. — 9. Cheilocystidia.

All figures, $\times 700$.

Of the three collections nos. 2268–2270, extant in Herb. Karsten, no. 2268 is the holotype; on the packet there are drawings of two spores and of several basidiomes, while even the colour of the pileus is indicated (“isab.”). The specimens in the two other packets were collected on the same date but cannot have been used for the description published in December 1878, since both packets bear the annotation “det. P.A. Karsten 1883.”

The holotype material can be described briefly as follows.

Basidiomata arising from an ozonium-like mycelial tomentum. Pileus up to nearly 2 mm high, 1 mm wide, deeply plicate, yellow-brown, looking scurfy from the whitish remnants of a veil. Lamellae closely packed, narrow, yellowish brownish. Stipe about 4×0.4 mm, white-scurfy. Basidia 4-spored, those which have reached the same stage of maturity widely spaced, very much prominent. Spores about $6.7 - 7.6 \times 4.0 - 4.5 \mu\text{m}$, pip-shaped, aggregated in fours, pale yellow-brown. Cystidia not seen. Cortical tissue of the pileus made up of several layers of isodiametric cells, and covered by large, inflated cells of the veil.

This is not a *Mycena*; it belongs to *Coprinus* Pers. ex S.F. Gray and is hereby brought to the attention of the mycologists working in this genus.

MYCENA FIMICOLA (P. Karst.) Sacc.

Mycenula fimicola P. Karst. in Acta Soc. Fauna Flora fenn. 9(1): 5. 1893. — *Mycena fimicola* (P. Karst.) Sacc., Syll. Fung. 11: 21. 1895. — Holotype: “*Mycena fimicola* Karst. / Myllyperä (Mustiala) in fimo equino, 22 Sept. 1892” (H, no. 2275).

Karsten gave a good description of his material and, although it is in very poor condition, I have been able to check the correctness of his measurements of the hymenial elements. However, I am not convinced that these elements all belong to a single species.

(i) Several of the more easily separable hyphae have well-developed clamps at their septa, but in spite of repeated efforts I failed to find clamps at the base of even very young basidia. (ii) Although there is an abundance of spores, I have not seen a single example of those characteristic developmental stages of the basidia which have the immature spores still attached to the sterigmata. (iii) The spores (which appear inamyloid) are somewhat thick-walled and seem to my eyes to have a yellowish colour. (iv) In the case of species of *Mycena* with very large, inflated cystidia (and Karsten found them $70 \times 18 \mu\text{m}$) it is always possible to find at least a number of the latter arising from subhymenial hyphae. No such example was found in Karsten’s material.

These points have led me to think that the basidia are the only elements proper to the specimen examined, whereas the spores and alleged cystidia belong to an alien fungus, probably a mould. Since no further microscopic details of the type were found, *M. fimicola* must remain a nomen dubium.

MYCENA GALERICULATA var. NANA P. Karst. — Figs. 5,6.

Mycena galericulata var. *nana* P. Karst in Meddn Soc. Fauna Flora fenn. 9: 41. 1882. — *Mycena galericulata* f. *nana* (P. Karst.) Sacc., Syll. Fung. 5: 268. 1887. — Lectotype: “*Mycena galericulata* var. *nana* Karst. / Mustiala, ad *Betulam*, m. Febr. 1882, lg. P.A. Karsten” (H, no. 2281).

Basidiomes densely cespitose. Pileus up to 7 mm across, campanulate, somewhat sulcate, red-brown at the centre, yellow-brown towards the margin, or reddish brown throughout. Lamellae up to about 24 reaching the stipe, up to 1 mm broad, fairly thick, ascending in young specimens, later more or less horizontal, broadly adnate, dorsally intervenose, pale ochraceous yellow. Stipe up to $15 \times 0.5 - 1.5$ mm, curved, minutely puberulous, yellow-brown to fairly dark red-brown, towards the base densely covered with fairly long, coarse fibrils. Basidia few seen which were not collapsed, about 17×4.5 μm , 4-spored, with clamp. Spores $4.5 - 5 \times 2.2 - 2.7$ μm , pip-shaped, smooth, amyloid. Cheilocystidia $20 - 36 \times 5.5 - 10$ μm , numerous to abundant, clavate, almost smooth or with more or less, numerous, cylindrical to ampullaceous excrescences, clamped. Pleurocystidia none seen.

There are two packets in Herb. Karsten under the name *Mycena galericulata* var. *nana*, numbered 2280 and 2281, both collected at the same place and on the same date. Their contents are specifically identical, but syntype no. 2281 is by far the richer collection. It is here selected as the lectotype. A small label is stuck to its envelope, apparently by V. Hintikka, which states that the material represents *Mycena tintinnabulum* (Fr.) Quél. I agree completely.

MYCENA LATEBRICOLA P. Karst. — Figs. 7–9.

Mycena latebricola P. Karst. in Bidr. Känn. Finl. Nat. Folk 32: 117. 1879; Icon. sel. Hym. Fenn. 2: 3, fig. 33. 1887. — Holotype: “*Mycena latebricola* Karst. / Mustiala ad cort. *pini* P.A.K. / 29 Oct. 1874” (H. no. 2266).

Basidiomata rather badly broken. Pileus about 2 mm across, sulcate, pale yellow-brown with darker brown centre. Lamellae somewhat arcuate, broadly adnate, more or less decurrent, paler than the pileus. Stipe 20–25 mm long, minutely puberulous, fairly dark yellow-brown, at the base with long, coarse, whitish fibrils. Basidia hard to discern separately, about 6.5 μm wide, 2-spored, with sterigmata 4.5–5.5 μm long. Spores $9.4 - 9.8 \times 5.4 - 5.8$ μm , pip-shaped, colourless, non-amyloid. Cheilocystidia $27 - 36 \times 5.4 - 9 \times 4.5 - 5.5$ μm , cylindrical, fusiform, lageniform to more or less irregularly shaped, without clamp, numerous. Pleurocystidia none seen (but may have been overlooked). Lamellar trama not stained in Melzer’s reagent.

This is *Mycena speirea* (Fr. ex Fr.) Gillet.

MYCENA LUTEOLORUFESCENS P. Karst. — Figs. 10–12.

Mycena luteolorufescens P. Karst. in Hedwigia 31: 218. 1892. — *Mycena rubromarginata* var. *luteolorufescens* (P. Karst.) P. Karst., Kritisk öfvers. Finl. Basidsv. Tillägg 2: 6. 1893. — Lectotype: “*Mycena luteolorufescens* Karst. / Syrjä, 23 Julii 1892, ad lignum *Juniperi*” (H. no. 2273).

Basidiomata somewhat contracted and distorted in drying. Pileus up to about 9 mm across, sulcate, dark rufous brown to almost black. Lamellae up to about 1 mm broad, yellow-brown, with paler edge. Stipe up to 50 mm long, glabrous, minutely ribbed lengthwise, reddish brown. Basidia either immature or collapsed, about $27 \times 7 - 11$ μm , 4-spored, with clamp. Spores obviously immature, $9.8 - 11.6 \times 6.7 - 7.3$ μm , pip-shaped, colourless, strongly amyloid. Cheilocystidia $30 - 38 \times 8 - 12.5$ μm , clavate to fusiform, thin-walled, with clamp, scattered to fairly numerous. Pleurocystidia not seen. Hyphae of the pileipellis with scattered, cylindrical excrescences 2–2.5 μm wide.

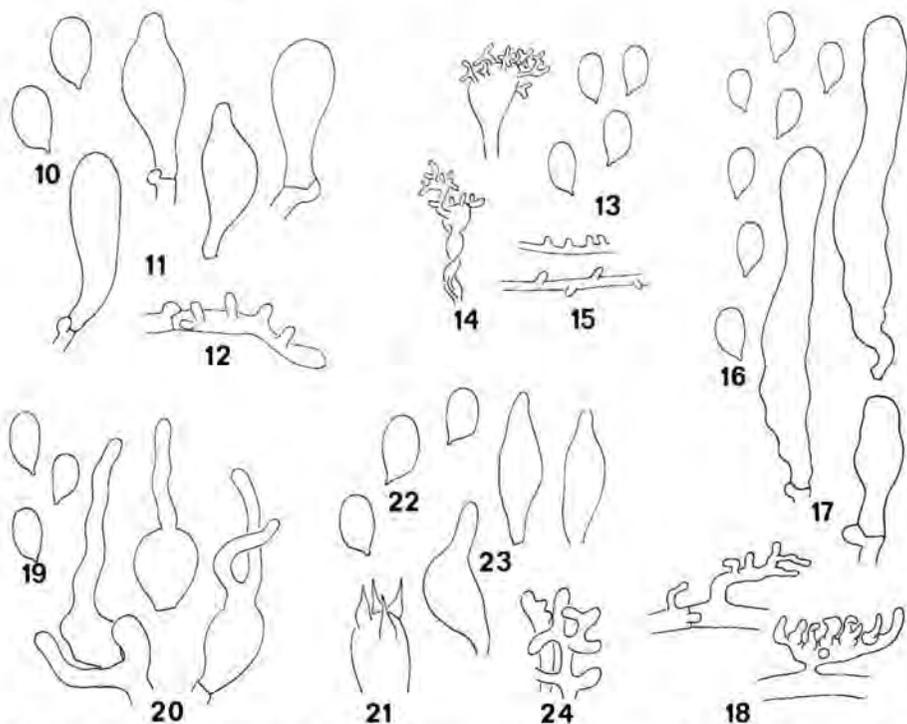
The syntype (H, no. 2274, from Salois) is identical with the material described above but its microscopical elements are much harder to discern. Its spores, however, are better developed, $10.7 - 13.5 \times 6.2 - 7.2$ μm . The characters of this species identify it as a member of section *Fragilipedes* (Fr.) Quél. and for the

time being I am inclined to accept *M. luteolorufescens* as an independent species. As far as the European members of this section are concerned, *Mycena jacobii* Maire and *M. zephyrus* (Fr. ex Fr.) Kummer seem to come close, but my insufficient knowledge of the North American species precludes further judgement.

Singer (1931: 526) reported on a find of what he thought to be *M. luteolorufescens* (misspelled *luteorufescens*). He described the cystidia as spinulose which makes it clear that he had found a different species. It seems probable that he included (1951: 359; 1962: 380; 1975: 390) this species in his stirps *Elegans* on the basis of his find, which is wrong for the true *M. luteolorufescens*.

MYCENA MACULATA P. Karst. — Figs. 13–15.

Mycena maculata P. Karst. in Meddn Soc. Fauna Flora fenn. 19: 89. 1890. — Holotype: "*Mycena [galericulata* var. *rufescens* crossed out, and rewritten:] *maculata* Karst. / Salois, 19 Sept. 1889" (H, no. 1610).



Figs. 10–12. *Mycena luteolorufescens* (lectotype). — 10. Spores. — 11. Cheilocystidia. — 12. Hypha of pileipellis with excrescences.

Figs. 13–15. *Mycena maculata* (holotype). — 13. Spores. — 14. Cheilocystidia. — 15. Hyphae of cortical layer of stipe with scattered excrescences.

Figs. 16–18. *Mycena subexcisa* (neotype). — 16. Spores. — 17. Cheilocystidia. — 18. Hyphae of pileipellis with excrescences.

Figs. 19, 20. *Mycena subplicosa* (lectotype). — 19. Spores. — 20. Cheilocystidia.

Figs. 21–24. *Mycena viridimarginata* (holotype). — 21. Basidium. — 22. Spores. — 23. Cheilocystidia. — 24. Excrescences from hypha of pileipellis.

All figures, $\times 700$.

The description given by Karsten, more especially its macroscopic part, is sufficient for the species to be characterized. The microscopic part, however, requires some supplementary details and a correction. Karsten stated that there were no cystidia, which is incorrect. There are cheilocystidia in abundance, but it is extremely difficult to find one which is not collapsed and shrivelled, and this is due no doubt to the fact that Karsten found his specimens well past their prime.

The following are the microscopic details I have seen in the type collection.

Basidia 18–24 × 6.5 μm, none seen mature (those which are, apparently all collapsed), 4-spored, with clamp. Spores 8.1–9.0 × 4.5–5.4 μm, pip-shaped, smooth, strongly amyloid. Cheilocystidia practically all collapsed, about 27 × 9 μm, clavate, apically with variously shaped and/or branched excrescences. Pleurocystidia absent. Subhymenial hyphae with clamps. Hyphae of the pileipellis narrow, clamped, smooth. Hyphae of the cortical layer of the stipe (not far below the pileus) equally narrow, clamped, but with some scattered excrescences.

Kühner (1938: 336) described the hyphae of the pileipellis in the present species as smooth. This character is eminently suited to distinguish *M. maculata* from other members of section *Mycena*. It is an auspicious circumstance that the type material allows this feature to be fully verified.

MYCENA MILITARIA P. Karst.

Mycena militaria P. Karst. in Meddn Soc. Fauna Flora fenn. 16: 91. 1888. – Type: non-existent. – Type locality: near Mustiala.

Of this species no material exists in Herb. Karsten, but the original description offers sufficient information (somewhat viscid pileus and stipe, ascending lamellae with a decurrent tooth and rufous stains when becoming older, unpleasant smell, occurrence among lichens in a burnt place) to allow the species to be identified as a member of section *Hygrocyboideae* (Fr.) Sing. It is not unnatural further to think of Karsten's find as belonging to the extremely variable species *Mycena epipterygia* (Scop. ex Fr.) S.F. Gray, but it is not possible to push the identification beyond this limit, and it is an unproved supposition to regard *M. militaria*, as did A.H. Smith (1947: 432) and Moser (1978: 169), as an independent species.

MYCENA NANA var. LIGNICOLA P. Karst.

Mycena nana var. *lignicola* P. Karst. in Meddn Soc. Fauna Flora fenn. 16: 89. 1890. – *Mycena lactea* var. *lignicola* (P. Karst.) Sacc., Syll. Fung. 9: 36. 1891. – Type: non-existent. – Type locality: near Mustiala.

Pileus 5 mm latus. Stipes basi fibrillosus, 1 cm altus. – Locis stercoreatis ad ramulos Betulae putrescentes.

Karsten's description copied above offers very little help in the identification of his taxon. That he regarded it as wood-inhabiting variety of *Mycena nana* "(Bull.) Schroet." is not helpful either. Bulliard's *Agaricus nanus*, pictured in his figure 3N of plate 563, could be interpreted as *Hemimycena lactea* (Pers. ex Fr.) Sing., but the illustration may equally well be said to represent any other of

a number of related species of *Hemimycena*. There is a telling absence in the literature of any discussion on the identity of *Agaricus nanus*, and in my opinion both this species and var. *lignicola* are best sunk into oblivion.

MYCENA RIGIDULA P. Karst.

Mycena rigidula P. Karst. in Bidr. Känn. Finl. Nat. Folk 32: 110. 1879. — Syntypes: “*Mycena rigidula* Karst / Syrjä, 19 Sept. 1878” (H, no. 2271) and “*Mycena* — [*rigidula* Karst’. later written across] (18 Sept.) / *Stipes compressus*. *Rigidus* / *Mla* [= *Mustiala*] in Fårhagen, supra terram nudam inter ramenta lignea 22 Sept. 1878” (H, no. 2272).

In both packets, the hymenium of the specimens is destroyed by a mould. Few basidia show well-developed sterigmata (of which there are two), but neither spores nor cystidia were seen by me. Since Karsten described no microscopic details, *Mycena rigidula* remains a nomen dubium.

Hintikka in a paper on the *Mycenas* of Finland mentioned the find of what he considered to be *M. rigidula* (1963: 85). It seems unlikely that his material belongs to Karsten’s species. Hintikka described the stipe as dark (whereas Karsten said it was white) and the pileus as grey (which Karsten stated to be grey-brown or pale brown, drying paler and whitish).

MYCENA SIMILLIMA P. Karst.

Mycena simillima P. Karst. in Hedwigia 30: 246. 1891. — Type: non-existent. — Type locality: near Mustiala.

Karsten gave a fairly detailed macroscopic description and stated that the species very much resembled *M. galericulata* with the exception of the stipe (which was fragile) and the pileus (which was pallescent). It is possible to offer one or two suggestions but since their correctness cannot be proved, *M. simillima* must remain a nomen dubium.

MYCENULA SUBEXCISA P. Karst. — Figs. 16–18

Mycenula subexcisa P. Karst. in Meddn Soc. Fauna Flora fenn. 16: 90. 1888. — *Mycena subexcisa* (P. Karst.) Sacc., Syll. Fung. 9: 34. 1891. — Neotype: “[*Mycena excisa*, changed to read:] *Mycenula subexcisa* Karst. / [Tammela,] Syrjä, 3 Oct. 1889” (H, no. 2267).

Material consisting of two basidiomes, one twice the size of the other. Pileus 7 and 14 mm across, glabrous, dark reddish brown at the centre, paler towards the margin. Lamellae circa 25 or perhaps less reaching the stipe, one found to be 1.2 mm broad (dry), narrowly adnate, conspicuously puberulous (pleuro- and cheilocystidia!) reddish brown. Stipe 18 × 0.6 and 27 × 1–1.5 mm, minutely puberulous apically, glabrous farther down, dark reddish brown, densely covered with coarse and long, dingy yellowish fibrils at the base. Basidia mostly seen immature or older and collapsed, 4-spored, with clamp. Spores 7.6–10.5 × 4.5–5.8 μm, pip-shaped, colourless, weakly amyloid. Cheilocystidia 25–70 × 8–12.5 μm, cylindrical-subfusiform, more rarely subclavate, with somewhat thickened walls, with clamp, fairly numerous, conspicuously prominent. Pleurocystidia similar. Hyphae of the pileipellis with simple to very much branched excrescences, 2–3 μm wide.

It should be pointed out that the above material was collected the year following that in which Karsten’s description was published. Also, the specimens were gathered at Syrjä, whereas Karsten had based his description on material from Mustiala. At first he thought that the two specimens from Syrjä represented

Mycena excisa and wrote this name on the envelope but, changing his mind, crossed out the binomial and renamed them *Mycenula subexcisa*. Although this collection was preserved without notes, it allows the following conclusions to be made. (i) Karsten was correct in deciding that his Syrjä material was not the same as *Agaricus excisus* of Lasch since the pileus of his specimens (considering its present colour) must have been very much darker than described for the pileus of *A. excisus*; the lamellae are definitely (albeit narrowly) adnate, not "subexciso-liberis" or "vix adnexae" (Lasch); the stipe has no radicating base. (ii) There is such perfect agreement of the size of the spores and the cystidia as well as of the shape of the latter between Karsten's description and what I found in the material from Syrjä that I do not feel uncertain as to the identity of the latter. It is here chosen as the neotype of *Mycenula subexcisa* which is a true *Mycena* and a member of section *Fragilipedes* (Fr.) Quél. As this section contains several (at least to me) rather incompletely known species a final assignment of *M. subexcisa* must be postponed until I have seen the North American species.

MYCENA SUBPLICOSA P. Karst. — Figs. 19, 20.

Mycena subplicosa P. Karst. in Acta Soc. Fauna Flora fenn. 9(1): 2. 1893. — Lectotype: "*Mycena subplicosa* Karst. / Mustiala, inter acus *pini*, 21 Aug. 1892" (H, no. 1592).

In the herbarium at Helsinki there are two packets under the name *Mycena subplicosa* Karst., numbered 1592 and 1609 respectively, and both inscribed in the author's handwriting. The former contains a small gathering consisting of the pileus fragments of two dissimilar looking specimens (which actually represent the same species), while there are five or six specimens in the latter. On the envelope of no. 1592 is written: "Mustiala, inter acus *pini*, 21 Aug. 1892," on that of no. 1609: "Mustiala, Syrjä, in pineto, 30 Sept. 1892, supra [Ad crossed out] acus *pini*." These two collections differ widely from each other in their cheilocystidia. Those of no. 1609, the later collection, identify the specimens as *Mycena metata* (Fr.) Kummer (compare figs. 9–18 in Maas Geesteranus, 1980: 180) and cannot have been used by Karsten to draw up a description that reads: "Cystidia... aciculari attenuata..." This description fully applies to the cheilocystidia of no. 1592, and it is obvious, therefore, that Karsten must have examined the latter collection under the microscope, but whether it was the only collection of the species under discussion seems doubtful; the better preserved fragment of this is redescribed below.

Pileus about 4.5 mm radius, sulcate, glabrous, grey-brown. Lamellae pale yellowish brown, edge whitish. Stipe 0.5 mm wide, dark brown. Basidia 4-spored. Spores 9–10.2 × 4.9–5.4 μm, elongated pip-shaped, colourless, amyloid. Cheilocystidia — 40 × 9–11.5 μm, clavate, obpyriform or irregularly shaped, gradually or abruptly narrowed above into a simple or furcate neck, 2.7–3.6 μm wide (only the neck protruding above the basidia), without clamp. Pleurocystidia none. Cortical hyphae in the lower part of the stipe with gelatinizing walls.

The combination of elongated spores, shape of the cheilocystidia, their lack of clamps, and gelatinizing walls of the cortical hyphae of the stipe is characteristic of only one species — *Mycena vitilis* (Fr.) Quél. It is to this binomial that *M. subplicosa* is here referred as a synonym.

There are some discrepancies between Karsten's account and his collection no. 1592 that need attention. Karsten stated that *M. subplicosa* had been collected in September, but the material redescribed above was gathered the 21st of August. Karsten found the spores 6–8 μm long but, leaving aside those that looked definitely immature, I measured the length of the spores as 7.6–10.5 μm . This raises the question whether Karsten could have had yet another collection which he had used up for examination or which otherwise got lost afterwards. Or could he have mixed up the details of nos. 1592 and 1609?

MYCENA TRACHELINA (Fr. ex Fr.) P. Karst.

Agaricus trachelinus Fr., Obs. mycol. 2, 165. 1818 ("trachilinus"); ex Fr., Syst. mycol. 1: 154. 1821 – *Mycena trachelina* (Fr. ex Fr.) P. Karst. in Bidr. Känn. Finl. Nat. Folk 32: 123. 1879. – Type locality: Sweden.

Fries (1821) regarded this species as a member of his section *Mycena*, and Karsten transferred it to the genus of that name, giving a description that differed from the Friesian in some respects. Kühner (1938: 677) seems to be the only author of more recent times to have mentioned *M. trachelina*, but the name conveyed nothing to him. Inspection of the first description by Fries (1818) would have shown him that *Agaricus trachelinus* does not belong to *Mycena* at all.

MYCENA VIRIDIMARGINATA P. Karst. – Figs. 21–24.

Mycena viridimarginata P. Karst. in Hedwigia 31: 218. 1892. – Holotype: "*Mycena viridimarginata* Karst. / Salois, in trunco *pini*, d. 27 Julii 1892" (H, no. 1600).

A remark by Kühner (1938: 424) seems to indicate that this author was not quite sure whether his material collected in the French alps was actually referable to the species described by Karsten. His concern may have been caused by the fact that Karsten had failed to find (cheilo)cystidia. However, the macroscopic descriptions by both mycologists agree most satisfactorily while, as may be seen below, the microscopic details given by Kühner compare very well with those of the holotype of *M. viridimarginata*.

Basida (few seen well-developed and none sufficiently separated to show all details) circa 27–32 \times 10–11 μm , clavate, 4-spored, without clamp?, with sterigmata up to 8 μm long. Spores 9.8–11.8 (–13) \times 6.5–7.2 μm , pip-shaped, smooth, strongly amyloid. Cheilocystidia (hard to find in the single lamella examined) 25–30 \times 7–11 \times 3.5–4.5 μm , fusiform to lageniform, thin-walled, without clamp? Pleurocystidia absent. Hyphae of the lamellar trama without clamps? Hyphae of the pileipellis very densely covered with simple to branched excrescences, up to 20 μm long, 2–4.5 μm wide, with rounded apices.

A label is glued to the type packet indicating that material was revised by L. Kubicková, 15 March 1978; I have not found that the results of her revision were published.

Herink & Kubicka (1955: 31) gave, of material found in Czechoslovakia, a lengthy description (in their mother tongue) which, to judge from its essentials, represents *M. viridimarginata*. The same cannot be said with equal conviction of the description by Smith (1947: 213).

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Studies in Mycenas 27

The species described and illustrated by G. Bresadola

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“What seems obvious often isn’t...”

W.E. Garret in *Natn. geogr. Mag.* **156**: 556. 1979

Some of the species of *Mycena* described and depicted by Bresadola are revised. In the absence of material, attempts at identification usually prove futile. *Mycena arcangeliana* is restored as the correct name for the species, while the binomial *M. oortiana* is reduced to its synonymy. *Mycena caesiolivida* and *M. lutea* are recognized as two independent species.

There is no doubt about the importance of Bresadola’s mycological illustrations, and it is with good reason that Kühner (1938) took great pains in trying to interpret the species of *Mycena* depicted in the former author’s works. Yet, the following points should be kept in mind.

(i) Many of Bresadola’s descriptions were made in a period when, obviously, some of the microscopic details of the fungi studied were still beyond his reach. It should be clear that without re-examination of the material attempts at interpretation cannot have but limited value. (ii) Even if material is present, it should not be taken for granted that the specimens are the very same as those depicted; to prove the identity all features must be carefully compared with the description. (iii) If there exist more collections under the same name, care must be taken in selecting the correct packet. The following may serve as an example. *Mycena rugosa* in Bresadola’s herbarium is represented by five gatherings, two of which were collected by himself near his home town, one 1901, the other in 1903. These turn out to be two separate species differing, among other things, in that the hyphae of the pileipellis are smooth in one, and diverticulate in the other.

In the following pages a revision is given of the new species and varieties described by Bresadola as well as those questionable ones referred to by Kühner in his monograph (1938).

Sincere thanks are due to the authorities of the herbaria at Stockholm, Padova, and Uppsala for the loan of Bresadola's material (S) and for useful information (PAD, UPS). Acknowledgement is also made to the Director of the 'Rijksherbarium' for providing working facilities.

OMPHALIA ALBA Bres. apud Sacc.

Omphalia alba Bres. apud Sacc. in *Flora ital. cryptog.* 1 (Hym. 1): 295. 1915. — *Mycena alba* (Bres. apud Sacc.) Kühn., *Genre Mycena*: 594, figs. 208–212. 1938. — *Marasmiellus albus* (Bres. apud Sacc.) Sing. in *Lilloa* 22: 302. ("1949") 1951. — Type: apparently absent (S) and reported absent (PAD).

Kühner (1938: 594) recognized the species as a true *Mycena* where it is a member of Sect. *Hiemales* Subsect. *Omphaliariae* (Maas Geesteranus, 1980b: 115). Apparently there is no controversy regarding Kühner's interpretation of this species, none the less I am of the opinion that a suitable and recent collection from the type area be selected as neotype.

MYCENA ARCANGELIANA Bres. apud Barsali — Figs. 1, 2

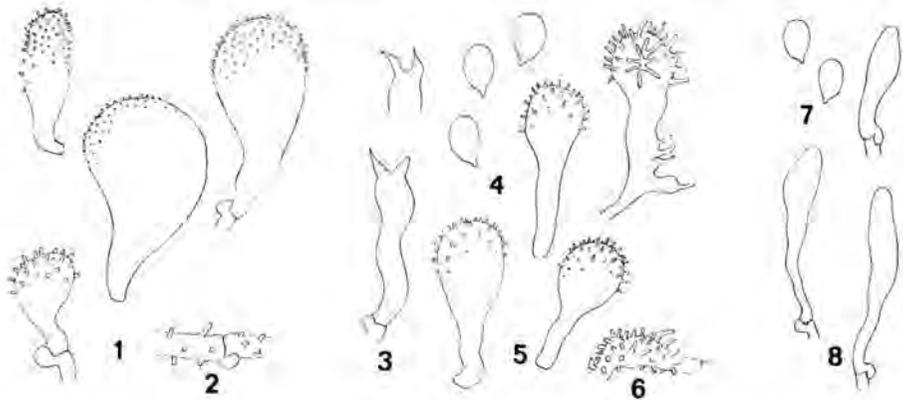
Mycena arcangeliana Bres. apud Barsali in *Bull. Soc. bot. ital.*: 78. 1904. — Holotype: "*Mycena arcangeliana* Bres. n. sp. / Ad truncos *Pritchardiae filiferae* in Horto Botanico-Pisae — Dec. 1903 / Prof. Arcangeli" (S).

The type, which consists of some twelve specimens, is in poor condition since the hymenium of practically all lamellae has been destroyed by insects and the remainder invaded by moulds. Fortunately, Bresadola's description is very good, requiring only the following additional details in order to complete the picture of the species.

Lamellae (as far as can be ascertained) 24–30 reaching the stipe. Basidia 4-spored (one observed with four incipient sterigmata), clamped. Spores few seen, pip-shaped, smooth, weakly amyloid. Cheilocystidia 18–54 × 9–23 μm, abundant, obpyriform, less frequently clavate to almost cylindrical, thin-walled, apically more or less densely covered with fairly regularly spaced cylindrical excrescences about 1–2 μm long which pass into warts farther down, with a clamp. Pleurocystidia similar. Hyphae of the pileipellis with a few scattered cylindrical excrescences.

Oort (1928: 229), searching the literature for a name for the species that had already been collected on four separate occasions in the Netherlands, came across Bresadola's description. He emphasized the complete correspondence of this description with the Dutch material, but the latter apparently showed greater variability than had been observed by Bresadola. Oort said that the pileus in the Dutch specimens was pale grey-brown with some yellowish or some greenish shades, while it could also be found almost entirely green or yellow-green. Kühner (1938: 296–297), who did not know the species, translated both Bresadola's (Latin) and Oort's (Dutch) descriptions, but obviously thought it

prudent to regard the Dutch finds as a separate taxon which he named var. *oortiana*. Going by the descriptions referred to above, the unsuspecting reader would conclude that *M. arcangeliana* var. *arcangeliana* had (i) a rather more brown pileus, (ii) lacked pleurocystidia, and (iii) exuded a smell "rappelant celle de la chair brûlée" whereas var. *oortiana* had (i) the grey-brown colour of the pileus either suffused with or replaced by greenish or yellow-green shades, (ii) possessed pleurocystidia, and (iii) smelled of iodoform. One such reader, in my opinion, seems to have been Hora (1960: 452) when he raised var. *oortiana* to specific level and validated the binomial by providing a Latin description.



Figs. 1, 2. *Mycena arcangeliana* (holotype). — 1. Cheilocystidia. — 2. Hypha of pileipellis, with scattered excrescences.

Figs. 3–6. *Mycena caesiolivida* (holotype). — 3. Basidia. — 4. Spores. — 5. Cheilocystidia. — 6. Hypha of pileipellis, with excrescences.

Figs. 7, 8. *Mycena calorhiza* (holotype). — 7. Spores. — 8. Cheilocystidia. All figs., $\times 700$.

Thus *Mycena oortiana* was born and *Mycena arcangeliana* seemed eliminated beyond recall. The truth, however, is that the holotype of *M. arcangeliana* does possess pleurocystidia and that the species as represented in the Netherlands, where it is very common (more than 100 collections being incorporated in the 'Rijksherbarium'), displays a variation of the pileus colouration which far surpasses the limited scala known to Bresadola and Oort combined.

There remains to be discussed the odour as described by Bresadola. It should be remembered that the specimens, from which Bresadola made up his description, had been collected at Pisa, and sent in to him at Trento, in all probability in a closed box. It is not unreasonable to think that a certain component of the odour that assailed Bresadola's nostrils on opening the box may have been the smell of beginning decay. To describe it, he chose: "... odore ... fere carnis assatae," which is a strange odour indeed. However, the 'Rijksherbarium' possesses a collection of what then was named *M. oortiana*, bearing the annotation: "Fresh smelling of rotting meat," which serves to show that variations do

exist. Whatever the nature of the odour described by Bresadola, or its alleged difference from the smell now generally compared to iodoform, I cannot see that it alone has sufficient weight for keeping *M. arcangeliana* and *M. oortiana* separated. The latter, therefore, is here reduced to the synonymy of the former.

MYCENA CAESIOLIVIDA Bres. — Figs. 3–6

Mycena caesiolivida Bres., Fungi trid. 1: 73, pl. 79 fig. 2. 1887; Icon. mycol. 5: pl. 240 fig. 2. 1928. — Holotype: "*Mycena* [*subula* crossed out] *caesio-livida* Bres. n. sp. / Sulle corteccia muscose di Larice / Sopra Magras [at the junction of Val di Sole and Valle di Rabbi], bosco Fedrizzi [hard to read] / Aut. 1882. Leg. G. Bresadola" (S).

Basidia 27–30 × 6.5–7 μm , slender-clavate, 2-spored, with sterigmata 4.5–5.5 μm long, with a clamp. Spores 8.1–8.5 × 5.4–5.6 μm , pip-shaped, smooth, amyloid. Cheilocystidia 27–38 × 10–14.5 μm , numerous, usually regularly clavate, with moderately numerous excrescences up to 2 μm long, but occasionally more or less irregularly shaped and with longer and coarser excrescences, generally little protruding. Pleurocystidia absent. Hyphae of the pileipellis more or less densely covered with excrescences. Lamellar trama slowly reddening in Melzer's reagent.

The holotype is rather badly broken in fragments, rendering it impossible to ascertain the number of lamellae reaching the stipe, a character which may have a certain value. Bresadola omitted to describe the cheilocystidia, although these are fairly numerous, but it must be conceded that they proved difficult to make out clearly. No amount of tapping on the cover glass was successful in separating the hymenial elements, so that I failed to find clamps at the base of the cheilocystidia, but there can be no doubt that clamps must be present for I found them at the base of three basidia and at the septa of some hyphae in the pileal trama.

Mycena caesiolivida is an independent species of section *Filipedes* (Fr.) Quél., coming near *M. urania* (Fr. ex Fr.) Quél. as far as its general colouring is concerned; it differs from the latter, however, among other things in the basidia which are clamped but 2-spored.

MYCENA CALORHIZA Bres. — Figs. 7, 8

Mycena calorhiza Bres., Fungi trid. 1: 9, pl. 5 fig. 1. 1881; Icon. mycol. 5: pl. 230. 1928. — Holotype: "*Mycena calorhiza* Bres. / [Val di Sole] Sopra Male, Bosco alla [illegible] di Bolentina. Estate 1882" (S).

Stipe minutely puberulous above, densely tomentose towards the base. Basidia about 22–25 × 9 μm , none seen fully developed, clavate, with clamp. Spores about 7.2 × 4.5 μm , few seen and either collapsed or immature, pip-shaped, smooth, weakly amyloid. Cheilocystidia 20–30 × 4.5–6.5 μm , numerous, fusiform or clavate to cylindrical, thin-walled, with clamp. Pleurocystidia absent. Lamellar trama slowly reddening in Melzer's reagent.

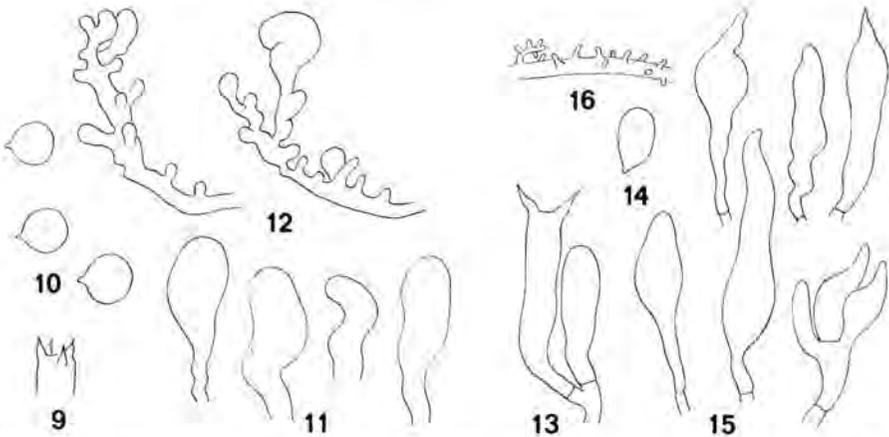
The holotype consists of a single, much broken specimen in poor condition, but yielded several important items of information not mentioned by Bresadola. The species is correctly taken to be the same as *Mycena amicta* (Fr.) Quél.

MYCENA CORTICOLA sensu Bres. – Figs. 9–12

Mycena corticola sensu Bres., Icon. mycol. 5: pl. 248 fig. 2. 1928. – Material: “*Mycena corticola* Fr. / Ad cortices muscosas arbor. frond. / Oct. 1900 / Turco [illegible]” (S).

Pileus 1–1.5 mm across, up to 2 mm high, hemispherical to parabolical, densely pruinose-puberulous, with incurved margin. Lamellae uncinatae, broadly adnate, with concave edge. Stipe 7–8 mm long, puberulous, at the base covered with long, coarse, whitish fibrils. Basidia 7–8 mm μm wide, clavate, 4-spored. Spores 8.1–9.0 \times 7.4–8.5 μm , globose, smooth, with small apiculus, non-amyloid. Cheilocystidia 6.5–11.5 μm wide, cylindrical to clavate, thin-walled, prominent. Pleurocystidia not seen. Subhymenial hyphae with clamps.

Kühner (1938: 594) suspected that *M. corticola* sensu Bres. might represent *Mycena alba* (Bres. apud Sacc.) Kühn. The above description and figures 9–12 show Kühner’s assumption to be correct.



Figs. 9–12. *Mycena corticola* sensu Bres. – 9. Basidium. – 10. Spores. – 11. Cheilocystidia. – 12. Hyphae of pileipellis.

Figs. 13–16. *Mycena lutea* (holotype). – 13. Basidia. – 14. Spore. – 15. Cheilocystidia. – 16. Hypha of pileipellis. All figs., $\times 700$.

MYCENA EXCISA sensu Bres.

Mycena excisa sensu Bres. in Anns mycol. 1: 66. 1903. – Material: apparently absent (S).

Bresadola published an enumeration of fungus species collected in Poland, and among these he mentioned *Mycena excisa*, to which he added the following notes: “Hab. ad truncos muscosos in paludosis... Sporae ellipticae, 12–15 \times 8–9 μ ...” The indication “in paludosis” and the size of the spores may have tempted Singer (1937: 233) to conclude that the Polish gathering represented what is now known to be *M. megaspora* Kauffm., and his opinion was followed by Kühner (1938: 329), who referred to Bresadola’s misidentification as “*M. excisa* (Fr.), sensu Bresadola.” To this, the following may be said. (i) Moss-covered trunks of trees do not constitute the preferred habitat of *M. megaspora*. (ii) Judging from the name Bresadola thought he should give to the

material, it can be concluded that the species he had in hand was grey-brown. It is unwise to attempt the identification of any grey-brown *Mycena* with so little information available.

MYCENA FLORIDULA sensu Bres.

Mycena floridula sensu Bres., Icon. mycol. 5: pl. 229. 1928. — Material: reported absent (S).

A.H. Smith (1935: 869) declared Bresadola's description and figure under the name *Mycena floridula* to represent "the two-spored form of the plant described as *M. roseipallens* by Murrill." He was followed by Kühner (1938: 565). Since material is lacking, Smith's statement can neither be confirmed nor refuted. All that can be said for certain is that Smith (1947: 172) described the stipe of *M. roseipallens* as white, becoming yellowish in age, whereas in Bresadola's description the stipe was said to "sursum albus, deorsum fuscidulo-rufescens." This difference could well imply a specific difference, which results in *M. floridula* sensu Bres. remaining a species of dubious identity.

MYCENA GALERICULATA var. SPARSA Bres. & Schulz. apud Schulz.

Agaricus (Mycena) pseudoclypeatus var. *slavonicus* Schulz. in Verh. zool.-bot. Ges. Wien 29: 499. 1880. — *Mycena galericulata* var. *sparsa* Bres. & Schulz. apud Schulz. in Hedwigia 24: 133. 1885 (name change). — *Mycena galericulata* subsp. *sparsa* (Bres. & Schulz. apud Schulz.) Sacc., Syll. Fung. 5: 269. 1887.

This will be discussed in a paper to be published in connection with the *Mycenas* described by Schulzer von Muggenburg.

OMPHALIA GRISEA sensu Bres.

Omphalia grisea sensu Bres., Icon. mycol. 6: pl. 271 fig. 2. 1928. — Material: (1) "*Mycena grisea* Fr. / In herbidis — Muralta — 7bri [= Septembri] 1901 / Leg. G. Bresadola"; (2) "*Omphalia grisea* Fr. / In herbidis, Arco — Oct. 1905 / [Leg.] Dittrich" (S).

In Herb. Bresadola there are two collections bearing the specific epithet *grisea*, but examination shows that neither can have been used for the description of *Omphalia grisea*.

Collection (1) has non-amyloid spores measuring $6.3-7.2 \times 3 \mu\text{m}$, whereas Bresadola found his to be $8-12 \times 4-5 \mu\text{m}$. Cheilocystidia, moreover, appeared to be absent; Bresadola depicted the cheilocystidia very much prominent and slender-fusiform.

Collection (2) possesses strongly amyloid spores $10.3-10.7 \times 5.8-6.3 \mu\text{m}$, which seen: s in better agreement with the size of the spores mentioned by Bresadola, but the abundant cheilocystidia appear densely diverticulate and lack clamps, which proves the specimen investigated to be *M. vitilis* (Fr.) Quél. However, mixed among the broken pilei there are numerous fragments of lamellae of a different colour which have much smaller, non-amyloid spores.

It is obvious that in neither collection the name written on the packet covers

the contents, and there is reason to suspect an unfortunate mix-up of material in the past.

Kühner (1938: 379) thought that *Omphalia grisea* sensu Bres. might represent *Mycena latifolia* (Peck) Sacc. From the foregoing it is clear that this supposition can never be verified.

MYCENA LUTEA Bres. — Figs. 13–16

Mycena lutea Bres., Fungi trid. 1: 34, pl. 37 fig. 2. 1883; Icon. mycol. 5: pl. 225 fig. 2. 1928. — Holotype: “*Mycena lutea* Bres. / Sui tronchi di Larice, [Val di Sole] Sopra Arnago, Bosco di [illegible], [illegible] di Male etc. / Aprile 1881. Leg. Dr. Bresadola” (S).

Lamellae about 18 reaching the stipe. Stipe towards the base densely covered with long, coarse, flexuous fibrils. Basidia 33–40 × 7–9 μm, few seen fully developed, slender-clavate, 2-spored, without clamp, with sterigmata up to 7 μm long. Spores 10.7 × 7.2 μm, one seen intact, all others having disappeared and leaving empty, crumpled spore-walls, pip-shaped, smooth, amyloid. Cheilocystidia 30–55 × 7–11.5 μm, lageniform, clavate, fusiform, rarely branched, not infrequently abruptly attenuated apically, thin-walled, without clamp. Pleurocystidia similar, usually smaller than the cheilocystidia. Hyphae of the pileipellis with simple or branched, cylindrical excrescences. Lamellar trama slowly reddening in Melzer’s reagent.

Although the colours of the pileus and more particularly of the stipe as described by Bresadola are reminiscent of those of *Mycena renati* Quél. (which is a member of Sect. *Rubromarginatae*), while the shape of several of the cheilocystidia is suggestive of those of *Mycena abramsii* (Murrill) Murrill (a member of Sect. *Lactipedes*), the correct place of the present species seems to be in Sect. *Fragilipedes*. In this section, there is no other species conformable to the picture as it appears from Bresadola’s and my own descriptions, which is a different point of view from the one held by Kühner.

Kühner (1938: 442), without adducing his reasons, placed *M. lutea* under the synonymy of *M. raeborhiza* (Lasch) Kummer, erroneously citing the authors of the last-named species as Lasch ex Fries. For a description of *M. raeborhiza* he borrowed the one Bresadola had published of *M. lutea*, completed with some notes on *M. raeborhiza* and drawings of microscopic details by Maire (p. 443), a procedure which cannot be recommended since there is always the danger of combining the characters of two different species. This is what actually happened. Maire, having gathered some material in Algeria, compared his specimens with Gillet’s illustration (Gillet, circa 1876: 275, fig. 479): “... correspond bien à la figure de Gillet.” However, he overlooked or ignored that his own description did not correspond to the original of Lasch. The latter had described the lamellae as whitish and “primo adnexae, mox secedentes” and the stipe as “tenax, floccoso-pruinosis, albus, radice longissima.” Maire described his fungus as “Entièrement fauve orangé,” the lamellae as “légèrement adnées-uncinées,” and the stipe as “à peine pruinoux,” without any reference to the latter having a rooting base. Regarding *Mycena lutea*, it should be remembered that Bresadola described the lamellae as “adnato-uncinatae... albae, dein ad marginem pilei luteae” and the stipe as “glaber, luteo-ochraceus, radicans, basi albo-strigosus.” The situation now is that there exist three

descriptions – by Lasch, Bresadola, and Maire (the latter partly in conformity with Gillet's), none of which fully agrees with the others. Maire's description can be dismissed from further discussion as it was needed only to show its discordance with the two others. As regards *Mycena raeborhiza*, I am not inclined to maintain this binomial since too many questions surround the identity of the species. Fries (1874: 137) once indicated that Lasch had sent specimens of *Agaricus raeborhizus* but no material appears to have been preserved (S, UPS). What remains to be done is to get better acquainted with *M. lutea*, which I accept as a good species, by collecting fresh material in the type area.

COLLYBIA MISERA sensu Bres.

Collybia misera sensu Bres., Icon. mycol. 5: pl. 207 fig. 2. 1928. – Material: apparently absent (S).

Kühner (1938: 590) with a question-mark referred this species to his own *Mycena phaeophylla* Kühn., which seems a reasonable guess, but one that cannot be verified.

MYCENA NIGRICANS Bres. – Figs. 17, 18

Mycena nigricans Bres., Fungi trid. 1: 33, pl. 36. 1883; Icon. mycol. 5: pl. 245. 1928. – *Mycena atrocyanea* f. *nigricans* (Bres.) Kühn., Genre *Mycena*: 474, fig. 158. 1938 (misapplied). – Holotype: "*Mycena nigricans* Bres. / Bosco sopra Arnago. Estate 1883. / Leg. Dr. G. Bresadola" (S).

Basidia 40–45 × 9–10.5 μm , clavate, 4-spored, with sterigmata about 4.5 μm long, without clamp. Spores 10.7–11.6 × 7–7.5 μm , pip-shaped, angular, colourless under the microscope, non-amyloid. Cystidia absent.

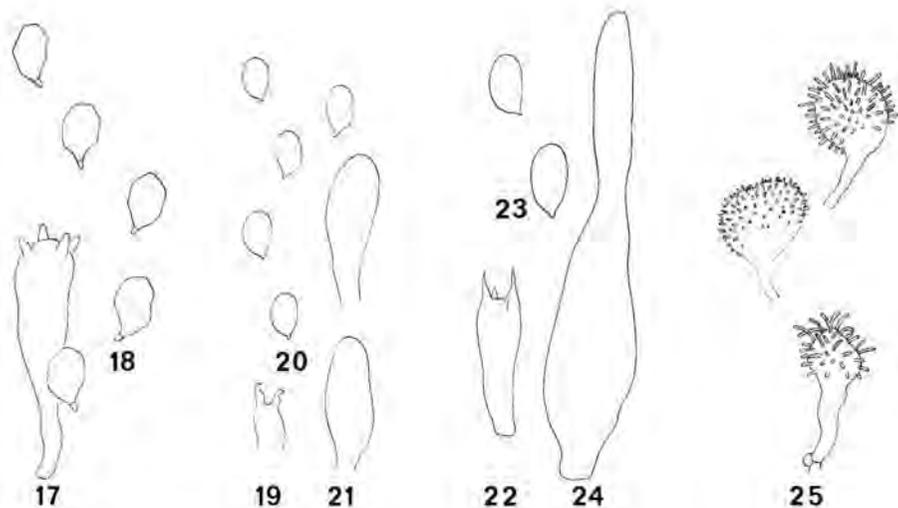
Kühner (1938: 473), A.H. Smith (1947: 255) and Dennis, Orton & Hora (1960: 115) regarded *Mycena nigricans* as a form or synonym of *M. atrocyanea* (Batsch ex Fr.) Gillet. Unless here is a case of interchange of some other material, these authors were mistaken; the packet contains a species of *Entoloma* (Fr.) Kummer subgen. *Leptonia* (Fr.) Noordeloos.

MYCENA OLIDA Bres. – Figs. 19–21

Mycena olida Bres., Fungi trid. 1: 73, pl. 79 fig. 1. 1887; Icon. mycol. 5: pl. 240 fig. 1. 1928. – *Marasmiellus olidus* (Bres.) Sing. in Lilloa 22: 302. ("1949") 1951. – Holotype: "*Mycena olida* Bres. n. sp. / Sui [illegible] vivi nei prati di Magras / Aut. 1882. Leg. Bresadola" (S).

Basidia × 6.5 μm , clavate 2-spored. Spores 8.1–9.0 × 4.9–5.8 μm , pip-shaped, smooth, non-amyloid. Cheilocystidia × 9–10 μm , clavate, thin-walled, somewhat protruding. Pleurocystidia none seen. Subhymenial hyphae without clamps. Lamellar trama not stained in Melzer's reagent. Hyphae of pileipellis smooth. Stipe dispersedly covered with solitary to clustered caulocystidia.

The material is in bad condition which made it impossible to examine the hymenial elements properly. There is no doubt, however, that Kühner's interpretation (1938: 568) of the species is correct.



Figs. 17, 18. *Mycena nigricans* (holotype). – 17. Basidium. – 18. Spores.

Figs. 19–21. *Mycena olida* (holotype). – 19. Basidium. – 20. Spores. – 21. Cheilocystidia.

Figs. 22–24. *Mycena rugosa* sensu Bres. – 22. Basidium. – 23. Spores. – 24. Cheilocystidium.

Fig. 25. *Mycena vitilis* sensu Bres. – Cheilocystidia. All figs., $\times 700$.

MYCENA PARABOLICA sensu Bres.

Mycena parabolica sensu Bres., Icon. mycol. 5: pl. 238. 1928. – Material: two collections (S).

Apparently judging from the description and illustration cited above, Kühner (1938: 334) held the opinion that *M. parabolica* sensu Bres. represented *Mycena maculata* P. Karst. Examination of two separate gatherings in Herb. Bresadola, one collected in 1900, the other in 1913, proved Kühner's judgement to be correct.

MYCENA PULLATA var. MINOR Bres. apud Sacc.

Mycena pullata var. *minor* Bres. apud Sacc. in Flora ital. cryptog. 1 (Hym. 1): 266. 1915; Bres., Icon. mycol. 5: pl. 224 fig. 2. 1928. – Type: apparently absent (S).

Absence of material and lack of information on the cystidia preclude interpretation. The name is here rejected as a nomen dubium.

MYCENA PURA var. MULTICOLOR Bres.

Mycena pura var. *multicolor* Bres., Fungi trid. 2: 9, pl. 114. 1892; Icon. mycol. 5: pl. 227. 1928. – *Mycena pura* f. *multicolor* (Bres.) Kreisel in Wiss. Z. Ernst-Moritz-Arndt Univ. (Math.-nat. Reihe) 19: 109. 1970 (not validly publ., no reference to basionym). – Type: apparently absent (S).

Kreisel is probably correct in reducing this taxon to a mere form. Validation of the epithet should await the author who is familiar with the variability of the species.

MYCENA RUBIDULA Bres.

Mycena rubidula Bres. in Broteria (Bot.) 2: 87. 1903. — Holotype: “*Mycena rubidula* Bres. n. sp. / Ad corticem *Eucalypti* sp. Nov. 1902 / Torrend” (S).

Basidia 27–30 × 6.5–7 μm, clavate, 4-spored, without clamp(?), with sterigmata up to 6 μm long. Spores 10.3–10.5 × 4.5–5.5 μm, pip-shaped, smooth, non-amyloid. Cheilocystidia absent.

Species of *Mycena* with non-amyloid spores are known to exist in Sections *Adonideae*, *Aciculae*, and *Hiemales*. But in these sections no species are known to have white lamellae with the edge “fuscidulo-rubella” and to lack cheilocystidia. *Mycena rubidula* may represent an undescribed section of *Mycena*, but it is equally possible, if indeed not more plausible, that it does not belong to this genus. The condition of the material precludes a more definite suggestion.

MYCENA RUBROMARGINATA var. XANTHOPUS Bres.

Mycena rubromarginata var. *xanthopus* Bres., Icon. mycol. 5: pl. 223. 1928 (“*xanthopoda*”). — *Mycena xanthopus* (Bres.) Kühn., Genre *Mycena*: 439. 1938 (“*xanthopoda*”; not val. publ., incidental mention). — Type: apparently absent (S).

Kühner (1938) presented two suggestions for the interpretation of var. *xanthopus*, (i) a synonym of *M. luteolorufescens* sensu Sing. (p. 277), and (ii) possibly a form of *M. renati* Quél. (“*M. flavipes*”) with purplish brown edges to the lamellae (p. 439). Neither suggestion offers any help because the identity of *M. luteolorufescens* sensu Sing. is unknown (Maas Geesteranus, 1981: 226), while the absence of information on cystidia in what Bresadola considered to be *M. rubromarginata* as well as in his var. *xanthopus* makes further discussion redundant. Var. *xanthopus* as far as described by Bresadola is a nomen dubium.

MYCENA RUGOSA sensu Bres. — Figs. 22–24

Mycena rugosa sensu Bres., Icon. mycol. 5: pl. 232. 1928. — Material: “*Mycena rugosa* Fr. / Ad truncos *Pruni Mahaleb* — Majo 1901 — Orto dei [illegible] / Leg. G. Bresadola” (S).

Basidia about 32 × 8–9 μm, clavate, 4-spored. Spores 9.8–11.6 × 6.3–6.7 μm, pip-shaped, smooth, amyloid. Cheilocystidia 54–80 × 15–22 × 6.5 μm, prominent, lageniform to fusiform, thin-walled. Pleurocystidia similar. Hyphae of the pileipellis with clamps, smooth.

Of the five packets under the name *Mycena rugosa* in Herb. Bresadola, one immediately attracts the attention by a sketch which is almost identical with the drawing of the hymenial elements as shown in the plate cited above. Kühner (1938: 486) with a question-mark referred this illustration to *Mycena jacobii* Maire. As is apparent from Bresadola’s description, this assumption proves correct, but two features in particular (the *M. galericulata*-like habit and the smooth hyphae of the pileipellis) leave no doubt about the correctness of Kühner’s identification.

MYCENA TENUIS sensu Bres.

Mycena tenuis sensu Bres., Icon. mycol. 5: pl. 221 fig. 2. 1928. – Material: apparently absent (S).

Absence of material and insufficient information on some of the important microscopic details make it hazardous to venture an interpretation of Bresadola's fungus. Kühner (1938: 419) tentatively identified it with *M. albidolilacea* Kühn. & Maire apud Kühn.

MYCENA VITILIS sensu Bres. – Fig. 25

Mycena vitilis sensu Bres., Icon. mycol. 6: pl. 252 fig. 1. 1928. – Material: "*Mycena vitilis* Fr. / In herbis muscosis – Monte dei [illegible] / Oct. 1903 Leg. G. Bresadola" (S).

Basidia clavate, 4-spored, with clamp. Spores 9.8–11.5 × 4.9–5.6 μm, pip-shaped, smooth, amyloid. Cheilocystidia 18–27 × 8–15 μm, numerous, clavate, obpyriform or globose, many contracted downwards into a long and narrow stipe, clamped, with cylindrical excrescences up to 7 μm long, circa 1 μm wide. Pleurocystidia similar, scanty.

Kühner (1938: 285) held the opinion that Bresadola's illustration represented what he preferred to call *Mycena vitrea* sensu Ricken, an ambiguous name which should no longer be used. This binomial, to judge from Kühner's description, almost certainly represents *Mycena metata* (Fr.) Kummer, but his reference to the alleged synonyms *M. atroalboides* sensu J.E. Lange and *M. sepia* J.E. Lange (see Maas Geesteranus, 1980a: 183) would seem to point to a confusion with *Mycena filopes* (Bull. ex Fr.) Kummer.

Comparison of the long-stalked cheilocystidia of Bresadola's material (fig. 25) with the illustrations in my paper cited above (figs. 9–18), as well as the presence of pleurocystidia identify *M. vitilis* sensu Bres. as *Mycena metata*.

MYCENA VITREA sensu Bres.

Mycena vitrea sensu Bres., Icon. mycol. 5: pl. 249 fig. 2. 1928. – Material: apparently absent (S).

Kühner (1938: 504) thought that *M. vitrea* sensu Bres. could be the same as the species now known as *M. vitilis* (Fr.) Quél. However, there is insufficient evidence to support this suggestion.

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Studies in Mycenas 28–34

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Communicated by Prof. A.J.P. Oort at the meeting of March 28, 1981

Mycena cognata, *M. discopus*, *M. elegans*, *Agaricus erythropus*, *Mycena majalis*, and *M. subtilis* are discussed. *Mycenella margaritifera*, *Hemimycena cyphelloides*, and *H. pseudocrispata* are proposed as new combinations.

My gratitude is expressed to the authorities of the herbarium at Uppsala (UPS) for the loan of material. I am particularly indebted to Mme F. Candoussau (Pau, France) for sending fresh collections of *Mycenella margaritifera* at a time when people in the greater part of Europe found their pace slowed down by fog or snow.

28. MYCENA COGNATA (Bagl.) Sacc.

Agaricus cognatus Bagl. in Nuovo G. bot. ital. **18**: 243. 1886. — *Mycena cognata* (Bagl.) Sacc., Syll. Fung. **5**: 290. 1887. — Type locality: in a hothouse of the Botanical Garden at Genova.

“Exiguus, totus albus. Pileo membranaceo, umbonato, e campanulato convexo-plano, subtiliter striato, floccoso, floccis secedentibus, tenuissimis, glutinosis. Stipite filiformi, basi bulbosula, ex hyphis intricatis numerosissimis assurgente. Lamellis adnexis ventricosis simplicibus, nonnullis furcatis.”

“Species *Agar. saccharifero* et *discopo* videtur intermedia.”

“Sul terricio in un calidario dell’Orto botanico della Università.”

A fungus described as completely white and having a floccose pileus suggests a member of Section *Sacchariferae* Kühn. ex Sing. This section thus far is

known to comprise four species: *M. adscendens* (Lasch) Maas G.¹, *M. floccifera* Mez¹, *M. discopus* (Lév.) Quél.², and *M. nucicola* Huijsm. The two last-named can be ruled out here as they were reported to grow on fallen nuts of *Corylus avellana*, while their stipes were said to have a basal disc. A basal disc occurs also in *M. adscendens*, but there it may be so small as to be easily overlooked and, because the same could have happened in the description of *A. cognatus*, the possibility must be considered of this species and *M. adscendens* being identical, the more so since in the former the pileus seems to be somewhat glutinous to the feel, while in the latter the vesiculose cells covering the pileus were described by Kühner (1938: 208, as *M. tenerrima*) to possess "une paroi externe très fortement gonflée-mucilagineuse." On the other hand, the description of the stipe of *A. cognatus* as being somewhat bulbous at the base, as well as the statement that the fungus was found in a hothouse would seem to point to *M. floccifera*. There is one serious obstacle, however, which counsels prudence in the identification of the species. *Agaricus cognatus* was reported to grow on "terriccio", garden soil, which is not applicable to either *M. adscendens* or *M. floccifera*. All that can be said of Baglietto's species is that it cannot be identified with certainty with any of the members of Section *Sacchariferae*; its name must remain a nomen dubium.

29. MYCENA DISCOPUS (Lév.) Quél.

Agaricus discopus Lév. in Annl. Sci. nat. (Bot.) II 16: 237, pl. 14 fig. 4. 1841. — *Mycena discopus* (Lév.) Quél., Ench. Fung.: 40. 1886. — *Pseudomycena discopus* (Lév.) Cejp in Publ. Fac. Sci. Univ. Charles 104: 146. 1930. — Type locality: France, "Bellovacum" (= Beauvais).

"Gregarius, minimus, albus; pileo campanulato, membranaceo, striato, furfuraceo; lamellis adnatis; stipite tenui piloso (pilis erectis) basi dilatato."

"Hab. circa Bellovacum, in umbrosis ad fructus deciduos *Coryli Avellanae*."

"... Il n'a jamais plus de deux centimètres de hauteur, toutes ses parties sont blanches. Le chapeau est campanulé, membraneux, presque transparent, très finement strié à la marge et recouvert de petites écailles furfuracées. Les lames sont tronquées et adhérentes au pédicule qui est extrêmement grêle, dilaté en forme de disque à sa base et recouvert de poils qui se dirigent du haut en bas."

I am prepared to accept this species as a member of Section *Sacchariferae* Kühn. ex Sing., but fully realize that topotype material is needed to provide us with the microscopic details.

Mycena discopus sensu Pat. (1889: 49, fig. 625) is not this species; Kühner (1938: 186) recognized it as representing *M. stylobates* (Pers. ex Fr.) Kummer.

30. MYCENA ELEGANS (Pers. ex Fr.) Kummer

Agaricus elegans Pers., Syn. meth. Fung.: 391. 1801; ex Fr., Syst. mycol. 1: 149. 1821. — *Mycena elegans* (Pers. ex Fr.) Kummer, Führ. Pilzk.: 109. 1871.

¹ See Maas Geesteranus (1981: 211, 215).

² See next species.

Dennis, Orton & Hora (1960: 184) enumerated various interpretations of *Agaricus elegans* known to them, of which those by A.H. Smith and Kühner are here selected for a more detailed discussion, since these two authors would seem to have failed to penetrate each other's arguments.

Smith (1936: 420) gave a redescription of what he considered to be *Mycena elegans*, stating that the lamellae are "dull pale olive gray, margin pale green yellow." In his opinion, following Wharton's (1884: 29) interpretation of the Friesian colour terms, this colour of the edge of the lamellae matched the description by Fries: "margine croceo."

Kühner (1938: 271), ignoring Smith's arguments and failing to advance his own, placed *M. elegans* sensu Smith in the synonymy of *M. chlorantha* sensu Oort, which was hardly helpful in clarifying their difference of opinion (although I fully agree with Kühner's interpretation). The result was that Smith in his later publication (1947: 199) could not but persevere in his view that the lamellae of *M. elegans* of Fries "should have yellow margins."

As it turns out, Smith was mistaken. The pale green yellow colour of the edge of the lamellae of his material is not the same as "croceus", but it should in all fairness be added that he was misled by the erroneous interpretation of Wharton. It is hard to say what made the latter think that "croceus" should be a "fuller shade" of "a paler and less pure yellow", but in order to ascertain what Fries himself meant by this colour the only way is to look for a species of which there exists a coloured illustration.

One such species is *Clavaria crocea* Pers. ex Fr. which both Persoon (1800: 36, pl. 9 fig. 6) and Fries (1821: 472) described with the term "crocea", while the illustration by Persoon shows a basidiome of a bright orange-red colour.

The following examples are given as additional proof. Fries (1815: 124) described the colour of the pores of *Polyporus croceus* Pers. with the words "poris croceis." Bourdot & Galzin (1928: 557) stated that the pores are "...orange-safranè vif..." and Jahn (1967: 146) said "...mit ... prachtvoll safran-orangefarbenen Röhren." Now, saffron is an aromatic drug extracted from the orange-red stigmas of *Crocus sativus* L. (Hegi, 1909: 298). Finally, there is an *Agaricus crocatus* Schrad., of which Fries (1815: 32) wrote: "...lamellis albis stipiteque succo croceo refertis." Indeed, the colour of the latex of *Mycena crocata* (Schrad. ex Fr.) Kummer is highly characteristic and is perhaps best described in Smith's own words (1947: 139): "stipe ... when broken exuding a bright ochraceous orange latex."

Dennis, Orton & Hora (l.c.) simply stated that *Mycena elegans* in the sense of Fries is not known, an opinion with which I concur entirely. They used the unambiguous name *Mycena aurantiomarginata* (Fr.) Quél. to replace *M. elegans* sensu auct.

The material distributed in Lundell & Nannf., Fungi exs. suec., praes. upsal. no. 10, as *Mycena elegans* (of which I checked the Uppsala copy) represents *Mycena aurantiomarginata*.

31. AGARICUS ERYTHROPUS Pers.

Agaricus erythropus Pers., Syn. meth. Fung.: 367. 1801. – Lectotype (Singer): *Agaricus erythropus*, Herb. Persoon, no. 910. 258–577 (L).

Singer (1961: 24) decided that the material he had selected as lectotype represented a species of *Mycena* since the “spores are smooth and amyloid; the epicutis consists of hyphal elements which are radially arranged and diverticulate.” This lectotype consists of six basidiomes glued to a sheet.

Apart from the one specimen indicated as having been seen by Singer, I examined a second of almost equal size and two others which are rather smaller. The first two specimens agree with each other in that the basidia appear to be covered with a thin layer which stains dark blue in Melzer’s reagent, while the lamellar tissue becomes reddish brown. But, although I sacrificed various fragments of five different lamellae for investigation, I failed to find spores undoubtedly proper to the two basidiomes examined. Cheilocystidia and pleurocystidia were not found either. Even accepting Singer’s view that these two specimens would represent a *Mycena*, it is obvious that with so much important information lacking identification of the species is not to be expected. However, is Singer’s choice of the lectotype the correct one? The answer can be formulated only after several more points have been taken into consideration.

Persoon said of his species: “Hab. rarissime in faginetis.” One would not, therefore, expect to find 11 sheets with material under this name, but it should be added that five sheets can be ruled out as having no relation with the problem in hand (two sheets without Persoon’s handwriting; one bearing material sent by Chaillet; another indicated as *Ag. erythropus* var.; the fifth with a question-mark). The remaining sheets can be divided into three groups of two each. In one group, the binomial *Agaricus erythropus* is followed by “Syn. fung.”; in the second group it is followed by “[P]ersoon]”; in the third, which comprises Singer’s lectotype sheet, the binomial stands all by itself. Perhaps, sheet no. 910. 258–573 of the third group should also be excluded since the handwriting, although recognizably Persoon’s, looks somewhat different, while the word *Agaricus*, instead of being written in full, is abbreviated to *Ag.*, which might indicate that this label was not written at the same time along with the others.

In four sheets (of groups 1 and 2) it is clear that the words *Agaricus* and *erythropus* were written in an easy style, without a pause, one right after the other, but the inscription of the lectotype sheet gives a very different picture. First, the generic name and the specific epithet appear separated by an unusually wide space and, secondly, whereas the lettering of *Agaricus* is fairly widely spaced, that of *erythropus* is rather crowded, strongly suggesting that both words were written on different occasions. And there is something more. The two smaller specimens on the lectotype sheet belong to a different species. Their spores are not amyloid, the lamellar tissue does not stain reddish brown in Melzer’s reagent. In my opinion all this demonstrates that Persoon was unable to recognize his own *A. erythropus*. I would even contend that there is no solid

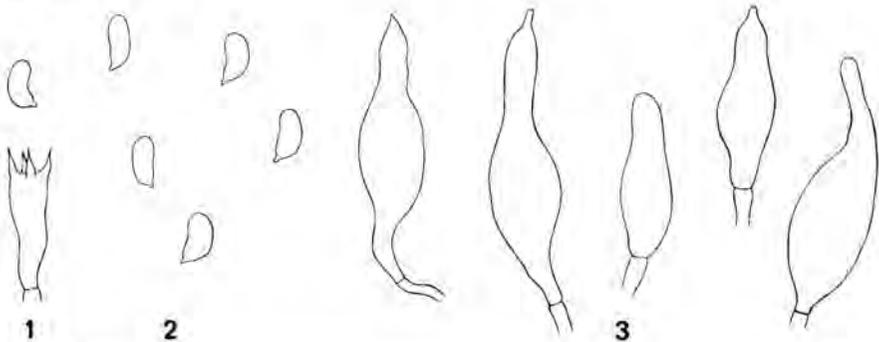
evidence of any of the specimens glued to sheet no. 910. 258–577 representing the original *A. erythropus*; Singer's choice of the lectotype is therefore rejected. Much the same verdict might well be passed on the four sheets of groups 1 and 2 as it is difficult to find back in the dried material any of the macroscopic features described by Persoon. On the other hand, since a judicious choice of a lectotype, if possible at all, of *Agaricus erythropus* is bound to have far-reaching consequences, I suggest that a future investigator select the lectotype from among the specimens of sheets 910. 258–568 and 910. 258–575 (of group 1). These specimens are all in poor condition but as far as I can see they do not belong to *Mycena*.

32. MYCENA MAJALIS Lundell apud Lundell & Nannf. – Figs. 1–3.

Mycena vernalis H. von Post ex Lundell in Svensk bot. Tidskr. 31: 187, figs. 1, 2. 1937 (later homonym); not *Mycena vernalis* Vel., České houby: 316, 1920. – *Mycena majalis* Lundell apud Lundell & Nannf., Fungi exs. succ., praes. upsal., Fasc. 19–20: 46, 1941 (name change); not *Mycena majalis* Vel., Novit. mycol. nov.: 28, 1947. – (part of) Holotype: "*Mycena majalis* Lundell", Fungi exs. succ., praes. upsal. no. 401 (UPS).

Basidia about $27 \times 7 \mu\text{m}$, very few seen well-developed, clavate, 4-spored, without clamp. Spores $7.6\text{--}9.0 \times 4.0\text{--}4.7 \mu\text{m}$, pip-shaped to phaseoliform, smooth, strongly amyloid. Cheilocystidia $30\text{--}65 \times 9\text{--}14.5 \times 1.8\text{--}6.5 \mu\text{m}$, abundant, fusiform to lageniform, thin-walled, without clamp. Pleurocystidia scattered, similar, sometimes absent. Lamellar trama reddening in Melzer's reagent. Hyphae of pileipellis smooth or with scattered, minute warts.

Mycena majalis has a highly characteristic set of features. (i) Lundell described the dry pileus as "sericeo-splendens" which in *Mycena* is indicative of a certain degree of gelification of the hyphae of the pileipellis. (ii) Lundell also stated that the margin of the pileus often projects beyond the lamellae. (iii) The number of lamellae reaching the stipe is considerable, being as high as 30 in some specimens. (iv) The fungus is said to have a nitrous odour. (v) The basidia are 4-spored but lack clamps. (vi) The spores are, often markedly, phaseoliform. (vii) The hyphae of the pileipellis are smooth or dispersedly covered with minute warts. (viii) The species is strictly associated with spruce, as it is always found on buried cones.



Figs. 1–3. *Mycena majalis* Lundell (holotype). – 1. Basidium. – 2. Spores. – 3. Cheilocystidia. All figs., $\times 700$.

Mycena strobilicola Favre & Kühn. apud Kühn. (1938: 461) proves to have the same set of features and, since it is the earlier binomial, *M. majalis* is reduced to its synonymy. This is not new. Moser already identified *Mycena vernalis* with *M. strobilicola*, at first questioningly (1950: 109), later with more confidence (e.g. 1978: 183), but he never mentioned *Mycena majalis*, a name singularly ignored in European literature.

33. *Mycenella margaritifera* (Maire apud Kühn.) Maas G., *comb. nov.* – Figs. 4–8, 9–12.

Mycena margaritifera Maire apud Kühn., Genre *Mycena*: 601, 687. 1938 (basionym). – Type: no longer in existence (Malençon & Bertault, 1975: 278). – Material examined: France, Landes, near Mimizan, 25 Jan. 1981, Mme F. Candoussau, on bark of *Cupressus lambertiana* (L).

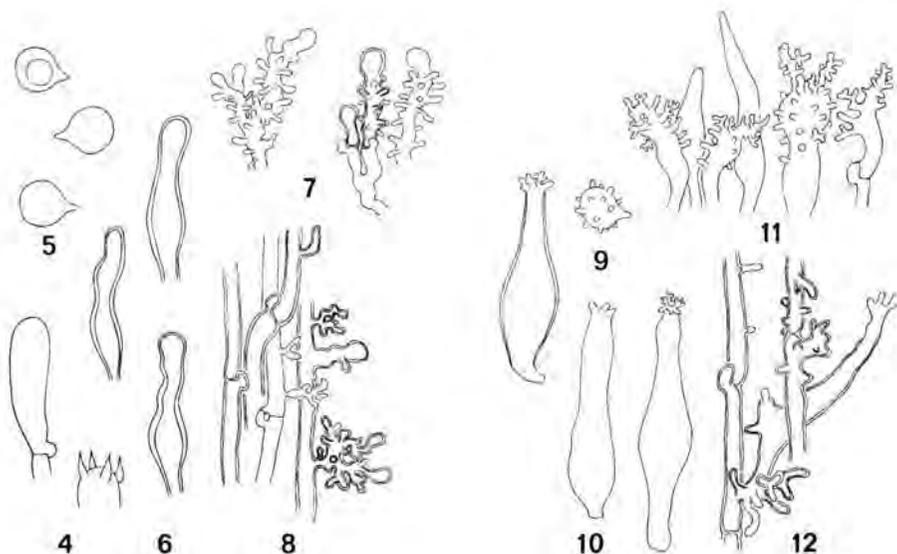
Basidiomata single or growing in small groups, frequently with a pleurotoid habitus. Pileus up to 2 mm diam., hemispherical to plano-convex or gibbous, finally concave, neither striate nor sulcate, pulverulent to furfureous, white, margin long remaining involute. Flesh somewhat tenacious, white. Lamellae 4–9 reaching the stipe, about 0.2 mm broad, frequently short on one side of the pileus (depending on the position of the stipe) and long on the other side, fairly thick, soft-tenacious, arcuate, decurrent, white, with thickish, white edge. Stipe up to about 1.5 mm long, 0.1 mm wide, inisistuous, usually excentric, curved, furfureous, white.

Basidia 27–36 × 9–11.5 μm , clavate, 4-spored, with clamp, with sterigmata up to 5.5 μm long. Spores 8.1–9.0 × 6.7–9.0 μm , slightly angular when immature, becoming globose, smooth, non-amyloid, with very large apiculus. Cheilocystidia c. 35 × 5.5–7.5 × 4.5–5.5 μm , infrequent, somewhat fusiform to almost cylindrical, thick-walled, little prominent. Pleurocystidia absent. Pileipellis hymeniform, made up of cylindrical to variously shaped cells arising directly from the pileal trama, perpendicular to the surface, and which are simple to branched, thin-walled to fairly thick-walled, and more or less densely covered with warts or cylindrical excrescences. Dermato-cystidia of the pileus not seen. Hyphae of the trama of the pileus thin- to fairly thick-walled, clamped. Subhymenial hyphae 2–2.7 μm wide, thin-walled, clamped. Hyphae of the cortical layers of the stipe fairly thick-walled, clamped, with small and simple to large and intricately branched excrescences.

Comparison of figures 4–8 with those of *M. margaritiformis* (J.E. Lange) Sing., the type-species of the genus (figs. 9–12), makes it clear that, in spite of the obvious differences, *Mycena margaritifera* is a true member of *Mycenella*.

The description given above is well in accordance with those published by Malençon & Bertault (1975: 276) and Moreno & Garcia-Manjon (1980: 85), with the one difference that both the French and Spanish authors stated the lamellae to be pliciform and cheilocystidia to be absent. It is quite possible that cheilocystidia, which are infrequent in well-developed lamellae, fail to materialize in pliciform lamellae.

Singer (1975: 346) indicated the area of distribution of the smooth-spored species of *Mycenella* thus: "... but smooth-spored forms also in the American tropics and subtropics." He seems to have overlooked that *Mycenella salicina* (Vel.) Sing., a smooth-spored species, is long known to occur in several European countries. The present species is a second example of the occurrence of a species with smooth spores in the north-temperate zone, while Kühner (1980: [732]) mentioned the following interesting observation: "La découverte



Figs. 4–8. *Mycenella margaritifera* (France: Landes, near Mimizan, 25 Jan. 1981, Mme F. Candoussau; L 979. 256–505). – 4. Basidia. – 5. Spores. – 6. Cheilocystidia. – 7. Hyphal ends of pileipellis. – 8. Hyphae of cortical layers of stipe, with excrescences.

Figs. 9–12. *Mycenella margaritispora* (Netherlands: Noord-Brabant, Bergen-op-Zoom, 24 Oct. 1975, P.B. Jansen; L 978.060–076). – 9. Spore. – 10. Cheilocystidia. – 11. Hyphal ends of pileipellis and two dermatocystidia. – 12. Hyphae of cortical layers of stipe, with excrescences and one caulocystidium. All figs., $\times 700$.

que nous avons faite, en zone alpine, de *Mycenella* dont les spores ne présentent que des gibbosités très basses et parfois rares...”

Dr. C. Bas, kindly carrying out a colour reaction, found the hyphae of the stipe to be metachromatic in Cresyl Blue, a feature also mentioned by Malençon & Bertault (1975: 278), although Singer (l.c.) indicated the reaction to be negative in the genus *Mycenella*. I am not discouraged.

34. MYCENA SUBTILIS Lundell

Mycena subtilis Lundell in K. svenska VetenskAkad. Skr. Naturskydd. 22: 7. 1932; not *Pseudomycena subtilis* Vel., Novit. mycol. nov.: 33. 1947. – Type: apparently absent (UPS).

Lundell’s description seems to suggest that his species is a member of *Hemimycena*. On account of the two-spored basidia, the almost globose spores, and the apparent lack of cheilocystidia, one would suspect the species to be related with *Hemimycena crispula* (Quél.) Sing., *H. cyphelloides* (P.D. Orton) Maas G., *comb. nov.*³, and *H. pseudocrispata* (Valla apud Kühn. & Valla) Maas G., *comb. nov.*⁴, but in the absence of material it is impossible to draw more definite conclusions.

³ Basionym: *Mycena cyphelloides* P.D. Orton in Trans. Br. mycol. Soc. 43: 178. 1960.

⁴ Basionym: *Mycena pseudocrispata* Valla apud Kühn. & Valla in Trav. Lab. “La Jaysinia” 4: 36. 1972.

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Studies in Mycenas 35–58

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Among the species discussed in this paper are those described by Cejp and Schulzer von Muggenburg, most of which seem to have been left unattended. *Agaricus hypnicola* Pers. and *A. pumilus* Bull. are rejected as nomina dubia. A neotype is selected for *Mycena flavoalba*.

I wish to record my grateful appreciation to the authorities of the herbaria at Praha (PRC and PRM), Uppsala (UPS), and Wien (W) for the loan of valuable specimens. As explained by Mrs M. Tortić (1970: 97), S. Schulzer von Muggenburg failed to preserve material of the species he described, but he did leave some manuscript volumes (now at the "National and University Library", Zagreb), containing descriptions accompanied by water-colour paintings. My special thanks go to Mrs Tortić for retrieving some of Schulzer's names and for having sorted out and sent on loan a number of colour-slides as well as a black and white film of those parts of the manuscript which cover the Mycenas. Acknowledgment is also made to the Director of the "Rijksherbarium" for providing working facilities.

35. MYCENA ALBA "sensu Kühn. & Romagn."

Remy (1965: 497) identified *Mycena alba* "sensu Kühn. & Romagn." with *Delicatula virginalis* (Quél.) Fayod without providing a single word of explanation.

The description of *Mycena alba* (Bres. apud Sacc.) Kühn. in the French flora (Kühner & Romagnesi, 1953: 112) is brief but fully adequate, and I do not have

the impression that the concept of the species differs in any way from that as appeared in Kühner's monograph (1938: 594). It is unfortunate that type material of *M. alba* seems to be missing (Maas Geesteranus, 1981: 420), but comparison of Bresadola's and Kühner's descriptions has convinced me that these are well in concordance. If, therefore, there is any truth in Remy's statement, this would amount to *Delicatula virginalis* being the same thing as *Mycena alba* and, since the basionym *Omphalina virginalis* (Quél., 1894: 485) is the earlier name, the epithet *virginalis* would supersede the epithet *alba* (Bres. apud Sacc. 1915). However, Quélet described the pileus of his species as "ombiliqué" and depicted the arcuate lamellae as far descending down the stipe, both of which are features not known for *M. alba*. These may be considered to be weak arguments, but exactly because Quélet's description offers so little that may serve as a clue, it would seem inadvisable to propose any change as long as no material of Quélet's species turns up.

36. AGARICUS (MYCENA) AMOENIPES var. HIRTIPES Schulz.

Agaricus (Mycena) amoenipes var. *hirtipes* Schulz. in Verh. zool.-bot. Ges. Wien 27 (Abh.): 105. 1877. — Type: represented by a water-colour painting and a hand-written description (no. 252, as "*A. galericulatus* var. *calopus*").

The name *A. amoenipes* var. *hirtipes* occurs twice in Schulzer's manuscript (which is of a later date than his publication), but in both cases it has been struck out and replaced by another name.

In no. 252 Schulzer correctly recognized his fungus to be the same as *A. galericulatus* var. *calopus* which is a synonym of *Mycena inclinata* (Fr.) Quél.

In no. 1013 the name was replaced by *Agaricus (Mycena) laevigatus* var. *quercicola* Schlrz, and the reference to no. 252 crossed out. Whether this latter name ever appeared in print is unknown to me. To judge from the colour of the fungi depicted, the specimens seem to represent the albino form of *Mycena inclinata*, a form which in the Netherlands is not very rare.

37. MYCENA ANNAE Bx

Mycena annae Bx in Mitt. thüring. bot. Ges. 1 (1): 9, 10, fig. 1. 1949. — Type locality: East Germany, Jenaer Forst.

Mycena annae was described as entirely white. On account of its white juice, Benedix recognized his new species as a member of section *Lactipedes*, and compared it at some length with *Mycena galopus* (Pers. ex Fr.) Kummer, from which it was said to differ among other things in its colour and in growing on fallen leaves of *Fagus*. The description, however, both macro- and microscopically, is in no way different from that which would characterize *M. galopus* var. *candida* J.E. Lange. In a letter (28 Nov. 1980) Dr Benedix later agreed that his species was what other mycologists apparently used to call *M. galopus* var. *candida*.

38. AGARICUS (MYCENA) ARBOREUS Schulz.

Agaricus (Mycena) arboreus Schulz. in Rada jugosl. Akad. Znan. Umjetn. mat.-prirod. raz. **64**: 9 [reprint ?] 1882 [translated into Latin by Schaarschmidt in Bot. Zbl. **15**: 5. 1883]. – *Mycena arborea* (Schulz.) Sacc., Syll. Fung. **5**: 294. 1887. – Type: represented by a water-colour painting and a hand-written description (no. 1107, as "*A. parabolicus* var. *arboreus*").

Some of the more important macroscopic characters in Schulzer's description are the following. (i) Pileus very narrowly conical when young; (ii) from leaden grey turning grey; (iii) lamellae free, strongly ventricose, at first ash grey, then yellowish white; (iv) odour none, taste somewhat raphanoid; (v) stipe yielding a colourless juice when broken, originally uncoloured, then a diluted red-brown, finally pale blue, black at the base.

The watery juice exuding from the broken stipe suggests a species of section *Lactipedes* (Fr.) Quél., more especially *M. erubescens* Höhn., but several of the other characters refute such an identification. The lack of information about the cystidia is an added reason for rejecting *A. arboreus* as a nomen dubium.

39. MYCENA ARIDIPHILA Cejp

Mycena aridiphila Cejp in Publ. Fac. Sci. Univ. Charles **104**: 114. 1930. – Holotype: "Hymenomyces Bohemico-Slovenici exsiccati / Dr. Karel Cejp / *Mycena aridiphila* Cejp / Na suchoparu mezi travn[atě]ju Srbska, 12.X.1926 leg. K. Cejp" (PRC).

Basidia 24–30 × 6.5–9 μm, clavate, 4-spored, without clamps (?). Spores 8.5–9.2 × 5.4–5.8 μm, pip-shaped, smooth, not amyloid. Cheilocystidia not seen with certainty. Lamellar trama not reddening in Melzer's reagent. Hyphae of the pileipellis collapsed, indistinguishable from the underlying tissue.

The above microscopic details give no better data than Cejp's description; they are insufficient even to decide whether the species is a member of the genus *Mycena*. As long as no better information is available *M. aridiphila* will remain a nomen dubium. The material very much gives the impression of having been gathered when really much too old.

40. PSEUDOMYCENA BULBOSA Cejp – Figs. 1–8

Pseudomycena bulbosa Cejp in Publ. Fac. Sci. Univ. Charles **104**: 149, fig. 9. 1930. – *Mycena bulbosa* (Cejp) Kühn., Genre *Mycena*: 176, figs. 51–53. 1938. – Lectotype: "Flora bohémica / *Mycena (Pseudomycena) bulbosa* Cejp [*Mycena Juncorum* Vel. in herb.] / Mnichovice: Hrusice / *Juncus* sp. / 8. VIII. 1924. Leg. J. Velenovský" (PRM 150202).

Basidia clavate to obpyriform, 4-spored, with clamp. Spores 8.1–8.8 × 3.6–4.5 μm, pip-shaped, smooth, not amyloid. Cheilocystidia embedded in gelatinous matter, representing the terminal cells of much branched hyphae, simple to forked, clavate. Pleurocystidia not seen. Pileipellis made up of profusely branched and much entwined, clamped hyphae embedded in a gelatinous layer. Lamellar trama subcellular, made up of almost spherical elements, reddening in Melzer's reagent. Caulocystidia subfusiform, with firm cell-walls, clamped.

Cejp enumerated five localities of this species. Material from two of these (Mnichovice and Vyžlovky) was received on loan from PRC, while a third

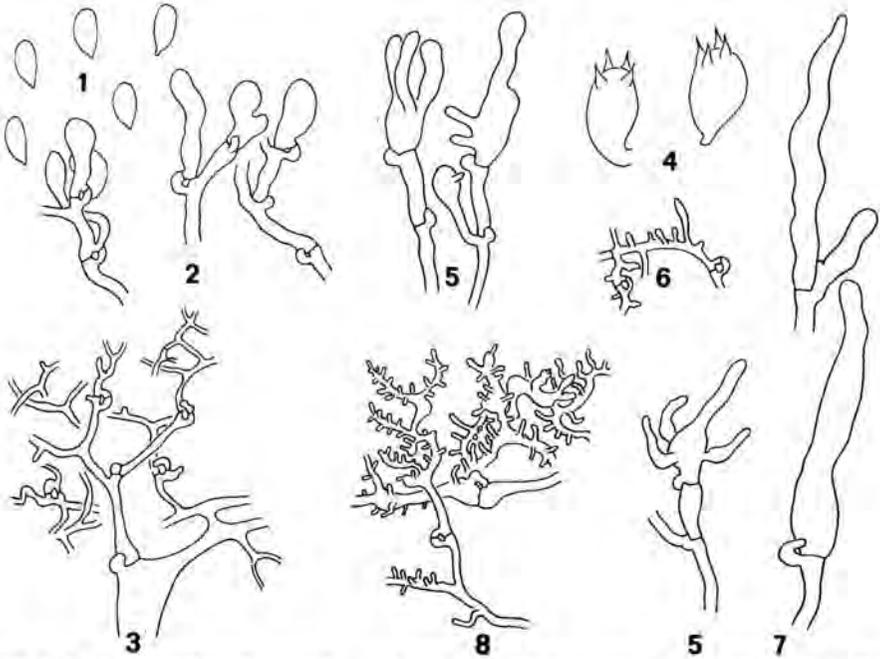
collection (from Hrusice) came from PRM. The latter, even though consisting of no more than two detached pilei, is by far the best and is here chosen as lectotype.

Owing to the scarcity of the type material I refrained from trying to make drawings of all microscopic details. It may be of interest, however, to offer my observations supplemented with drawings prepared from two other collections (Figs. 4–8).

41. MYCENA COPIOSA Cejp

Mycena copiosa Cejp in Publ. Fac. Sci. Univ. Charles 104: 103, fig. 7. 1930. — Type: non-existing (Dr Z. Urban, in litt.); type locality: Bohemia.

Velenovský (1920: 301) gave a redescription of *Mycena lactescens* Schrad. and specified *A[garicus] galopus* Pers. as a synonym. Cejp, believing that Velenovský's concept did not represent the true *M. galopus* ("lactescens"), proceeded to describe the species as new, coining the name cited above. He stated (p. 104) that *M. galopus* ("lactescens") is a much smaller, gracile species, growing in completely different habitats. Kühner (1938: 223), however, had no difficulty in recognizing *M. copiosa* as being identical with *M. galopus*. I subscribe to this view.



Figs. 1–3. *Mycena bulbosa* (lectotype). — 1. Spores. — 2. Cheilocystidia. — 3. Hyphae of pileipellis.

Figs. 4–7. *Mycena bulbosa* (W. Germany: Oldenburg, Zetel, Neuenburger Urwald, 23 Aug. 1962, C. Bas 2615; L). — 4. Basidia. — 5. Cheilocystidia. — 6. Hypha of pileipellis. — 7. Caulocystidia.

Fig. 8. *Mycena bulbosa* (Netherlands: Drente, Spier, Westerveen, 26 Aug. 1961, J.J. Barkman 7038; L). Hyphae of pileipellis. (All figs., $\times 700$.)

42. PSEUDOMYCENA DENTATA Cejp

Pseudomyцена dentata Cejp in Publ. Fac. Sci. Univ. Charles **104**: 144, fig. 8. 1930. – Type: non-existing (Dr Z. Urban, in litt.); type locality: Bohemia, near Mnichovice.

Cejp based his description on a collection apparently sent to him by Velenovský as *Mycena tenuis*. No type material has been found under either name.

Both the description and the illustration are suggestive of a member of the genus *Hemimycena* even though there is no mention of the spores being inamyloid; Cejp at his time was ignorant of the Melzer's reaction. The truncate-campanulate pileus, the paucity and shape of the lamellae, the glabrous stipe, the shape of the cheilocystidia, and the size of the spores combine to characterize a species that would seem to be unrepresented in Kühner's monograph (1938) and Kühner & Valla's subsequent paper (1972). Fresh material will be needed to confirm the identity of the species and to certify its assumed allocation.

43. AGARICUS (MYCENA) DIAPHANUS Schulz.

Agaricus (Mycena) diaphanus Schulz. in Verh. zool. – bot. Ges. Wien **28** (Abh.): 428. 1879. – *Mycena nivea* Quél. & Schulz. apud Schulz. in Hedwigia **24**: 133. 1885 (name change; not *Mycena nivea* Quél. in Bull. Soc. mycol. Fr. **23**: 325–XLI, pl. 2, fig. 1. 1877). – *Mycena nivella* Sacc. & Syd., Syll. Fung. **14**: 84. 1899 (name change). – *Mycena diaphana* (Schulz.) Cejp in Publ. Fac. Sci. Univ. Charles **104**: 109. 1930. – Type: represented by a water-colour painting and a hand-written description (no. 755).

Schulzer's description, translated and somewhat abridged, reads as follows. Entirely white. Pileus acute-conical, up to 15 mm across. Lamellae not crowded, free. Stipe glabrous except for the fibrillose base. Spores globose-ellipsoid, 0.004–0.006 mm long. This could be some *Hemimycena*, but information is insufficient for the species to be identified.

44. AGARICUS (MYCENA) GALERIFORMIS Schulz.

Agaricus (Mycena) galeriformis Schulz. in Verh. zool. – bot. Ges. Wien **30** (Abh.): 493. 1881. – Type: represented by a water-colour painting and a hand-written description (no. 1012, as "*A. galericulatus* var. *hortensis*").

Schulzer described his fungus as growing on wood, cespitose, with the pileus up to 6 cm across and of a diluted fuscous colour, the lamellae emarginate and pale pink, the stipe smooth, glabrous, white with fuscous base, the odour faintly disagreeable. These features together with the habit shown in the painting readily identify the species as *Mycena galericulata*.

45. PSEUDOMYCENA GRAMINEA Cejp

[*Mycena tenerrima* sensu Velenovský, České houby: 305, pl. 52 fig. 8. 1920. –] *Pseudomyцена graminea* Cejp in Publ. Fac. Sci. Univ. Charles **104**: 148, fig. 10. 1930. – Type: apparently non-existing.

Cejp (p. 157) indicated that *Mycena tenerrima* as understood by Velenovský was not the same as Berkeley's species, and re-described it as a new species, exemplified by a collection from Mnichovice (leg. Velenovský, VIII. 1915) and a second from Kosofského (X. 1927). The material received under the name *Pseudomycena graminea* from PRC had been gathered by Velenovský at Mnichovice but the dates of collecting, IV. 1927 and V. 1927, do not tally with either of the two mentioned above.

From Velenovský's illustration it can be inferred that the lamellae of *P. graminea* are ascending, while Cejp described these as free. The lamellae in the material of V. 1927, however, are far decurrent on the stipe.

Whereas Cejp stated the substratum of his species to be decaying portions of grasses, the material of IV. 1927 (no longer extant in the packet) appears to have been found on a fallen twig of *Betula*.

It is obvious that in both cases the species concerned has no relation with *P. graminea*.

Along with the collections discussed at some length above, I also received a small plastic bottle from PRC which according to its label contains, wrapped in cloth and soaked in alcohol, specimens of *Inocybe albicans* Vel., *Mycena tenerrima* Berk. [sensu Vel.!] and *Paxillus tricholoma* Schw., all from Mnichovice, dated VIII. 1915, and apparently collected by Velenovský.

An important feature which all specimens proved to have in common is that a small clump of soil adheres to the base of the stipes, which should have been vegetable matter in the case of *M. tenerrima* sensu Velenovský. Selecting for a closer inspection those specimens with a pileus the size and shape as shown in Velenovský's illustration, I found that the lamellae are neither crowded (as described by Cejp) nor narrow, while the stipes appeared to be covered with caulocystidia (glabrous according to Cejp). The conclusion to be drawn from this is that the material in the plastic bottle does not include *M. tenerrima* sensu Vel. and that the type apparently is no longer in existence.

Kühner (1938: 185, 190) mentioned *P. graminea* on two occasions but refrained from expressing his opinion on its identity. I have no different opinion.

46. AGARICUS HYPNICOLA Pers.

Agaricus hypnicola Pers., Mycol. eur. 3: 265. 1828 (not *Agaricus hypnicola* Pers., Mycol. eur. 3: 87. 1828). — Type: non-existing.

According to Fries (1874: 135) *A. hypnicola* Pers. would be the same as *A. flavoalbus* Fr. and this opinion was later shared by Cejp (1930: 127). It is questionable whether Fries' judgment is correct.

Fries (1838: 103), in describing his *A. flavoalbus*, said that the lamellae are "secedenti-liberis", and he emphasized that the stipe is pruinose at its apex. Persoon described the lamellae of his species as adnexed, while he made no mention of the stipe being pruinose. There exists in Europe a species—*Mycena flavescens* Vel. — whose macroscopic features under circumstances strikingly

resemble those of *M. flavoalba* (Fr.) Quél. The macroscopic character that sets both species conveniently apart is the pruinosity of the apical part of the stipe in the latter. The absence of this character in Persoon's description can be interpreted in two ways. (i) The stipe in his specimens did have caulocystidia but these may have escaped Persoon's attention, which would imply that his *A. hypnicola* is actually the same as *A. flavoalbus*; (ii) the stipe was devoid of a pruinosity, which would suggest that Persoon's species and *M. flavescens* are identical, and that the epithet *hypnicola* would take precedence over *flavescens*. It is impossible, however, to prove either assumption, for there is no type, but the outcome of the above considerations is that rather than placing *A. hypnicola* as a synonym under *Mycena flavoalba* (or *M. flavescens*) it is a name to be rejected as a nomen ambiguum.

As regards the binomial *Agaricus flavoalbus*, it should be remembered that Fries meant to introduce this as a name change for what was earlier named *A. lacteus* var. *pumilus* Bull. ex Fr. (1821: 153), based on *Agaricus pumilus* Bull. pl. 260. Here is another of Fries' judgments open to questioning. Studying Bulliard's illustration and brief description it is easy to perceive why Fries identified *A. pumilus* with his *A. flavoalbus*, but to my knowledge it is equally and definitely possible to come across specimens of *Mycena flavescens*, unknown to Fries, which compare very well with Bulliard's plate. This has led me to conclude that (i) *Agaricus pumilus* Bull. is another name to be rejected as a nomen ambiguum, and in this connection it is interesting to learn that Kühner (1938: 568) has come up with a third possibility, suggesting that *A. pumilus* could be the same as *Mycena olida* Bres.; (ii) Fries, rather than introducing a new name, very probably described a new species; (iii) it is high time to fix *M. flavoalba* by the choice of a neotype, for which I propose Lundell & Nannfeldt, Fungi exs. succ., praes. upsal., no. 519 (UPS). I have checked this material microscopically (Figs. 9–12).

47. MYCENA LOHWAGII Sing. — Figs. 13–16

Mycena lohwegii Sing. in Beih. bot. Zbl. 46 (2): 93. 1930. — Holotype: "Singer, Fungi caucasici / *Mycena (Delicatula) Lohwegii* Sing. / An Rhizomen lebender Farne / Saken, 1200 m. VIII [19]28." (W).

Lamellae 14–17 reaching the stipe, ascending and, as far as can be judged, with horizontal to concave edge. Stipe at the base covered with long, coarse fibrils. Basidia 22–28 × 7–8 μm, clavate, 4-spored, with sterigmata about 4.5 μm long (clamps not seen but certainly present). Spores 9.0–9.7 × 4.7–5.2 μm, pip-shaped, smooth, weakly amyloid. Cheilocystidia 25–40 × 6.5–15 μm, numerous, clavate to obpyriform, more or less densely covered with shorter or longer cylindrical excrescences, clamped (clamps very difficult to detect). Pleurocystidia absent. Hyphae of the pileipellis densely covered with usually simple, but sometimes fairly intricately branched excrescences.

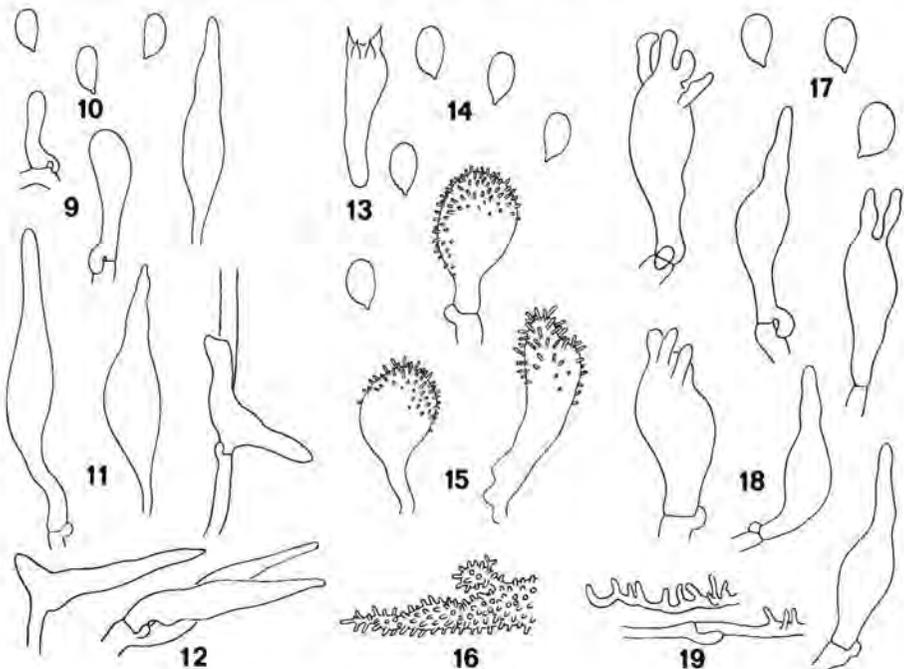
Singer indicated that he had collected this species at two localities (Sakén and Klytsch), but from the fact that I received material only from the former I conclude that no other specimens exist and that this collection constitutes the holotype.

Later Singer reported on a third find of which he published a description (1938: 197); my redescription of the type agrees with the microscopical details of this latter rather better than with those of the original account.

Mycena lohwagii differs from the other members of section *Polyadelphia* (Maas Geesteranus, 1980: 103) in the way the stipe is attached to the substratum, that is, neither by radiating mycelial filaments nor by being insititious, but by long and coarse fibrils. This character would place the species nearer the members of section *Filipedes*, if it were not for two other features of comparable importance: (i) the edge of the lamellae in *M. lohwagii* is horizontal to concave (convex in the *Filipedes*); (ii) the stipe does not give the impression of having been fragile when fresh (very fragile in the *Filipedes*). It will be necessary, therefore, somewhat to emend the description of section *Polyadelphia*.

48. AGARICUS (MYCENA) MARCESCENS Schulz.

Agaricus (Mycena) marcescens Schulz. in Verh. zool.-bot. Ges. Wien 27 (Abh.): 106. 1877 – Type: represented by a water-colour painting and a hand-written description (no. 651, original name crossed out and replaced by "*Marasmius Brusinae* Schlzr").



Figs. 9–12. *Mycena flavoalba* (neotype). – 9. Basidia (immature). – 10. Spores. – 11. Cheilocystidia. – 12. Caulocystidia, taken from apical part of stipe. (All figs., $\times 700$.)

Figs. 13–16. *Mycena lohwagii* (holotype). – 13. Basidium: – 14. Spores. – 15. Cheilocystidia. – 16. Hypha of pileipellis. (All figs., $\times 700$.)

Figs. 17–19. *Mycena sericea* (holotype). – 17. Spores. – 18. Cheilocystidia. – 19. Hyphae of pileipellis. (All figs., $\times 700$.)

Schulzer compared his species with *Agaricus fagetorum* Fr., although some discrepancies apparently led him to keep both separated. However, to judge from the description *A. marcescens* could very well be identical with the Friesian species. It seems impossible to come to a more definite conclusion.

49. AGARICUS (MYCENA) PSEUDOCLYPEATUS var. RADICANS Schulz.

Agaricus (Mycena) pseudoclypeatus var. *radicans* Schulz. in Verh. zool. – bot. Ges. Wien 28 (Abh.): 428. 1879. – Type: represented by a water-colour painting and a hand-written description (no. 773, as "*A. galericulatus* var. *radicans*").

To judge from the description and painting, this is *Mycena galericulata* with a long, flexuous root extending from the base of the stipe.

50. AGARICUS (MYCENA) PSEUDOCLYPEATUS var. SLAVONICUS Schulz.

Agaricus (Mycena) pseudoclypeatus var. *slavonicus* Schulz. in Verh. zool. – bot. Ges. Wien 29 (Abh.): 499. 1880. – *Mycena galericulata* var. *sparsa* Bres. & Schulz. apud Schulz. in Hedwigia 24: 133. 1885 (name change). – Type: represented by a water-colour painting and a hand-written description (no. 891).

Schulzer's description of 1880 mentions such characters as (i) pileus very pale smoke-coloured with (ii) a darker, almost cinnamon centre, (iii) greyish brown lamellae, (iv) rigid stipe. These features together with the *galericulata*-like habitus shown in the painting facilitate the acceptance of Bresadola's view that var. *slavonicus* is nothing but a solitarily growing form of *Mycena galericulata* (Scop. ex Fr.) S.F. Gray.

51. AGARICUS (MYCENA) RUGATOPPLICATUS Schulz.

Agaricus (Mycena) rugatoplicatus Schulz. in Verh. zool. – bot. Ges. Wien 29 (Abh.): 500. 1880. – Type: represented by a water-colour painting and a hand-written description (no. 817).

Some of the more salient features taken from Schulzer's description are (i) the pale dingy greyish ochraceous colour of the pileus which has (ii) a truncate and darker umbo, and (iii) the upper surface strongly plicate-sulcate; (iv) the broad, ventricose, somewhat emarginate, pale pink lamellae; (v) the taste of recent meal; (vi) the glabrous, firm, rooting stipe. These features suffice to identify Schulzer's fungus as *Mycena galericulata*.

52. AGARICUS (MYCENA) RUGATULOSUS Schulz.

Agaricus (Mycena) rugatulosus Schulz. in Verh. zool. – bot. Ges. Wien 29 (Abh.): 499. 1880. – Type: represented by a water-colour painting and a hand-written description (no. 906. as "*A. rugosus* var. *procerus*").

Some of the macroscopic characters taken from Schulzer's description read (i) pileus up to 7 cm across, somewhat fuscous to cinnamon at the centre, diluted smoke coloured farther outwards, almost whitish at the margin; (ii) lamellae greyish whitish; (iii) stipe elastic, whitish then diluted smoke coloured, finally fairly dark brown, somewhat rooting. These features combine with the

characteristic shape as shown in the painting to identify the species as *Mycena galericulata*.

53. AGARICUS (MYCENA) RUGOSUS var. stipite elongato Schulz.

Agaricus (Mycena) rugosus var. *stipite elongato* Schulz. in Verh. zool.-bot. Ges. Wien 27 (Abh.): 106. 1877. — Type: represented by a water-colour painting and a hand-written description (no. 582).

The varietal epithet is a phrase name, not a true epithet.

Schulzer's description and figure leave no doubt that the fungus he described represents *M. galericulata* with an unusually long stipe.

54. MYCENA SERICEA Cejp — Figs. 17–19

Mycena sericea Cejp in Publ. Fac. Sci. Univ. Charles 104: 88, fig. 2. 1930 — Holotype: "Hymenomyces Bohemico-slovenici exsiccati / Dr. Karel Cejp / *Mycena sericea* sp.n. (= *M. metata* in Lange Stud. Agar. of Denm. I) / Žďár u Rokycan, jehlic[naty]les 20.VIII.1927 leg. K. Cejp" (PRC).

Stipe smooth, glabrous, at the base covered with long, flexuous, coarse fibrils. Basidia clavate, 4-spored, clamped. Spores (possibly only immature spores seen) $8.1-9.2 \times 5.4-6.3 \mu\text{m}$, pip-shaped, smooth, amyloid. Cheilocystidia $35-60 \times 11.5-18 \times 2.7-4.5 \mu\text{m}$, numerous, fusiform to almost clavate, apically attenuated into a slender neck or with several necks, clamped. Pleurocystidia present. Hyphae of the pileipellis with simple or branched, cylindrical excrescences, clamped.

Macroscopic details provided by Cejp, combined with the microscopic description given above, and the information on the habitat ("In pinetis inter gramina et muscos ...") readily identify the present species as identical with *Mycena aetites* (Fr.) Quél.

55. AGARICUS (MYCENA) SUDOROIDES Schulz.

Agaricus (Mycena) sudoroides Schulz. in Verh. zool. — bot. Ges. Wien 29 (Abh.): 499. 1880. — Type: represented by a water-colour painting and a hand-written description (no. 880, as "*A. sudorus* var. *coloratus*").

The characters given by Schulzer (pileus viscous in rainy weather, pale fuscous; lamellae at first white then pale brownish; stipe rigid, glabrous, cinnamon, with a long root; spores $0.010-0.016 \times 0.007-0.010 \text{ mm}$) are unmistakably those of *Oudemansiella radicata* (Relh. ex Fr.) Sing.

56. AGARICUS TERRENUS Pers.

Agaricus terrenus Pers., Mycol. eur. 3: 266. 1828. — Type: non-existing.

Fries (1874: 135), making an allowance for the white pileus of *A. terrenus*, decided that this species was a white form of his *A. flavoalbus*. It is certainly true that completely white specimens of *Mycena flavoalba* can be found (see also Kühner, 1938: 549), but as a rule the pileus in this species is clearly translucent-striate, whereas Persoon described the pileus as "vix striatus." This

is reason enough to doubt the correctness of Fries' view, and gives additional weight to my opinion that the application of the name *Agaricus flavoalbus* must be determined by the choice of a neotype; see under *A. hypnicola*.

57. *AGARICUS (MYCENA) VISCIDOLUTEUS* Schulz.

Agaricus (Mycena) viscidoluteus Schulz. in Rada jugosl. Akad. Znan. Umjetn. mat. – prirod. razz. **64**: 9 [reprint ?]. 1882 [translated into Latin by Schaarschmidt in Bot. Zbl. **15**: 5. 1883]. – Type: represented by a water-colour painting and a hand-written description (no. 1108, *Agaricus* struck out and rewritten *Hygrophorus*).

The description of the pileus and stipe as very much viscous and of a dark wax-like colour, while the lamellae were stated to be yellow, raises the question whether this species belongs to *Mycena* at all.

58. *AGARICUS (MYCENA) VITICOLA* Schulz.

Agaricus (Mycena) viticola Schulz. in Verh. zool. – bot Ges. Wien **27** (Abh.): 105. 1877. – *Mycena bresadolae* Schulz. in Hedwigia **24**: 133. 1885 (name change). – Type: represented by a water-colour painting and a hand-written description (no. 574).

Kühner (1938: 677) mentioned this binomial among the insufficiently known species. Very likely it will remain a nomen dubium, since Schulzer's description contains too little information.

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Studies in Mycenas 59Berkeley's fungi referred to *Mycena* – 1

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A revision is given, as far as material is available in Berkeley's Herbarium, of the species collected in Great Britain, Bermuda, North America, the Bonin Islands, and Hong Kong.

Agaricus alphitophorus turns out to be an earlier name for the species thus far known as *Mycena osmundicola*, while *Agaricus sacchariferus* is identical with *Mycena pudica*.

Berkeley, Berkeley & Broome, Berkeley & Cooke, and Berkeley & Curtis described from various parts of the world a great many species which were later transferred to the genus *Mycena*. Of some of these there exist modern descriptions, but others seem to have slipped into oblivion. To clarify their identity and status, it was decided to investigate the type material in so far as a possible significance for the nomenclature of the species of the northern Hemisphere was suspected. For this reason, only species from regions north of the Tropic of Cancer have been taken into consideration, a judgment which may not be free from error. Another possible defect is that some of the species described by Berkeley have not been recognized here as members of *Mycena* because they were placed in other sections, e.g. *Agaricus (Omphalia)*. This revision appears in two parts, the second (future) part being intended to deal with the species collected in the Himalayas.

I am grateful to the authorities of the Herbarium at Kew (K) for the loan of Berkeley's material, while acknowledgement is made to the Director of the 'Rijksherbarium' for providing working facilities.

AGARICUS (MYCENA) ALPHITOPHORUS Berk. — Figs. 1–5

Agaricus (Mycena) alphitophorus Berk. in J. Linn. Soc. 15: 48. 1877. — *Mycena alphitophora* (Berk.) Sacc., Syll. Fung. 5: 290. 1887. — *Prunulus alphitophorus* (Berk.) Murrill in N. Am. Flora 9: 339. 1916. — Holotype: “*Mycena alphitophora* Berk. / Bermuda [Devonshire Marsh] Challenger” (K).

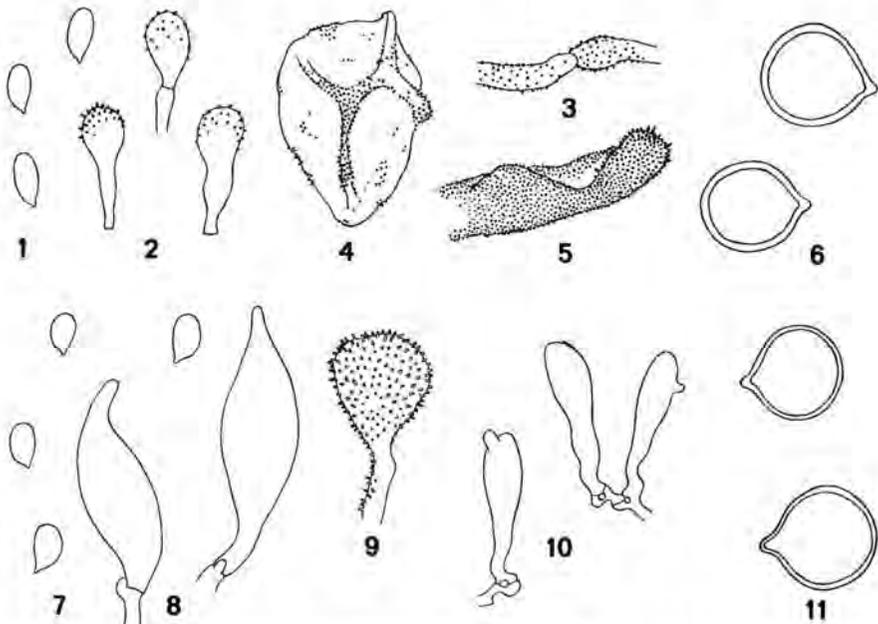
Mycena floccifera Mez in Jber. Schles. Ges. vaterl. Cult. (II Abt. Naturw., zool. — bot. Sect.) 76: 16. 1899. — Type locality: Breslau (now in Poland), in hothouse.

Mycena osmundicola J.E. Lange in Dansk bot. Ark. 1 (5): 35, pl. 1 fig. J, pl. 2 fig. 51. 1914; Flora agar. dan. 2: 49, pl. 57 fig. A. 1936. — Type locality: Denmark, Odense, in hothouse.

Mycena osmundicola subsp. *imieriana* Kühn., Genre *Mycena*: 210. 1938 (no Latin descr.). — *Mycena osmundicola* var. *imieriana* (Kühn.) Pearson in Trans. Br. mycol. Soc. 35: 100. 1952. — Type locality: Belgium, Antwerpen, in hothouse.

Pileus slightly over 1.5 mm high, c. 1 mm wide, campanulate. Lamellae ascending, narrow. Stipe c. 4 mm long.

Basidia none left. Spores $8.1\text{--}9.4 \times 4.3\text{--}4.7 \mu\text{m}$, pip-shaped, smooth, amyloid. Cheilocystidia few left, $13.5\text{--}24 \times 7\text{--}9 \mu\text{m}$, clavate, apically with scattered warts or short, cylindrical



Figs. 1–5. *Agaricus (Mycena) alphitophorus* (holotype). — 1. Spores. — 2. Cheilocystidia. — 3. Hypha of pileipellis. — 4. Partly collapsed cell of tissue which originally covered the pileipellis. — 5. Apical part of caulocystidium.

Fig. 6. *Agaricus (Mycena) alphitophyllus* (holotype), spores.

Figs. 7–9. *Agaricus (Mycena) chlorophos* (holotype). — 7. Spores. — 8. Cheilocystidia. — 9. Pileocystidium.

Fig. 10. *Agaricus (Mycena) leaianus* (holotype), cheilocystidia.

Fig. 11. *Agaricus (Mycena) leucoconis* (holotype), spores.

All figures, $\times 700$.

excrescences, without clamp. Pleurocystidia none seen. Hyphae of the pileipellis with scattered warts or short, cylindrical excrescences, overlaid with (collapsed) globose, thin-walled cells, 27–35 μm diameter, and more or less densely covered with small warts. Caulocystidia – 100 \times 10.5–13.5 μm , cylindrical, thin-walled, densely covered with warts or short, cylindrical excrescences, with rounded apex.

This is the species which for so long has been known under the name *M. osmundicola*. *Mycena osmundicola* var. *imieriana* and *M. floccifera* (see Maas Geesteranus, 1981: 215) are further synonyms.

The cheilocystidia depicted (fig. 2) seem to be very different from those as illustrated by J.E. Lange (1914: pl. 2 fig. 51) or by Wojewoda (1967: fig. 5/2). However, a check of Dutch material (in L) brought to light that even on the same lamella the cheilocystidia can be found to vary a great deal as to size and shape, as well as to number and shape of excrescences.

AGARICUS (MYCENA) ALPHITOPHYLLUS Berk. & Curt. – Fig. 6

Agaricus (Mycena) alphotophyllus Berk. & Curt. in Proc. Am. Acad. Arts Sci. 4: 112. 1858 [?]. – *Mycena alphotophylla* (Berk. & Curt.) Sacc., Syll. Fung. 5: 305. 1887. – *Mucidula alphotophylla* (Berk. & Curt.) Pat. in Bull. Soc. mycol. Fr. 25: 9. 1909 – *Chamaemyces alphotophyllus* (Berk. & Curt.) Murrill in Mycologia 3: 91. 1911. – *Armillaria alphotophylla* (Berk. & Curt.) Murrill in N. Am. Flora 10: 39. 1914. – *Collybia alphotophylla* (Berk. & Curt.) S. Ito & Imai in Trans. Sapporo nat. Hist. Soc. 16: 15. 1939. – Holotype: "514. *Agaricus alphotophyllus* B. & C. / Bonin Island / U.S.E.E." (K).

Pileus c. 11 mm across, membranous, with a layer of tissue paper (apparently used for drying and pressing) covering the upper surface. Lamellae about 18 reaching the stipe, c. 1 mm broad, membranous, adnate, somewhat ventricose, dingy cream, densely white-punctate, edge whitish. Stipe c. 7 \times 0.5 mm, broadened above, subbulbous below, brown, somewhat diaphanous and appearing gelatinized.

Spores 17.0–18.8 μm diameter, globose, smooth, very thick-walled, non-amyloid. All other hymenial elements collapsed and indiscernible.

Ito & Imai (l.c.) indicated *Agaricus canarii* Jungh. as possibly identical with the present species which they had transferred to *Collybia*. Singer (1951: 288; 1975: 345), accepting the identity, gave *Oudemansiella canarii* (Jungh.) Höhn. as the correct name for the species. Type material of *A. canarii* cannot, however, be located in the 'Rijksherbarium'. A recent redescription of *O. canarii* was published by Pegler (1977: 150).

AGARICUS BALANINUS Berk.

Agaricus balaninus Berk. in Mag. Zool. Bot. 1: 509, pl. 15 fig. 2. 1837; Outl. Br. Fung.: 121. 1860. – *Mycena balanina* (Berk.) P. Karst. in Bidr. Känn. Finl. Nat. Folk 32: 98. 1879. – Holotype: "*Mycena balanina* Berk. / Kings's Cliffe [Northamptonshire] England / Ex Herb. Berk." (K).

In the British Check list (Dennis, Orton & Hora, 1960: 110, 175) this species has been synonymized with *Marasmius cohaerens* (Alb. & Schw. ex Fr.) Cooke & Quél.; I agree with this view.

Van den Bosch (1858: 320) recorded a find of *A. balaninus* from the Netherlands, but material cannot be located.

AGARICUS (MYCENA) CALIFORNIENSIS Berk. & Curt.

Agaricus (Mycena) californiensis Berk. & Curt. in Proc. Am. Acad. Arts Sci. 4: 112. 1858 [?]. — *Mycena californiensis* (Berk. & Curt.) Sacc., Syll. Fung. 5: 255. 1887. — Holotype: "Herbarium of the U.S. North Pacific Exploring Expedition under Commanders Ringgold & Rodgers, 1853–1856. / No. 11. *Mycena californiensis* B. & C. / Coll. C. Wright" (K).

The type (at least, the part received for examination) consists of three basidiomata placed, presumably by the collector, on a piece of paper, one on top of the other, and there left to rot. Pilei and lamellae — the latter with their edges missing — now have the appearance of a gelatinous membrane without any clear microscopic detail except for numerous broken lengths of hyphae of a mould. One basidium was found, measuring $21 \times 7 \mu\text{m}$, presumably 4-spored, with one sterigma undamaged, about $4.5 \mu\text{m}$ long. Spores none seen stained by Melzer's reagent, many being those of a mould. Cheilocystidia none seen.

Smith (1947: 475) stated that this species "cannot be recognized until the microscopic characters of the type are known." Any change in this situation is not to be expected.

AGARICUS (MYCENA) CHAETODES Berk. & Curt.

Agaricus (Mycena) chaetodes Berk. & Curt. in Proc. Am. Acad. Arts Sci. 4: 113. 1858 [?]. — *Mycena chaetodes* (Berk. & Curt.) Sacc., Syll. Fung. 5: 274. 1887. — Holotype: "512. *Agaricus chaetodes*, B. & C. / Hong Kong U.S.E.E." (K).

Four specimens fastened to the underside of a leaf by an abundance of radiating, long, coarse, shiny, and stiff hairs. Of one of the specimens nothing remains but the very base of its stipe; of a second, the larger part of its stipe; while the two others exhibit stipe and pileus. Lamellae, as far as accessible for investigation, almost completely destroyed by insects. Spores none seen. Lamellar trama distinctly reddening in Melzer's reagent. Context and cortex of stipe made up of agglutinated, thick-walled hyphae with narrow lumina.

The species would appear to have marasmioid affinities.

AGARICUS (MYCENA) CHLOROPHOS Berk. & Curt. — Figs. 7–9

Agaricus (Mycena) chlorophos Berk. & Curt. in Proc. Am. Acad. Arts Sci. 4: 113. 1858 [?]. — *Mycena chlorophos* (Berk. & Curt.) Sacc., Syll. Fung. 5: 301. 1887. — Holotype: "Herbarium Mycologicum Berkeleyanum / 502. *Agaricus chlorophos*, B. & C. / Bonin Isles. U.S.E.E." (K).

Pileus (as far as visible under the covering of tissue paper apparently used for drying and pressing) about 15 mm across but presumably much wider since the margin seems to be strongly involute. Lamellae numerous, but the few remaining visible badly collapsed. Stipe $13 \times 1-1.5$ mm, compressed and corneous, springing from a discoid, somewhat tomentose base 2.5 mm wide.

Basidia $27-29 \times 7-8 \mu\text{m}$, clavate, one observed to have 4 incipient sterigmata, clamped. Spores $7.2-9.0 \times 4.9-5.8 \mu\text{m}$, pip-shaped, smooth, not noticeably amyloid. Cheilocystidia $36-50 \times 13.5-15 \mu\text{m}$, fusiform, thin-walled, clamped. Lamellar trama not reddening in Melzer's reagent. Pileocystidia (several seen but difficult to observe properly owing to a tangle of fibres of the tissue paper and hyphae of a mould) c. $40 \times 13.5-22.5 \mu\text{m}$, clavate, covered with excrescences up to c. $3.5 \mu\text{m}$ long, obviously embedded in a gelatinous layer which covers the pileus. Caulocystidia none seen with any degree of certainty.

The above redescription for obvious reasons cannot be expected to be complete, but in some of the more important details it corresponds

satisfactorily with the description given by Corner (1954: 261) who was in the position to study fresh specimens.

In the original description the colour [of only the pileus?] was indicated as "ex albo viriditinctus," which is at variance with the colours mentioned by the authors familiar with fresh material (Ito & Imai, 1939: 16; Corner, l.c.). The discrepancy may be explained by the fact that a mould, presumably with greenish spores, had invaded the type.

Corner (l.c.) placed *Mycena chlorophos* in section *Basipedes* (Fr.) Quél., no doubt on account of the conspicuous basal disc. However, Dr E. Horak, Zürich (personal communication), expressed his doubt as to the homogeneity of this section, even though admitting that a great deal of work still had to be done before deciding on a course of action. In the present case, however, it would seem that *Mycena chlorophos* is sufficiently different to qualify for a section of its own: (i) the lamellar trama is not pseudoparenchymatic as described for the type species, (ii) the fungus emits a rather strong smell which Corner described as "ammoniacal, nitrous," and (iii) pileus and lamellae are luminescent with a bright bluish green colour.

AGARICUS (MYCENA) CLADOPHYLLUS Berk. & Curt.

Agaricus (Mycena) cladophyllus Berk. & Curt. in Proc. Am. Acad. Arts Sci. 4: 113. 1858 [?]. — *Mycena phylloclada* Sacc., Syll. Fung. 5: 265. 1887 [name change; not *Mycena cladophylla* (Lév.) Gillet, Hym.: 282. 1876]. — Holotype: "Herbarium of the U.S. North Pacific Exploring Expedition / under Commanders Ringgold and Rodgers, 1853–56. / No. 16 / *Ag. (Mycena) cladophyllus* B & C / C. Wright Coll. Hong Kong." (K).

The material received on loan (in the accompanying letter stated to be "a representative portion" of the type) consists of three basidiomes with the stipes springing from a common mycelium. Pileus c. 17 mm across, membranaceous, transparent, pale brownish, easily broken. Lamellae widely distant, occasionally furcate and anastomosing, narrow. Stipes 18–38 × 0.5–1 mm, tough, straight, minutely puberulous, fairly dark reddish brown, densely clothed with long, coarse fibrils at the base. Basidia, spores, and cystidia not seen.

An unidentifiable species which surely is not a member of the genus *Mycena*. To the original description Berkeley added the remark that the fungus "resembles a *Marasmius*." This, however, is not *Marasmius cladophyllus* Berk., a species described from Panuré, Brazil.

AGARICUS (MYCENA) CONNATIPES Berk. & Curt.

Agaricus (Mycena) connatipes Berk. & Curt. in Ann. Mag. nat. Hist. III 4: 286. 1859. — *Mycena connatipes* (Berk. & Curt.) Sacc. & Syd., Syll. Fung. 14: 84. 1899. — *Prunulus connatipes* (Berk. & Curt.) Murrill in N. Am. Flora 9: 326. 1916. — Holotype: "*Mycena connatipes* B. & C. / 510 / Car. Sup. M.A. Curtis / Herb. Berk." (K).

Basidia circa 27 × 5.5–6.5 μm, slender-clavate, 2-spored (?), clamped. Spores none seen stained by Melzer's reagent, the majority having been shed by a mould. Cheilocystidia absent. Subhyphal hyphae very loosely interwoven, not stained in Melzer's reagent. Cortical layer of stipe very thick, consisting of a 'parenchymatic' tissue, of which the cell-walls are agglutinated, thick, and cartilaginous, and the lumina elongated and tortuous.

This description makes it clear that the present species is not a member of *Mycena*; compare *Agaricus intertextus*.

AGARICUS (MYCENA) CYANOPHOS Berk. & Curt.

Agaricus (Mycena) cyanophos Berk. & Curt. in Proc. Am. Acad. Arts Sci. 4: 113. 1858 [?] — *Mycena cyanophos* (Berk. & Curt.) Sacc., Syll. Fung. 5: 301. 1887. — Type: reported absent (K). — Type locality: Bonin Islands.

Ito & Imai (1939: 16), after studying ample material of *Mycena chlorophos* from the Bonin Islands, concluded that the variability of this species embraced the one character by which Berkeley & Curtis had intended to separate *M. cyanophos*. Corner (1954: 261) and Hongo (1977: 32) subscribed to the view of the Japanese authors.

AGARICUS (MYCENA) DICRANOPHYLLUS Berk. & Curt.

Agaricus (Mycena) dicranophyllus Berk. & Curt. in Proc. Am. Acad. Arts Sci. 4: 113. 1858 [?] — *Mycena dicranophylla* (Berk. & Curt.) Sacc., Syll. Fung. 5: 305. 1887 [misspelled *dicranophora* by S. Ito, Mycol. Flora Jap. 2 (5): 217. 1959]. — Holotype: "Herbarium Mycologicum Berkeleyanum / 511. *Agaricus dicranophyllus*, B. & C. / Bonin Isles U.S.E.E." (K).

The type consists of a single basidiome with the upper surface of its pileus glued to a piece of paper. Pileus 16 mm across. Lamellae some 15 reaching the stipe, several furcate (hence the specific epithet). Stipe 14 mm long, two thirds from the base upwards densely tomentose, base slightly enlarged.

Basidia 26–30 × 9 μm, all immature, clavate, clamped. Cheilocystidia and pleurocystidia absent. Lamellar trama very much giving the impression of being made up of hyphae embedded in a gelatinous matrix, not reddening in Melzer's reagent.

Apart from some spores of a mould, a few small and globose spores as indicated in the original description were found. These are 3.7 – 4.0 μm, smooth, fairly thick-walled, non-amyloid. No evidence was found that they are basidiospores and, in any case, they are too small for the size of the basidia described above.

This is not a species of *Mycena*.

AGARICUS (MYCENA) HEMILEUCUS Berk. & Curt.

Agaricus (Mycena) hemileucus Berk. & Curt. in Proc. Am. Acad. Arts Sci. 4: 113. 1858 [?] — *Mycena hemileuca* (Berk. & Curt.) Sacc., Syll. Fung. 5: 273. 1887. — Holotype: "No. 17. Herbarium of the U.S. North Pacific Exploring Expedition under Commanders Ringgold and Rodgers, 1853–56. / *Ag. (Myc.) hemileucus* B. & C. / Coll. C. Wright. Bonin Islands" (K).

The type consists of two basidiomes, the larger of which has its pileus with the upper surface glued to a piece of paper. Pileus 13 mm across. Lamellae about 19 reaching the stipe, narrow, free [?]. Stipe 14 mm long, with the base broken off.

Basidia 25 – 28 × 6 – 8 μm, clavate, with 4 sterigmata up to 3 μm long (but none found with the spores still attached to prove that the few free spores seen actually belong), clamped. Spores 7.3–8.5 × 3.6–4.0 μm, fairly narrowly pip-shaped, smooth, non-amyloid. Cheilocystidia and pleurocystidia absent. Lamellar trama not reddening in Melzer's reagent.

This does not seem to be a species of the genus *Mycena*.

AGARICUS (MYCENA) INTERTEXTUS Berk. & Curt.

Agaricus (Mycena) intertextus Berk. & Curt. in Ann. Mag. nat. Hist. III 4: 286. 1859. – *Mycena intertexta* (Berk. & Curt.) Sacc. & Syd., Syll. Fung. 14: 83. 1899. – *Prunulus intertextus* (Berk. & Curt.) Murrill in N. Am. Flora 9: 328. 1916. – Lectotype: “*Mycena intertexta* B. + C. No. 1741 / Car. Inf. Ex Herb. Berk.” (K).

The original description mentions three Curtis collections – Nos. 1741, 2557, and 2558. All three are represented in Berkeley’s Herbarium but, whereas No. 1741 is kept in a separate envelope, the two other collections (at least, the specimens received for investigation), glued to the same piece of paper, have been placed in a second envelope without the slightest indication which is 2557 and which 2558, these numbers having been written on the envelope. One of these collections consists of specimens with the stipes even in dried condition close to 2 mm wide, which deviates from the original description stating that the “stems...[are] ½ a line thick.” In the other collection the stipes are long and slender, and the general habit of the specimens very much resembles that of No. 1741, but whether the two collections actually represent the same species has not been verified. It should be pointed out that the first of the collections under discussion (the one with the stipes almost 2 mm wide) and No. 1741 belong to two different species. Whereas the hyphae of the pileipellis of the former are covered with scattered warts or short cylindrical excrescences, those of no. 1741 are smooth.

Part of No. 1741, preserved in the Curtis Herbarium, was examined by Coker (Beardslee & Coker, 1924: 83) and called co-type. No. 1741 of Kew Herbarium is here selected as lectotype, since (i) there is no doubt about its number, (ii) the stipes are somewhat less than 1 mm (= half a line) wide, and (iii) the pilei seem a little better developed.

Coker gave a description of *Mycena intertexta* and commented on the abundance of the cheilocystidia in this species, but he was silent about whether he had seen them in the co-type. In my own attempts at finding cheilocystidia in the material received from Kew Herbarium I failed consistently. Moreover, no spores stained by Melzer’s reagent were observed. It would appear unlikely, therefore, that *Agaricus intertextus* should belong to *Mycena*, as opposed to the species here referred to as *Mycena intertexta* sensu Coker, and for which *M. avellanea* (Murrill) Murrill may be the correct name (see Smith, 1947: 337, 338).

Beardslee & Coker (p. 84) suspected *Agaricus connatipes* (which see) and (the true) *A. intertextus* to be the same species, which does not seem improbable.

AGARICUS (MYCENA) IOEPHALUS Berk. & Curt.

Agaricus (Mycena) iocephalus Berk. & Curt. in Ann. Mag. nat. Hist. II 12: 420. 1853. – *Mycena iocephala* (Berk. & Curt.) Sacc., Syll. Fung. 5: 282. 1887. – Type locality: South Carolina.

This species was referred to *Marasmius* (Smith, 1947: 5, 471) but is now recognized to be a member of the genus *Collybia* (Singer, 1975: 311).

AGARICUS (MYCENA) LEAIANUS Berk. – Fig. 10

Agaricus (Mycena) leaianus Berk. in Lond. J. Bot. 4: 300. 1845. – *Mycena leaiana* (Berk.) Sacc., Syll. Fung. 9: 38. 1891. – *Collybia leaiana* (Berk.) Fairman in Proc. Rochester Acad. Sci. 2: 155. 1893. – *Prunulus leaianus* (Berk.) Murrill in N. Am. Flora 9: 333. 1916. – Holotype: “214 *Agaricus* sp. ? / *Leaianus* Berk. / Sporules orange colour / Cin-Ohio / T.G. Lea / May- on dead trunk” (K).

Mycena leaiana has been adequately redescribed, first by Beardslee & Coker (1924: 62), subsequently by Smith (1974: 412) which, in the case of this striking species, renders a thorough re-examination unnecessary. There is one detail, however, which was omitted in both descriptions mentioned and for the verification of which inspection of the type was desirable – the hymenial elements are clamped.

AGARICUS (MYCENA) LEUCOCONIS Berk. & Curt. – Fig. 11

Agaricus (Mycena) leucoconis Berk. & Curt. in Proc. Am. Acad. Arts Sci. 4: 113. 1858 [?]. – *Mycena leucoconis* (Berk. & Curt.) Sacc., Syll. Fung. 5: 273. 1887. – Holotype: “No. 14. Herbarium of the U.S. North Pacific Exploring Expedition / under Commanders Ringgold and Rodgers, 1853–56 / *Ag. (Mycena) leucoconis* B & C / C. Wright coll. Bonin Islands” (K).

Type consisting of two specimens. Pileus 30 and 35 mm across, unseparably glued to a piece of paper, membranous. Lamellae up to c. 2.5 mm broad, membranous, adnate, decurrent with a tooth, somewhat ventricose, dingy cream, some as if dusted with whitish powder, edge whitish. Stipe up to 3.5 mm wide, severed from its base, dark red-brown, somewhat diaphanous and appearing gelatinized.

Spores 16.0–19.7 μm diameter, globose, smooth, very thick-walled, non-amyloid. Basidia (if correctly interpreted as such) clavate, either very immature or collapsed. Cheilocystidia (at least, elements observed at the edge of a lamella and taken to be cheilocystidia) c. 65×18 – $22.5 \mu\text{m}$, clavate, broadly rounded, thin-walled.

Patouillard (1909: 9), recognizing the identity of *A. leucoconis* and *A. alphitophyllus*, chose *Mucidula alphitophylla* as the correct name for the species. Von Höhnelt (1910: 884) disputed Patouillard's view after having consulted the types of both species at Kew, but even the little that remains of the types proves Patouillard to be right as far as the identity of both species is concerned. The correct name is *Oudemansiella canarii* (Jungh.) Höhn.

AGARICUS (MYCENA) MELIIGENA Berk. & Cooke apud Cooke – Figs. 12, 13

Agaricus (Mycena) meliigena Berk. & Cooke apud Cooke in Grevillea 6: 129. 1878. – *Mycena meliigena* (Berk. & Cooke apud Cooke) Sacc., Syll. Fung. 5: 302. 1887. – *Prunulus meliigena* (Berk. & Cooke apud Cooke) Murrill in N. Am. Flora 9: 324. 1916. – Holotype: “H.W. Ravenel – Fungi americani exsiccati no. 3. *Agaricus (Mycena) meliigena* B. & Cooke” (K).

Basidia collapsed. Spores 9.0 – 10.0×8.1 – $8.8 \mu\text{m}$, subglobose, smooth, with small apiculus, strongly amyloid. Cheilocystidia not seen. Lamellar trama staining reddish brownish in Melzer's reagent. Caulocystidia profusely branched, bearing botryoid masses of swollen (somewhat gelatinized?) excrescences.

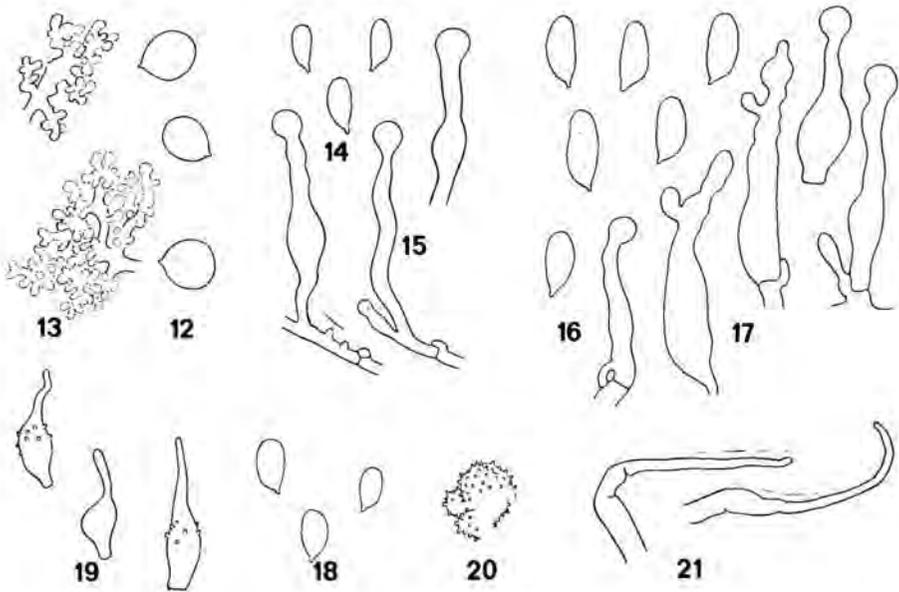
The material is in poor condition and, more in particular, the unusual appearance of the caulocystidia seems to indicate that the collection has been

submitted to some injurious treatment. Further details concerning these caulocystidia will be given in a forthcoming paper.

AGARICUS PAUPERCULUS Berk.

Agaricus pauperculus Berk. in Hooker, Engl. Flora 5 (2): 57. 1836. — *Mycena paupercula* (Berk.) Sacc., Syll. Fung. 5: 277. 1887. — Holotype: “*Mycena paupercula* Berk. / Clifton, Notts., England / Ex Herb. Berk.” (K).

Dennis (1948: 199) studied the holotype material of this species and came to the conclusion that “If this is a *Mycena* it would appear to fall in Kühner’s (1938) subgenus *Para-Mycena*, section *Omphalariiae* (“*Omphalariiae*”), *nudae*.” For this taxon (which was not validly published) Singer (1951: 298) selected *Omphalia candida* Bres. as lectotype, a species which he now recognizes to be a member of *Hemimycena* (Singer, 1975: 383). However, some of the features described by Dennis for *A. pauperculus* (the hyphae of the pileipellis being “rather swollen” and “containing dark brown granules”) do



Figs. 12, 13. *Agaricus (Mycena) meliigena* (holotype). — 12. Spores. — 13. Caulocystidia (gelatinized?).

Figs. 14, 15. *Agaricus (Mycena) sacchariferus* (holotype). — 14. Spores (immature). — 15. Caulocystidia.

Figs. 16, 17 *Agaricus sacchariferus* (Rabenh., Fungi eur. 1802; copy in L). — 16. Spores. — 17. Cheilocystidia.

Figs. 18–21. *Agaricus tenerrimus* (holotype). — 18. Spores. — 19. Cheilocystidia. — 20. Globose cell from upper surface of pileus. — 21. Caulocystidia.

All figures, $\times 700$.

not fit in with *Hemimycena*. Another point, equally unknown in *Hemimycena*, is that Berkeley described his species with a "villous root." It is clear that *A. pauperculus* cannot belong to *Hemimycena*.

Dennis described the spores of *A. pauperculus* as non-amyloid. Such spores are known to occur in several sections of the genus *Mycena*, but all these have in common that cheilocystidia are numerous. Dennis, however, said that cystidia were not detected, and this seems to indicate that *A. pauperculus* is not a member of *Mycena* either.

AGARICUS (MYCENA) PITYRODES Berk. & Curt.

Agaricus (Mycena) pityrodes Berk. & Curt. in Proc. Am. Acad. Arts Sci. 4: 114. 1858 [?]. — *Mycena pityrodes* (Berk. & Curt.) Sacc., Syll. Fung. 5: 299. 1887. — Type: reported absent (K). — Type locality: Bonin Islands.

Berkeley & Curtis apparently were struck by the resemblance of this species to *M. tenerrima*, a suggestion which going by the brief description does not seem improbable, but cannot be verified for lack of material.

AGARICUS (MYCENA) PSAMMICOLA Berk. & Br.

Agaricus (Mycena) psammicola Berk. & Br. in Ann. Mag. nat. Hist. IV 17: 130. 1876. — *Mycena psammicola* (Berk. & Br.) Sacc., Syll. Fung. 5: 275. 1887. — Type locality: Kent, Addington.

The identity of the present species will remain doubtful, as elucidated by Dennis, Orton & Hora (1960: 208).

Oudemans (1895: 11) thought to have recognized *M. psammicola* in a collection from the Netherlands, but the material in his herbarium (with oval, thick-walled, inamyloid spores, and lacking cheilocystidia) clearly does not belong to the genus *Mycena*. Nor does it seem to be conspecific with the fungus described by Berkeley & Broome, as the lamellae, instead of being "breviter adnatis postice sinuatis," are broadly adnate and somewhat decurrent, while Oudemans was silent about the stipe having a rooting base as indicated in the original description.

AGARICUS (MYCENA) PULLATUS Berk. & Cooke apud Cooke

Agaricus (Mycena) pullatus Berk. & Cooke apud Cooke in Grevillea 11: 69. 1882. — *Mycena pullata* (Berk. & Cooke apud Cooke) Sacc., Syll. Fung. 5: 277. 1887. — Type: reported absent (K); Lectotype: represented by Cooke, Ill. Br. Fungi 2: pl. 232/237 (1883?).

In a letter received from the Keeper of the Herbarium (28 April 1981) it was stated that no material of *A. pullatus* could be located at Kew.

Smith (1935: 600) gave a description of North American material which he considered to represent *Mycena pullata*. However, he found the flesh to be "rather tough-cartilaginous," which implies that the flesh has a certain thickness, but this does not seem to tally with the fact that in the original description of *A. pullatus* the pileus is said to be membranaceous. Also, Smith

described the lamellae as "whitish cinereous or vinaceous drab" which cannot be reconciled with "Gills... quite white" of the original description. One would finally think that a striking feature like "stipe... very rigid-cartilaginous" as described by Smith would not have escaped the attention of the authors of the species. These points strongly suggest that Smith described a different species from *A. pullatus*.

Kühner (1938: 508) having no opinion on *M. pullata* of his own accepted Smith's but later on dropped the name from his key (Kühner & Romagnesi, 1953).

In the British check list (Dennis & al., 1960: 121) *Mycena pullata* appears to have equally been accepted in the sense of Smith, but I am by no means convinced that this view is correct. In my eyes *Agaricus pullatus* is nothing but a dark form of *Mycena galopus* (Pers. ex Fr.) Kummer, variously known in literature as *M. galopus* var. *nigra* or as *M. leucogala* (Cooke) Sacc., and either not tested by its authors for the presence of white milk or actually devoid of the latter, which is not at all unusual.

Oudemans (1902: 647) reported on a find of *Mycena pullata* from the Netherlands. The material in his herbarium (L) belongs to *M. galopus*.

AGARICUS (MYCENA) RHODOCONIS Berk. & Curt.

Agaricus (Mycena) rhodoconis Berk. & Curt. in Proc. Am. Acad. Arts Sci. 4: 113. 1858 [?]. – *Mycena rhodoconis* (Berk. & Curt.) Sacc., Syll. Fung. 5: 273. 1887. – Type: reported absent (K). – Type locality: Bonin Islands.

Ito & Imai (1939: 15) identified *Agaricus rhodoconis* with *Collybia alphitophylla*, the lamellae of which they described thus: "...pure white... becoming cream or brownish in color, appearing pulverulent ... broadly adnexed with a decurrent tooth." It is unfortunate that the original description of *A. rhodoconis* leaves much to be desired, but the annotation that the lamellae are roseopulverulent and adnate (with no mention of being decurrent by a tooth) seems to render the proposed identification questionable. It would seem more plausible to regard *A. rhodoconis* as a pink-spored agaric, as implied by the specific epithet as well as by the remark under *A. leucoconis*: "Distinguished from the following [*A. rhodoconis*] by its ... white spores."

AGARICUS (MYCENA) SACCHARIFERUS Berk. & Br. – Figs. 14–17

Agaricus (Mycena) sacchariferus Berk. & Br. in Ann. Mag. nat. Hist. IV 6: 465. 1870. – *Mycena saccharifera* (Berk. & Br.) Gillet, Hym.: 262. 1876. – *Pseudomycena saccharifera* (Berk. & Br.) Cejp in Publ. Fac. Sci. Univ. Charles 104: 147. 1930. – Holotype: "*Mycena saccharifera* B. + Br. / Batheaston, ad *Rubi fruticosi* caules aridos, hieme. / C.E. Broome" (K). – Type distribution: Rabenhorst, Fungi europaei No. 1802.

Omphalia quisquiliaris Joss. in Annls Soc. linn. Lyon 80: 88, fig. 5. 1937 (not val. publ., no Latin descr.). – *Mycena quisquiliaris* (Joss.) Kühn., Genre *Mycena*: 388, fig. 125. 1938 (not val. publ. + later homonym); not *Mycena quisquiliaris* (Berk.) Sacc. 1887. – *Delicatula quisquiliaris* (Joss.) Kühn. & Romagn., Flore anal. Champ. sup.: 118. 1953 (not val. publ.). – Type locality: France.

Mycena pudica Hora in Trans. Br. mycol. Soc. 43: 452. 1960. – Holotype: in Herb. Hora (not examined).

Pileus plano-convex, broken. Lamellae presumably 8 reaching the stipe, horizontal to slightly arcuate, broadly adnate, fairly thick. Stipe broken.

Basidia 30–36 × 9–11 μm, immature, clamped. Spores 12.1–14.3 × 5.3–5.8 μm, pip-shaped, smooth, amyloid. Cheilocystidia 30–45 × 5.5–9.0 × 2.7–3.6 μm, lageniform to fusiform, more rarely almost cylindrical, with the apex frequently swollen and globose, 4.5–5.5 μm (much in the way of the cheilocystidia of certain species of *Galerina*), not rarely furcate, with a clamp. Pleurocystidia not seen. Caulocystidia similar to the cheilocystidia.

The part of the holotype received for examination is a single minute specimen broken off from a short length of the stalk of some *Rubus* species. It proved so small that I considered it unwarranted to take more than a fragment of the apical part of the stipe. This yielded some immature spores and a number of the highly characteristic caulocystidia which compare very well with those found in the Leiden copy of Rabenhorst, *Fungi europaei* No. 1802. The above description has been entirely prepared from the latter.

Mycena saccharifera was at one time regarded as “probably [the same as] *M. tenerrima*” (Pearson & Dennis, 1948: 157), and later “doubtfully distinct from *M. tenerrima*” (Dennis, Orton & Hora, 1960: 212). As it is, *M. saccharifera* and *M. tenerrima* belong to two very different sections of the genus, while conversely, *Mycena saccharifera* is identical with *M. pudica*. Of these two, the former name is the older and, consequently, the correct one.

Oudemans (1891: 149) stated to have found *A. sacchariferus* in the Botanical Garden at Amsterdam. Material is missing, but the description of the stipe: “La base du pied était renflé [!] en bulbille . . .” points to a different species, possibly *M. adscendens* (Lasch) Maas G.

AGARICUS TENERRIMUS Berk. — Figs. 18–21

Agaricus tenerrimus Berk. in Hook., *Engl. Flora* 5 (2): 61. 1836. — *Mycena tenerrima* (Berk.) Quél. in *Mém. Soc. Emul. Montbél.* II 5: 109. 1872. — *Prunulus tenerrimus* (Berk.) Murrill in *N. Am. Flora* 9: 322. 1916. — *Pseudomyces tenerrima* (Berk.) Cejp in *Publ. Fac. Sci. Univ. Charles* 98: 32. 1929; 104: 151. 1930. — Holotype: “*Mycena tenerrima* Berk. / Margate / Ex Herb. Berk.” (K).

Pileus up to 2 mm across, convex. Lamellae ascending, adnate to a collarium. Stipe about 3.5 mm long, springing from a disc-like, minutely puberulous base.

Basidia not seen. Spores 8.1–8.9 × 4.5–5.4 μm, pip-shaped, smooth, amyloid. Cheilocystidia 18–25 × 5.5–6.5 × 1.3–1.8 μm, lageniform, the ventral part with scattered warts or short, cylindrical excrescences, or smooth. Pleurocystidia absent. Cells of the pileipellis extremely scarce, globose, covered with short, cylindrical excrescences. Caulocystidia (taken from near the apex of the stipe) up to 55 μm long, 4.5–6.5 μm wide at the base, thin-walled, mostly collapsed.

Clamps were not detected but the paucity of the material did not justify to sacrifice more of it.

Horak (1968: 520) stated to have investigated the type as well as a Swiss collection from Favre’s Herbarium, but unfortunately he omitted to indicate which of the figures of his illustration had been drawn from Berkeley’s material.

Petch (1927: 161) reported on a find of a fungus from Ceylon (now Sri Lanka) which he named *Mycena tenerrima*, although he was well aware of its

differences from the true species as exemplified by J.E. Lange's redescription. There is no doubt that the Ceylon material represents a different species, but its identity awaits re-examination for further details.

An earlier name for *M. tenerrima* is *Mycena adscendens* (Maas Geesteranus, 1981: 211).

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Studies in Mycenas 60–71

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Mycenella cooliana is reduced to the synonymy of *M. bryophila*. *Mycena dissiliens* sensu Bres. is shown to represent *M. algeriensis*. *Agaricus electicus* is a synonym of *M. saccharifera*. *Omphalia grisea*, at one time supposed to be the same as *M. latifolia*, remains unidentified. Explanation is advanced of Kühner's failure to cite Bresadola's illustration of *M. laevigata*. *Mycenella lasiosperma* and *M. margaritipora*, thus far regarded by Singer as two separate species, are in need of further comparison. While *Agaricus lineatus* Bull. is unknown, *A. lineatus* Fr. is best rejected as a nomen dubium. *Mycena lineata* f. *pumila* is considered to be an epiphytic form of *M. filipes*. The terminal cells of the hyphae of the cortical layer of the stipe are demonstrated to furnish a reliable character by which to separate *M. meliigena* from *M. pseudocorticola*. *Mycena paludosa*, an incompletely known species, may prove to belong to a section of the genus as yet not represented in Europe. *Agaricus pruinosus* Viv., renamed *A. pruinatus* by Fries, is not a *Mycena*. The assumption that *M. viridimarginata* and *M. lutea* should be the same species is disputed.

Thanks are due to Mr M.F. Madelin (Department of Botany, Bristol) as well as to the Director and Librarian of the 'Istituto di Botanica e Fisiologia vegetale' (Padova) for supplying copies of the descriptions and illustrations of *Agaricus electicus* and *A. pruinosus*, respectively. My gratitude is also expressed to the authorities of the herbaria at Ann Arbor (MICH), Helsinki (H), København (C), München (M), and Stockholm (S), as well as to Prof. Dr W. Winterhoff (Sandhausen/Heidelberg) for the loan of material. Acknowledgment is made to the Director of the 'Rijksherbarium' for providing working facilities.

60. *MYCENA ATROMARGINATA* var. *PSEUDOIANTHINA* Blytt (?)

Mycena atromarginata var. *pseudoianthina* Blytt (?) in Vidensk. Selsk. Skr. (Math.-naturvid. Kl.) 1 (6): 36. 1905 – Type locality: Norway.

Blytt did not mention the author's name of the varietal epithet, which would suggest that he coined the name himself. Since there is no description to accompany the name, while also there is no reference to an earlier publication, the new variety is a *nomen nudum*.

61. *MYCENELLA BRYOPHILA* (Vogl.) Sing. – *M. COOLIANA* (Oort) Sing.

In enumerating the members of the genus *Mycenella* Singer (1975: 348) treated the above taxa as two separate species. Presumably, this opinion was based on Smith's monograph (1947). Kühner (1938: 613) recognized that *Mycena cooliana* Oort (1928: 248, 253) and *M. trachyspora* sensu A.H. Smith (1936: 429; 1947: 445) are the same, a view accepted by both Smith and Singer, but Smith (1947) maintained that *M. trachyspora* "is readily distinguished from *M. bryophila* by the absence of a pseudorhiza." For an understanding of the significance Smith attached to the pseudorhiza, a few lines of his notes on diagnostic characters may be quoted (p. 18) : "The base of the stipe may be characterized by a long rootlike projection, termed pseudorhiza. This is typical of a number of species, such as *M. galericulata*, ..." But it may be pointed out that the stipe of the latter species (p. 348) is said to be "often with a long pseudorhiza," while in *M. polygramma* the stipe is described as "sometimes with a well-developed pseudorhiza." Obviously, the pseudorhiza is not that typical as to be consistently present. Taking *M. mirata* as the representative of a completely different section, the stipe can be found to be rooting or non-rooting, the explanation being that "the manner of attachment varies with the substratum." This, no doubt, is the crucial point: The presence of a pseudorhiza is not a character that alone (without the support of several others) can be used for taxonomic separation. Smith (1947) indicated that *M. cooliana* (for which he used the name *M. trachyspora*) occurred "on humus under redwood," from which it seems reasonable to infer that nothing impeded the development of the stipe right from its mycelium. In the case of *Mycena bryophila*, however, it is illuminating to read that Voglino (1886: 617) had found his material "In locis muscosis." This seems to indicate that the moss had constituted an obstruction, necessitating the intercalation of a pseudorhiza between the base of the stipe and its nutrient mycelium.

As a result of the above argumentation, the two binomials under discussion are here considered to cover the same species for which *Mycenella bryophila* is the correct name.

62. *MYCENA DISSILIENS* sensu Bres. – Figs. 1, 2

Mycena dissiliens sensu Bres., Icon. mycol. 5: pl. 241. 1928. – Material: "*Mycena dissiliens* Fr. / In silve [illegible], Oct. 1879 / Leg. G. Bresadola" (S).

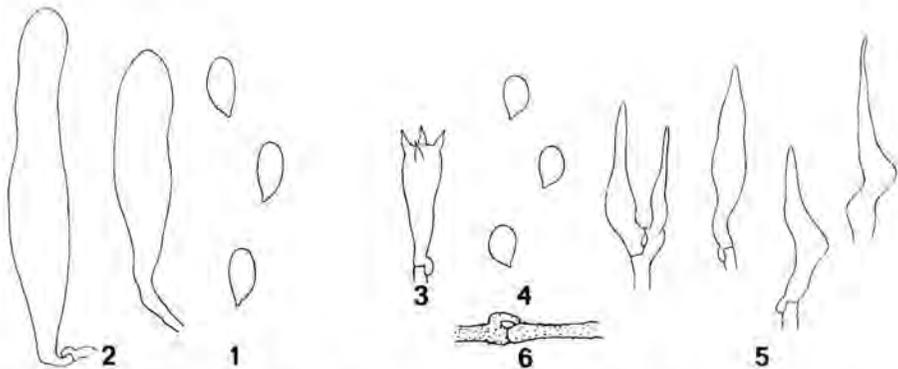
A single basidiome, badly infested by a mould, apparently found growing among vegetable debris of a mixed wood. Pileus 15 mm across, acutely umbonate, fairly dark brown, with darker marginal striae. Lamellae subdistant, fairly thick, now brownish. Stipe 25 × 2.5 mm, straight, curved below, coarsely fibrillose, now brownish, whitish-tomentose at the base.

Basidia 35–40 × 7–8 μm, slender-clavate, 4-spored, clamped. Spores 9.4–10.7 × 4.9–5.8 μm, pip-shaped, colourless, smooth, weakly amyloid. Cheilocystidia 50–90 × 10.5–13.5 μm, cylindrical to subfusiform, thin-walled, with rounded apex, protruding, clamped. Pleurocystidia similar. Hyphae of the pileipellis narrow, clamped, smooth.

There is little doubt but that the specimen redescribed above constitutes a part of the collection illustrated by Bresadola in his plate 241. Its characters readily identify the specimen as a member of section *Fragilipedes* (Fr.) Quél., and in this section it can be recognized to represent *Mycena algeriensis* Maire apud Kühn (1938: 490). Thus Bresadola's plate can be regarded as the first coloured illustration of a species which Kühner & Romagnesi (1953: 106) later would indicate as rare. It is true that Bresadola's description "odore farinaceo-rancido" differs from Maire's "à odeur nitreuse parfois faible," but odours may vary and a possible difference should not be given too much weight if all other characters are found to agree. In this connection it is of interest to note that Malençon & Bertault (1975: 224) mentioned quite different odours, while Romagnesi (apud Kühner, 1938: 488) gave the following description of the odour of a closely related species – *M. jacobi* Maire: "à odeur peu agréable (légèrement nitreuse à la coupe?)."

It is strange that Kühner should have disregarded Bresadola's plate, mentioning instead the interpretations of *M. dissiliens* by Voglino and A.H. Smith, neither of which will be discussed in this chapter.

Bresadola identified his material with the Friesian *Agaricus dissiliens*, but there are some discrepancies in the descriptions of both authors which renders identification of the original uncertain. If the true *A. dissiliens*, stated to be a very fragile fungus, should prove to be a member of section *Fragilipedes*, it still



Figs. 1, 2. *Mycena dissiliens* sensu Bres. – 1. Spores. – 2. Cheilocystidia.

Figs. 3–6. *Mycena laevigata* (Herb. Bresadola, S). – 3. Basidium. – 4. Spores. – 5. Cheilocystidia. – 6. Hypha of pileipellis. All figures, × 700.

must be realized that identification from a macroscopic (and rather inadequate) description alone is virtually impossible; the Friesian species is here dismissed.

Malençon & Bertault (1975: 225) certainly raised an interesting question in pointing out the difficulty of separating *M. algeriensis* from *M. jacobi* Maire/*M. niveipes* (Murrill) Murrill, but a solution cannot be expected without investigation of the material of the North American *M. niveipes*.

Van den Bosch (1858: 323) reported a find of what he believed to be *A. dissiliens* from the Netherlands and supplied a description slightly differently worded from but otherwise identical with Fries's original (1838: 108). No material is extant to check its identity.

63. AGARICUS (MYCENA) ELECTICUS Buckn.

Agaricus (Mycena) electicus Buckn. in Proc. Bristol Nat. Soc., N.S., 3: 132, pl. 2 figs. 2, 3. 1882. — *Mycena saccharifera* var. *electica* (Buckn.) Masee, Br. Fungus Flora 3: 82. 1893. — Type: not known to be in existence; represented by Bucknall's pl. 2 figs. 2, 3.

Bucknall's description is brief but, in connection with the greatly magnified basidiomes shown in fig. 3, quite sufficient for identification. In my opinion *A. electicus* is identical with *Mycena saccharifera*, formerly known as *Omphalia/Mycena quisquiliaris* and *M. pudica* (Maas Geesteranus, 1982: 284).

Although Josserand (1937: 88) claimed to have found his specimens of *Omphalia quisquiliaris* invariably on *Molinia*, he was aware of finds reported by other mycologists from *Rubus* and *Carex*. Hora (1960: 452, as *M. pudica*) also recorded *Cladium* as a host, while several labels of Dutch collections (L) mention such host plants as *Juncus*, *Phragmites*, *Typha*, and *Lotus uliginosus*. Obviously, *M. saccharifera* may be found to occur on a much wider variety of plants than originally believed, even including Bucknall's "furze, bracken, &c."

Bucknall's description states the stipe to be "slightly dilated . . . at the base," which is at variance with Josserand's "Pied . . . non bulbeux." It appears, however, that this character is equally subject to some variability. Some of the annotations accompanying the Dutch collections show the stipe to have had a swollen base.

64. OMPHALIA GRISEA sensu Bres.

In a former paper (Maas Geesteranus, 1981b: 424) two collections from Herb. Bresadola (S) under the name *Omphalia grisea* were discussed and shown to be different from each other. Kühner's supposition that *O. grisea* sensu Bresadola might be the same as *Mycena latifolia* (Peck) Sacc. proved impossible to verify. A third collection of *O. grisea* (Herb. G. Bresadola 1248, M), recently located through kind information of Prof. M. Moser (Innsbruck), turned out to be different again from the two others as well as from *M. latifolia*; its true identity remains unknown. A brief description follows.

Basidiomes in a small group, attached to some herbaceous stalk. Lamellae fairly long decurrent. Basidia (one seen) 4-spored. Spores 5.4–7.2 × 3.6–4.5 μm (immature), limoniform, non-amyloid.

Cheilocystidia (as far as visible) $27-35 \times 8 \times 4.5-5.5 \mu\text{m}$, cylindrical to somewhat fusiform. Lamellar trama not stained by Melzer's reagent.

65. MYCENA LAEVIGATA (Lasch) Gillet – Figs. 3–6

Agaricus laevigatus Lasch in *Linnaea* 3: 388. 1828. – *Mycena galericulata* var. *laevigata* (Lasch) Kummer, *Führ. Pilzfr.*: 111. 1871. – *Mycena laevigata* (Lasch) Gillet, *Hym.*: 274. 1876. – Type locality: Germany, Brandenburg. – Material examined: “*Mycena laevigata* Lasch / Bres. Fung. Trid. – pileo alba, stipite lubrico caesio – ad truncos *Abietis* exc. 7 VIII [1]902 Bresadola” (S).

Basidia $23-26 \times 7-8 \mu\text{m}$, clavate, 4-spored, clamped, with sterigmata up to $4.5 \mu\text{m}$ long. Spores $7.2-7.5 \times 4.5-5.4 \mu\text{m}$ (immature), pip-shaped, smooth, amyloid. Cheilocystidia $27-36 \times 3.5-6.5 \times 0.9-2 \mu\text{m}$, numerous but little protruding and sometimes hard to discern, subuliform, lageniform to fusiform or somewhat irregularly shaped and crooked, more rarely very narrow and almost cylindrical, clamped. Pleurocystidia absent. Hyphae of the pileipellis narrow, clamped, minutely verrucose-rough.

On the packet received from his herbarium Bresadola had jotted down some very characteristic features of the species and these, in connection with the substratum and the reference to “Bres. Fung. Trid.,” render it more than reasonable to accept the collection partly redescribed above and the one described and illustrated in Bresadola's ‘*Fungi tridentini*’ (1887: 72, pl. 78) as conspecific. Indeed, it is very satisfactory that the more recent descriptions of *M. laevigata* (Singer, 1936: 429; J. Schaeffer apud Kühner, 1938: 495; Kubička, 1963: 77), in spite of deficiencies of one kind or another, equally refer unmistakably to the very same species. It is not difficult moreover to recognize in the macroscopic details of these descriptions those given by Gillet and Lasch. All these fully correspond with two recent accessions to the ‘Rijksherbarium’, a well-annotated gathering from Austria (Steiermark), the other from Germany (Bayern) and accompanied by an excellent colour print, showing the characteristic blue-grey colour of the stipes. If, therefore, some uncertainty may have arisen in the past from Kühner's failure to cite Bresadola's illustration (1887: pl. 78; 1928: pl. 239), it should be realized that (i) Kühner was not acquainted with the species, which (ii) compelled him to rely on J. Schaeffer's notes for the macroscopic details of the description; but (iii) the latter gave no information on the bluish shade of the young stipe; while (iv) Bresadola later (1928) added to the uncertainty by pronouncing the cystidia as absent.

Some words must be said about the author citation which has variously been written as (Fries ex Lasch) sensu von Höhnel (Kühner, 1938: 494), (Lasch) Quélet (Smith, 1947: 322), (Lasch ex Fries) Quélet (Kubička, 1963: 77), and other minor variants. Fries, however, did not partake in the nomenclatural history of the species, so that his name should be deleted. Quélet (1877: 326/XLII) did use the binomial *Mycena laevigata* (at the same time very probably misapplying the name to a different species from Lasch's original), but that was in 1877, the year after Gillet had transferred *Agaricus laevigatus* to *Mycena*. With regard to the addition “sensu von Höhnel,” it may be pointed out that the latter author (von Höhnel, 1913: 270), rather than having a different opinion of *M. laevigata*, merely emended Bresadola's description by supplying additional details.

J.E. Lange (1914: 21, pl. 1 fig. c) described a new variety—var. *nivea*—of which he felt uncertain whether it should be placed under *Mycena alcalina* or under *M. laevigata*. However, he described the lamellae as “rather distant,” the stipe as “devoid of basal setae . . .,” and the cystidia as “obtuse or subobtuse.” None of these characters apply to *Mycena laevigata*. As a consequence, the recombination *Mycena laevigata* var. *nivea* (J.E. Lange) Cejp (1930: 14) is a misapplication.

66. MYCENELLA LASIOSPERMA (Bres.) Sing. – M. MARGARITISPORA – (J.E. Lange) Sing.

It may be assumed that Singer (1975: 348), as in the case of *M. bryophila* – *M. cooliana*, followed A.H. Smith in regarding the two species mentioned in the heading as distinct. The latter author (Smith, 1947: 445) reasoned as follows: “Bresadola, however, described *M. lasiosperma* as larger [than *M. margaritispora*], with a pseudorhiza, and as growing more or less cespitose on wood. Size alone is a poor character, but the three mentioned above, taken together, should not be disregarded.” It cannot be denied that some significance must be attributed to the consistent occurrence of the three features mentioned combined. It may not be accidental that in macroscopic respect the specimens in Smith’s photograph (A.H. Smith, 1935: pl. 3 fig. 2) and the three Dutch collections in the ‘Rijksherbarium’ very closely resemble Lange’s illustration (1914: pl. 1 fig. k), while differing considerably from Bresadola’s plate (1883: pl. 37 fig. 1). Since recent finds in Europe of the true *M. lasiosperma* seem to be unknown or at least unreported and records of *M. margaritispora* are rare, thwarting detailed investigation, it seems best for the time being to adhere to Smith’s view.

67. MYCENA LINEATA f. PUMILA J.E. Lange

Lange (1914: 31) asserted that transitional forms were known to connect his f. *pumila* with the “main type,” that is, the typical form of *Mycena lineata*. Kühner (1938: 309) doubted the correctness of this statement, adding that “nous avons tendances à la [f. *pumila*] considérer comme une espèce distincte.” It should be pointed out, however, that he failed to indicate what in his opinion Bulliard’s *lineata* looked like. Since Lange was convinced that f. *pumila* was no more than an ecologically determined form of *M. lineata*, the necessity arises to ferret out the identity of this species.

Fries (1821: 152), although he adopted the binomial proposed by Bulliard (1812: 547) and referred to the latter’s Pl. 522 fig. 3, actually described *Agaricus lineatus* from material he had himself seen fresh. Whereas Bulliard described the pileus as “substramineo-cinereus et fasciis fuscis aut fusco-fuliginis radiatim pictus,” Fries merely said “lineato-striato flavo.” In Bulliard’s description the stipe was stated to be “gracillimus, . . . niveus,” whereas Fries said “tenuis, flavescens.” This would appear to permit the conclusion that the species seen by Fries is different from Bulliard’s and that,

consequently, the author of *A. lineatus* is Fries, not Bulliard ex Fries. This in no way simplifies the question of how *A. lineatus* should be interpreted, but that is another problem which does not affect the present one. I am well aware of the various interpretations of Bulliard's species which for me continues to be an unknown taxon even though there exists an illustration. In the case of Fries' *A. lineatus*, however, the matter is different. Although I am inclined to think that this species represents *Mycena flavoalba* (Fr.) Quél., this assumption cannot be proved (nor can any other), and the name is therefore best rejected as a nomen dubium, but the important point here is that the species as described by Fries in the *Systema* is different again from *Mycena lineata* sensu Lange. Although lack of herbarium material precludes a definite conclusion, it would seem that Lange's macroscopic description of *M. lineata* and, more particularly, the aspect of the few cheilocystidia shown in Pl. 2 fig. 40 can be readily identified as those of *Mycena filopes* (Bull. ex Fr.) Kummer. Lange did not mention the smell of iodoform, but it is not unusual for specimens of this species to take some time before releasing the characteristic odour which moreover is often noticeable only after the basidiomes have been kept in a closed receptacle.

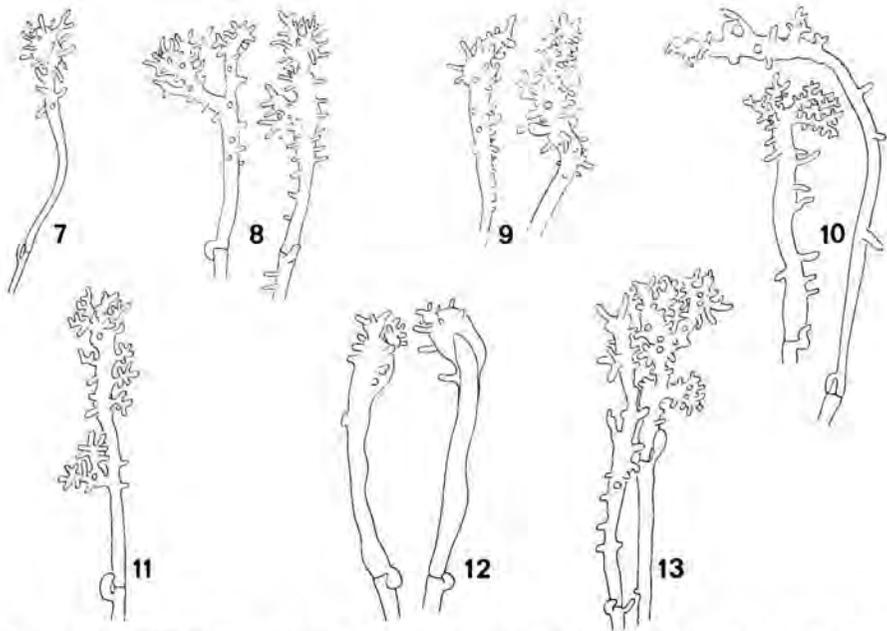
The identity of Lange's forma *pumila* seems to be much more certain, although here, too, actual proof cannot be given. In the Netherlands, not infrequently a fungus is found on moss-covered trunks of broad-leaved trees (such as *Salix* and *Ulmus*) which is notable for the fact that it (i) closely resembles Lange's illustration of *M. lineata* f. *pumila* and (ii), except for being epiphytic, proves indistinguishable from terrestrial specimens of *M. filopes*. It is true that the usually smaller size and the predominantly yellowish to olive-yellowish shades seem to set the epiphytic forms apart but, on studying ample material, it becomes apparent that there exists an intergrading series of populations connecting the epiphytic and terrestrial forms—an observation which completely parallels Lange's statement.

The dual conclusion to be drawn from this lengthy explanation is that collections in the Netherlands heretofore taken to be *Mycena lineata* f. *pumila* actually represent epiphytic forms of *M. filopes*, while most probably the same is true also of the original f. *pumila*.

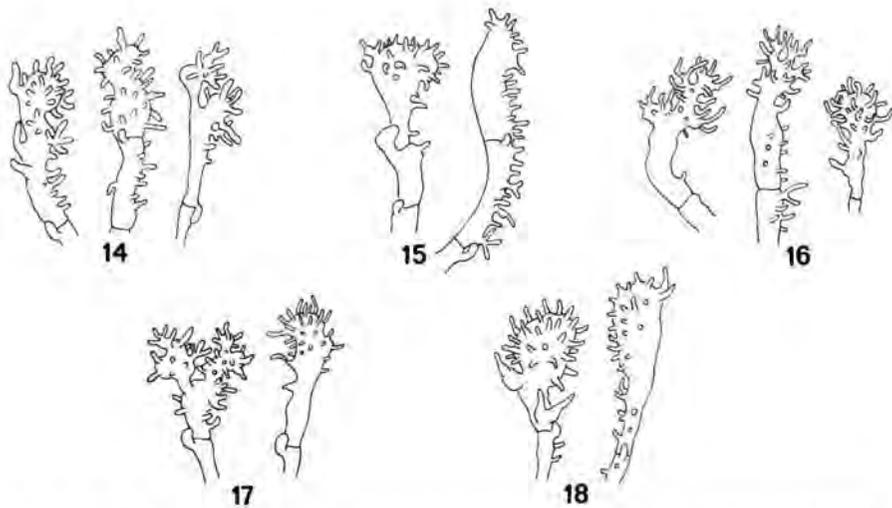
Moser (1978: 180) regarded *M. lineata* sensu Lange as identical with *M. oortiana*, a species in a previous paper renamed *M. arcangeliana* (Maas Geesteranus, 1981b: 420). Several objections can be raised against Moser's assumption: Lange found his specimens growing "on needles and twigs in fir-wood," whereas the preferred substratum of *M. arcangeliana* is decaying wood or the bark of deciduous trees. Lange described the stipe as whitish above and somewhat fuscous below, never mentioning the peculiar violaceous-greyish hue characteristic of the base of the stipe in *M. arcangeliana*. Lange depicted only two cheilocystidia, but their squat shape is highly typical of the majority of the cystidia in *M. filopes*, whereas the cheilocystidia in *M. arcangeliana* often are differently shaped and not infrequently mixed with long-stalked ones, if not entirely of this kind.

68. *MYCENA MELIIGENA* and *M. PSEUDOCORTICOLA* — Figs. 7–13, 14–18

Kühner (Kühner & Romagnesi, 1953: 100–101) judged the difference in the localization of the pigment in the hyphae of the pileipellis (and in those of the cortical layer of the stipe) among the more important characters by which to distinguish *Mycena meliigena* (Berk. & Cooke apud Cooke) Sacc. (Kühner used the binomial *M. corticola*) from *M. pseudocorticola* Kühn. There is no doubt but that this differential character is a good one, provided the material is fresh. However, since my own attempts at finding pigment in dried (and often badly dried) material tended to be indecisive, I felt the need of some other character which would be largely independent of the condition of the fungus. This I found in the terminal cells of the hyphae of the cortical layer of the stipe (figs. 7–13, 14–18). These cells, in both species, are more or less densely and variously covered with excrescences. Because of the variable length of the latter, the excrescences are not included in the length of the terminal cells. Judging from the dimensions shown in the table, it would seem as if a continuous series exists from short to long cells, but this is only partially true. The terminal cells in *M. pseudocorticola* have not been seen to exceed 35 μm in length, whereas



Figs. 7–13. *Mycena meliigena*, terminal cells of the hyphae of the cortical layer of the stipe. — 7. Poland [formerly Germany: Brandenburg, Tamsel], 3 Dec. 1904, P. Vogel (C). — 8. East-Germany: Brandenburg, Triglitz, 30 Dec. 1911, O. Jaap, Fungi sel. exs. 587 (“*M. corticola*”, H). — 9. West-Germany: Baden-Württemberg, S. of Sandhausen, 20 Nov. 1975, W. Winterhoff 75466 (Herb. Winterhoff). — 10. U.S.A.: New Jersey, Newfield, Nov. 1887, Ellis & Everhart, N. Am. Fungi, 2nd ser. 2007 (“*A. corticola*”, MICH). — 11. U.S.A.: New York, Ithaca, Cornell Univ. Campus, 31 Aug. 1903, C.H. Kauffman (“*M. corticola*”, MICH). — 12 U.S.A.: Michigan, Oakland Co., Milford, 8 Oct. 1937, A.H. Smith 6961 (“*M. corticola*”, MICH). — 13. U.S.A.: Texas, Atco, 1 Oct. 1935, E.A. Smith (“*M. corticola*”, MICH). All figures, $\times 700$.



Figs. 14–18. *Mycena pseudocorticola*, terminal cells of the hyphae of the cortical layer of the stipe. – 14. Finland: Uusimaa, Espoo, 5 Nov. 1965, M. Korhonen (H). – 15. Sweden: Västergötland, Göteborg, 7 Nov. 1938, T. Nathorst-Windahl 1379 in Lundell & Nannfeldt, *Fungi exs. succ.* 1123 (C). – 16. Netherlands: Noord-Holland, Amsterdamse bos, 22 Nov. 1976, J. Reijnders (L). – 17. Netherlands: Noord-Brabant, Dorst, 2 Dec. 1967, P.B. Jansen 67–123 (L). – 18. Belgium: Liège, near Trois Ponts, 16 Dec. 1978, J. Schreurs (L). All figures, $\times 700$.

much longer cells are by far the more common kind in *M. meliigena*. The difference has been checked for its consistency in collections of diverse provenance. *Mycena meliigena* is represented by collections from Poland (1), Germany (2), U.S.A. (6), and *M. pseudocorticola* by collections from Finland (2), Sweden (1), the Netherlands (2), and Belgium (1).

Table 1.

	<i>M. meliigena</i>	<i>M. pseudocorticola</i>
Length of the terminal cells of the hyphae of the cortical layer of the stipe	(22–) 32–80 μm	18–32 μm

Dr M.E. Noordeloos (Rijksherbarium) kindly undertook the investigation of the localization of the pigments, and he found that long terminal cells coincide with the hyphae of the pileipellis (as well as those of the cortical layer of the stipe) having a membranal as well as encrusting pigment, whereas short terminal cells correspond with intracellular pigment.¹

This is a felicitous result, since it enables old collections, of which commonly enough only the stipes remain, to be recognized with certainty.

¹ After both manuscript and drawings had been dispatched for publication, I received excellent material of *Mycena meliigena* collected in Italy by Dr J. Kubička (Protivin, Czechoslovakia) and kindly presented to the 'Rijksherbarium'. Here again, it was found that long terminal cells of the hyphae of the cortical layer of the stipe correspond with membranal pigment.

There is yet another side to the apparent connection of long terminal cells and membranal + encrusting pigment. In a previous paper (Maas Geesteranus, 1982: 280) I commented on the unusual appearance of the caulocystidia of the type of *Agaricus meliigena*, of which I was unable to discern more than botryoidal and somewhat gelatinized masses. Dr Noordeloos found the hyphae to have a membranal pigment (the encrusting matter probably having been removed by preceding maltreatment), and from this follows that the swollen structures seen represent the excrescences of terminal cells of the long kind. More important still, this definitely confirms that Singer was correct in assuming *Agaricus meliigena* and *Mycena corticola* sensu auctt. to be the same species (see Maas Geesteranus, 1979: 280).

69. MYCENA PALUDOSA R. Nav.

Mycena paludosa R. Nav. in *Natuurw. Tijdschr.* 5: 72. 1923. — Type locality: Belgium, Antwerpse Kempen, Nijlen.

“Basidiomata sometimes connate. Pileus 10–30 mm across, membranaceous, convex, then campanulate, smooth, striate, white, occasionally with undulate margin, covered with a very thin, viscous pellicle which can be easily peeled off. Lamellae 2–3 mm broad, distant, not ventricose, adnate-decurrent [presumably also white]. Stipe 20–30 × 2 mm, concolorous with the pileus, viscous, twisted-striate, occasionally apically flattened and white-pruinose, hollow and fragile. Spores 5–7 × 3–3.5 μm. In marshy ground.”

Naveau gave a description in (defective) Latin and in Dutch, a translation of which is offered above since the journal may not be easily obtainable. It is unfortunate that Naveau did not mention the cystidia, which precludes identification, but even without these the description very much reads like that of *Mycena glutinosa* Beardslee. *Mycena paludosa* may not be identical with that species, but very likely it belongs to the same section. This would be a remarkable fact since thus far all known members of sect. *Caespitosae* (A.H. Smith ex Sing.) Maas G. are extra-European.

70. AGARICUS PRUINOSUS Viv.

Agaricus pruinosus Viv., *Funghi Ital.*: 21, pl. 21 figs. 5–9. 1834 (not *A. pruinosus* Lasch). — *Agaricus pruinosus* Fr., *Hym. eur.*: 136. 1874 (name change). — *Mycena pruinata* (Fr.) Sacc., *Syll Fung.* 5: 261. 1887. — *Mycena pruinosus* (Viv.) Sacc. in *Flora ital. crypt.* 1 (Hym. 1): 257. 1915. — Type locality: Italy, Genova, Botanical Garden.

Viviani accentuated that his new species was devoid of any trace of a ring to its stipe, but he admitted that *Agaricus mastoideus* was found in its vicinity and that it had many features in common with that species (“Ha molti tratti in comune...”). The impression given by the figures is of an indubitable species of *Lepiota*, and some of the characters here translated seem to confirm this view. “Pileus strewn with squamules, as if covered with dew, white, the umbo ochraceous which sometimes turns red. Flesh fairly thin, tapering into a membrane which projects a little beyond the margin [the projecting part possibly representing the ring torn off the stipe]. Stipe elastic and firm, its flesh

fibrillose and tough, at the base swollen to form an ovoid bulb, rooting. Taste disagreeable, bitter. Smell fungoid."

Agaricus pruinosis may not even be related with *Lepiota mastoidea* or with what Viviani considered to be that species, but it is here definitely excluded from the genus *Mycena*.

71. MYCENA VIRIDIMARGINATA P. Karst. and M. LUTEA Bres.

Kubičková & Klán (1981: 34) suggested that *Mycena alcalina* (Fr. 1821) Kummer be abandoned as a nomen rejiciendum. While admitting that the grey-stiped element (*M. alcalina* sensu auctorum) of the Friesian composite-species as yet seems to lack a proper name, they proposed to use the binomial *Mycena viridimarginata* for the yellow-stiped part, giving a detailed redescription based on freshly collected material. One of the features stressed by the Czech authors is the variability of the colouration of the surface of the pileus, and this applies equally to the colour of the edge of the lamellae. This variability was also commented upon by Schwöbel (1981: 93) who came to the conclusion that *M. viridimarginata* and *M. lutea* represent the same species. If this should prove correct, the epithet *lutea* (1883) would prevail over *viridimarginata* (1892), but there are some obstacles.

One difficulty, admittedly a minor one, is that Bresadola (1883: 34) described the lamellae of his *M. lutea* as adnate-uncinate, whereas Schwöbel found those of *M. viridimarginata* to be "am Stiel mehr oder weniger verschmälert angewachsen." Kubičková & Klán found the lamellae "slightly to broadly adnate, straight." The second, and more serious, objection is that the type of *Mycena lutea* was shown to be 2-spored and devoid of clamp connections (Maas Geesteranus, 1981b: 425). The type of *M. viridimarginata*, however, is 4-spored (Maas Geesteranus, 1981a: 230) and most probably possesses clamps as may be inferred from the description of the Czech authors ("Trama of pileus ... with clamp connections"). Schwöbel also stated that the basidia in *M. viridimarginata* are 4-spored, and there is as yet no known description indicating that this species exists in a 4-spored and an exclusively 2-spored condition. *Mycena viridimarginata*, then, would appear not to be the same as *M. lutea*. In this connection it should be pointed out that Bresadola never mentioned a coloured edge to the lamellae of *M. lutea*, describing them instead as "albae, dein ad marginem pilei luteae." This seems to suggest that, perhaps, the interpretation of the colour of the lamellar edge requires closer observation and correction.

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Studies in Mycenas 72Berkeley's fungi referred to *Mycena* - 2

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This is the second and last part of a revision of the fungi in Berkeley's Herbarium referred to *Mycena*, and deals with the Himalayan species.

Agaricus flavominiatus is reduced to the synonymy of *Mycena acicula*. *Agaricus incommiscibilis* turns out to be a smooth-spored *Mycenella*, and is transferred to that genus, a new combination. A key is given to the smooth-spored species of *Mycenella*. *Agaricus rubiaetinctus*, *A. russulinus*, and *A. xanthophyllus* are regarded to represent a single species, for which *Mycena russulina* is selected as the correct name. *Hiatula boninensis*, a species overlooked in the previously published part of the revision, is made the type species of a new section, *Mycena* sect. *Exornatae*.

It is not without trepidation that I embarked upon the revision of the Himalayan agarics in Berkeley's Herbarium reputed to be *Mycenas*. I have to admit that the result turned out more or less as expected, for I had been forewarned. In his Foreword to Vasudeva's book "The fungi of India" (1960) S.P. Wiltshire had stated "There will inevitably be scores of names which will have to be removed from the Indian lists because they are *nomina dubia* with the original specimens indeterminable or lost." About one half of the species examined lacked one or more essential microscopic details or did not allow any conclusion to be drawn or belonged to some other, unidentified genus, not *Mycena*.

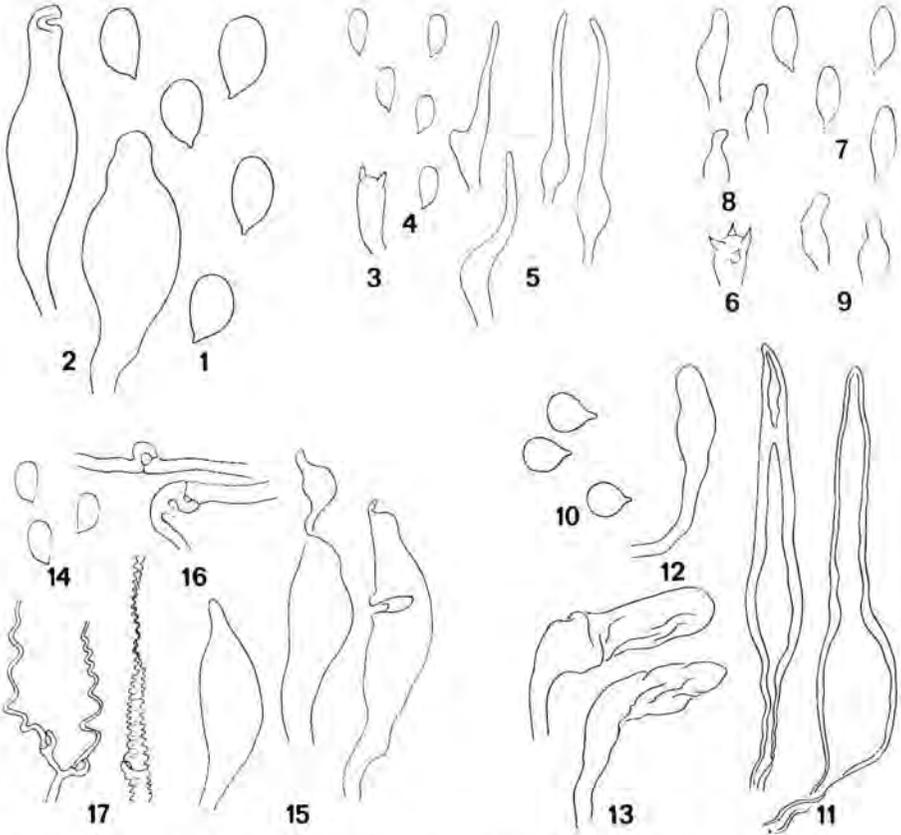
My gratitude is expressed to the authorities of the Herbarium at Kew for the loan of Berkeley's types. Acknowledgment is made to the Director of the "Rijksherbarium" for providing working facilities.

AGARICUS (MYCENA) ARATUS Berk.—Figs. 1, 2

Agaricus (Mycena) aratus Berk. in Hooker J. Bot. 2: 79. 1850.—*Mycena arata* (Berk.) Sacc., Syll. Fung. 5: 269. 1887.—Holotype: "544. *Agaricus aratus*, B. / [in a different hand:] *Ag. aratus*, Berk. / Sinchal" (K).

Pileus c. 4–5 mm radius, shallowly sulcate, striate, brownish to dark brown. Lamellae ascending, brownish, with convex edge. Stipe c. 35 × 0.5–1 mm, glabrous for the greater part, brownish, paler below, covered with dingy yellowish fibrils towards the base.

Basidia 36? × 11.5–13.5 μm, clavate, none observed with sterigmata. Spores 11.5–13.9 × 8.0–9.0 μm (mature?), pip-shaped, smooth, amyloid. Cheilocystidia 54–74 × 13.5–20 × 7–9 μm, fusiform, thin-walled, none seen intact. Pleurocystidia not noticed. Hyphae of the pileipellis indiscernible.



Figs. 1, 2. *Agaricus (Mycena) aratus* (holotype). — 1. Spores. — 2. Cheilocystidia.

Figs. 3–5. *Agaricus (Mycena) colligatus* (holotype). — 3. Basidium. — 4. Spores. — 5. Cheilocystidia.

Figs. 6–9. *Agaricus (Mycena) flavominiatus* (holotype). — 6. Upper part of basidium. — 7. Spores. — 8. Cheilocystidia. — 9. Caulocystidia.

Figs. 10–13. *Mycenella incommiscibilis* (holotype). — 10. Spores. — 11. Cheilocystidia. — 12. Terminal end of hypha of pileipellis. — 13. Caulocystidia.

Figs. 14–17. *Agaricus (Mycena) manipularis* (holotype). — 14. Spores. — 15. Cheilocystidia. — 16. Hyphae of pileipellis. — 17. Hyphae of cortical layer of stipe. All figs., × 700.

The present species is a member of section *Fragilipedes* (Fr.) Quél. It has some features in common with *Mycena avellaneibrunnea* Thiers (1958: 516), such as somewhat pinkish lamellae, glabrous stipe, large spores, shape of the cheilocystidia, and lack of pleurocystidia. Moreover, both Berkeley and Thiers saw some parallel of their species with *Mycena galericulata* (Scop.: Fr.) S.F. Gray, but the differences between *Mycena arata* and *M. avellaneibrunnea* are clear. The former is said to have ventricose lamellae (narrow in the latter), and both its basidia and spores are appreciably broader than those of the latter.

AGARICUS (MYCENA) BICRENATUS Hook. fil. apud Berk.

Agaricus (Mycena) bicrenatus Hook. fil. apud Berk. in Hooker J. Bot. 2: 79. 1850.—*Mycena bicrenata* (Hook. fil. apud Berk.) Sacc., Syll. Fung. 5: 278. 1887.—Holotype: "542. *Agaricus bicrenatus*, B. / [in a different hand:] no. 58. *A bicrenatus*, Hook. fil. / Darjeeling" (K).

Two specimens glued to a piece of paper, blackened, and ostensibly in very poor condition.

Basidia, spores, and cheilocystidia not seen, the hymenium being entirely overrun by a mould. Lamellar trama collapsed, not noticeably reddening in Melzer's reagent. Hyphae of pileitrama and pileipellis collapsed.

Although the original description very much reads like that of some species of *Mycena*, the lack of information on all the essential microscopic details precludes the determination of the taxonomic position of the present species.

The locality [Darjeeling] mentioned on the label may cause some uncertainty, since in the description the species was said to have been collected at Jillapahar. As may be gathered from the check list of Indian fungi (Vasudeva, 1960: 169), the latter locality (to be spelled Jallapahar) is a section of Darjeeling.

AGARICUS (MYCENA) BROOMEIANUS Berk.

Agaricus (Mycena) broomeianus Berk. in Hooker J. Bot. 2: 77. 1850.—*Mycena broomeiana* (Berk.) Sacc., Syll. Fung. 5: 281. 1887.—Holotype: "519. *Agaricus Broomeianus* B. / Sikkim Himalaya" (K).

Pileus, glued to a piece of paper, torn into three segments, circa 28 mm radius, radiately plicate-sulcate, in some places finely transversely rugulose, membranous-brittle, fairly dark reddish brown, paler towards the margin. Lamellae, as far as visible, 0.2 or 0.3 mm broad, thin, reddish brown. Stipe 95 × 1–1.8 mm, woody, solid, coarsely fibrillose above, reddish brown, covered with long, woolly fibrils towards the base which seems to have been broken off.

Basidia not seen. Spores of three kinds (probably all three shed by moulds), two being densely echinulate, the third one smooth, 6.3–7.2 × 4.9–5.4 μm, subglobose to ellipsoid, somewhat thick-walled, non-amyloid, without apiculus. Cheilocystidia not seen. Lamellar trama not vivescent in Melzer's reagent. Hyphae of the pileitrama collapsed, presence of clamps uncertain. Hyphae of the cortical layer of the stipe thick-walled, with narrow, tortuous lumina.

On account of the construction of the cortical layer of the stipe, the one detail that was found to be clearly visible, *Agaricus broomeianus* clearly does not belong to *Mycena*.

AGARICUS (MYCENA) COLLIGATUS Berk.—Figs. 3–5

Agaricus (Mycena) colligatus Berk. in Hooker J. Bot. 4: 101. 1852.—*Mycena colligata* (Berk.) Sacc., Syll. Fung. 5: 271. 1887.—Holotype: “525. *Agaricus colligatus*, B. [written in ink] / *Ag. (Mycena) colligatus*, Berk. / Sikkim no. 7 [written in pencil]” (K).

Pileus 8 mm diameter, hemispherical, shallowly sulcate, translucent-striate, glabrous, yellow-brown to subfulvous. Lamellae, as far as visible, about 0.5 mm broad, arcuate, decurrent, concolorous with the pileus, edge whitish. Stipe more than 40 mm long (the basal part missing), slightly less than 1 mm wide below, very finely longitudinally striate above, fairly coarsely ribbed farther down, somewhat darker than the pileus, nearly glabrous above, covered with fine, somewhat arachnoid fibrils in the lower part.

Basidia c. $22.5 \times 5.4\text{--}6.3 \mu\text{m}$, clavate, one seen with 2 incipient sterigmata. Spores $5.8\text{--}7.3 \times 3.5\text{--}4.0 \mu\text{m}$, possibly immature, pip-shaped, smooth, amyloid. Cheilocystidia c. $30\text{--}36 \times 5.5\text{--}6.5 \times 1.8 \mu\text{m}$, numerous, more or less lageniform with long, tapering neck. Pleurocystidia absent. Lamellar trama slightly reddening in Melzer's reagent, some of its hyphae observed to lack clamps. Hyphae of the pileitrama without clamps. Hyphae of the pileipellis collapsed, smooth, not gelatinized.

Agaricus colligatus is a true member of *Mycena*, but there seems to be no section available to accommodate this species. In order to be certain, however, better material is required.

AGARICUS (MYCENA) DENTOSUS Berk.

Agaricus (Mycena) dentosus Berk. in Hooker J. Bot. 4: 102. 1852.—*Mycena dentosa* (Berk.) Sacc., Syll. Fung. 5: 282. 1887.—Holotype: “523. *Agaricus dentosus*, B [written in ink] / *Ag. (Mycena) dentosus*, Berk. / Sikkim 1849 no. 29 [written in pencil]” (K).

Three specimens, heavily pressed, and glued to a piece of paper. Pile is 10–15 mm diameter, convex, somewhat umbonate, shallowly sulcate, darker-striate, dark reddish brown to almost blackish in places. Lamellae ascending, reddish brown. Stipe 40–47 mm long, very much flattened by pressing, seemingly glabrous above, covered with long, yellow-brown fibrils below, apparently with the base broken off in all three specimens.

Basidia agglutinated and collapsed, infested with moulds, sterigmata not seen. Spores $11.2\text{--}11.6 \times 7.2\text{--}8.0 \mu\text{m}$, probably immature, pip-shaped, smooth, amyloid. Cheilocystidia not observed. Pileipellis collapsed, made up of parallel narrow hyphae.

This would appear to be a member of *Mycena*, but it is not possible to allocate the species to any of the existing sections for lack of details.

AGARICUS (MYCENA) DISCORDIS Berk.

Agaricus (Mycena) discordis Berk. in Hooker J. Bot. 4: 101. 1852.—*Mycena discordis* (Berk.) Sacc., Syll. Fung. 5: 264. 1887 [“discors”].—Holotype: “526. *Agaricus discordis*, B. [written in ink] / *Ag. (Mycena) discordis*, Berk. / Sikkim. June 16. 1849. no. 4 [written in pencil]” (K).

Pileus 23 mm diameter, umbilicate, transparent-membranaceous, looking as if gelatinous, yellow-brown. Lamellae decurrent, agglutinated, looking as if gelatinous, yellow-brown. Stipe $30 \times 1.5\text{--}2$ mm, curved, somewhat ribbed, reddish brown, darker below.

Basidia $35? \times 7\text{--}8 \mu\text{m}$, clavate, none seen with sterigmata. Spores none seen with certainty. Cheilocystidia absent. A fragment of a lamella placed in Melzer's reagent develops violet spots after some time, but these are not caused by concentrations of amyloid spores.

To judge from the shape and the consistency of the pileus as well as the lack of cheilocystidia it would seem safe to conclude that this species is not a member of *Mycena*.

AGARICUS (MYCENA) FLAVOMINIATUS Berk.—Figs. 6–9

Agaricus (Mycena) flavominiatus Berk. in Hooker J. Bot. 4: 103. 1852.—*Mycena flavominiata* (Berk.) Sacc., Syll. Fung. 5: 289. 1887.—Holotype: “*Ag. (Mycena) flavominiatus*, Berk. / Sikkim 1849. no. 26 [written in pencil]” (K).

The material sent for investigation seems to be only a part of the type and consists of one small specimen, a fragment of a second pileus, and a stipe.

Pileus 2.5 mm radius (in the larger specimen), hemispherical (in the smaller specimen), yellow-brown. Lamellae ascending, less than 0.5 mm broad, subfulvous. Stipe minutely puberulous for the greater part, covered with long, coarse, yellowish fibrils below, yellow-brown to subfulvous.

Hymenial elements extremely difficult to discern, clamp connections not observed. Basidia 24? \times 7–8 μ m, clavate, one seen with four sterigmata. Spores 10.0–11.2 \times 4.4–4.7 μ m, elongated, pip-shaped to subfusiform, smooth, non-amyloid. Cheilocystidia 4.5–5.5 μ m wide, little protruding, subfusiform. Pleurocystidia not noticed. Lamellar trama not vinescent in Melzer’s reagent. Hyphae of the pileipellis densely branched, forming a coralloid mass covering the surface of the pileus. Caulocystidia hardly distinguishable, cylindrical to fusiform.

Berkeley’s macroscopic description and the microscopic details given above leave no doubt that *Agaricus flavominiatus* is identical with *Mycena acicula* (Schaeff.: Fr.) Kummer. The one point that seems anomalous for the latter species is the statement that *A. flavominiatus* had been collected “In pine-woods, on sticks. . .,” whereas *M. acicula* is generally said to occur on debris of broad-leaved trees. This would suggest that Berkeley’s fungus might be related with *M. oregonensis* A.H. Smith, a species known to grow on coniferous needles. However, *A. flavominiatus* differs from that species in the colour of the pileus, the attachment of the lamellae, and the ornamentation of the hyphae of the pileipellis (see Kühner, 1938: 607, and fig. 214, bottom right). *Agaricus flavominiatus* is here reduced to the synonymy of *Mycena acicula*.

Mycenella incommiscibilis (Berk.) Maas G., comb. nov.—Figs. 10–13

Agaricus incommiscibilis Berk. in Hooker J. Bot. 4: 102. 1852 (basionym).—*Mycena incommiscibilis* (Berk.) Sacc., Syll. Fung. 5: 281. 1887.—Holotype: “522. *Agaricus incommiscibilis* B. [written in ink] / *Ag. incommiscibilis*, Berk. / Sikkim 1849 no. 11 [written in pencil]” (K).

Pileus 10–11 mm diam., campanulate, acutely umbonate, reddish brown clouded with paler spots, very dark at the apex. Lamellae ascending, up to 1 mm broad, adnate, decurrent with a short tooth, puberulous (owing to the presence of pleurocystidia), yellow-brown, with fimbriate edge. Stipe 80 \times 1–1.5 mm, very finely pruinose, yellow-brown to subfulvous, darker below, towards the base (which is broken off) covered with long, coarse, yellowish fibrils.

Basidia c. 30 \times 8 μ m, either immature or damaged, clavate, one seen with 4 incipient sterigmata. Spores 7.0–8.5 \times 6.0–6.3 μ m, immature, globose, smooth, with large, prominent apiculus, non-amyloid. Cheilocystidia 70–80 \times 10–15 μ m, fusiform or lageniform, thick-walled (walls up to 3 μ m), with undivided apex. Pleurocystidia similar. Lamellar trama not staining in Melzer’s reagent. Pileipellis largely destroyed; a single, clavate, smooth hyphal end was observed to curve away from the pileus trama and perpendicular to the upper surface, most probably being a remnant of the

palisade-like pileipellis which, to judge from the scattered collapsed masses, gives the impression of having been discontinuous. Some hyphae of the pileus trama found to possess clamps. Hyphae of the cortical layers of the stipe here and there curved outwards to form cylindrical, smooth, thin-walled caulocystidia, 35–55 × 9–11 μm.

Some of the microscopic features of the present species are not unlike those described by Singer (1975: 397, 400) for the genus *Hydropus* (Kühn.) Sing., more especially sect. *Mycenoides* Sing. On the other hand, the species combines characters which make its inclusion in *Hydropus* impossible. (i) Its spores are globose and (ii) have a large, prominent apiculus; (iii) the type material is very dark but the trama of the pileus lacks oleiferous hyphae such as known for sect. *Hydropus*; (iv) dermatocystidia as described for sect. *Mycenoides* are absent. It cannot be denied, however, that the position of the species within *Mycenella* tends to be close to *Hydropus* on account of the nature of the hyphae of the pileipellis and of the caulocystidia. Another species of somewhat intermediate position is *Mycenella subtropicalis* Sing. (1953: 7), but this species clearly tends somewhat more towards the *Mycenella* side. The proximity of the genera *Hydropus* and *Mycenella* does not seem to have been given close attention before.

Apart from *M. subtropicalis*, a few more species of *Mycenella* have been described as smooth-spored: *M. eriopus* (Sacc. & Syd.) Sing. (1962: 343), *M. margaritifera* (Maire apud Kühn.) Maas G. (1981: 436), and *M. salicina* (Vel.) Sing. (1951: 291). *Mycenella funebris* Sing. (1952: 213) according to its description would seem to be yet another smooth-spored species, but it was no longer maintained in this genus by its author (1975), while it is not clear whether this is because it was tacitly considered to be the same as *Hydropus funebris* (Speg.) Sing. apud Sing. & Grinling (1967: 364).

A provisional key is given below to facilitate the identification of the species.

KEY TO THE SMOOTH-SPORED SPECIES OF *Mycenella*

1. Pileus grey-brown, ferruginous, dark brown, or ochraceous.
 2. Spores smoothly rounded.
 3. Cheilocystidia thick-walled.
 4. Pileus convex, fuscous. Lamellae adnate. Caulocystidia stated to be thick-walled. Argentine: *M. subtropicalis*.
 4. Pileus campanulate, acutely umbonate, ochraceous. Lamellae adnate, decurrent with a short tooth. Caulocystidia thin-walled. Sikkim: *M. incommiscibilis*.
 3. Cheilocystidia thin-walled: *M. salicina*.
 2. Spores obtusely angular: *M. eriopus*.
1. Pileus pure white: *M. margaritifera*.

AGARICUS (MYCENA) MACROTHELUS Berk.

Agaricus (Mycena) macrothelus Berk. in Hooker J. Bot. 4: 103. 1852.—*Mycena macrothela* (Berk.) Sacc., Syll. Fung. 5: 294. 1887.—Holotype: "545. *Agaricus macrothelus*, B. [written in ink] / *Agaricus macrothelus*, Berk. / Khasia no. 19 [written in pencil]" (K).

The type specimen is entirely covered by a bluish film, possibly caused by the use of mercuric chloride. The pileus is collapsed and obviously brittle, while the

two partly visible lamellae are so firmly agglutinated as to give not the slightest hope of recovering spores or any other microscopic element without ruining the specimen. I decided to refrain from investigation. All that can be said is based on deduction. In the original description, the pileus is stated to be half an inch across, whereas the pileus now scarcely measures 2 mm diameter. This reduction in size suggests a context made up of gelatinized hyphae, and if this should prove true, *Agaricus macrothelus* is not a member of *Mycena*.

AGARICUS (MYCENA) MANIPULARIS Berk.—Figs. 14–17

Agaricus (Mycena) manipularis Berk. in Hooker J. Bot. 2: 81. 1850.—*Mycena manipularis* (Berk.) Sacc., Syll. Fung. 5: 272. 1887 [not *Mycena manipularis* (Berk.) Métrod, based on *Favolus manipularis* Berk. in Hooker J. Bot. 6: 229. 1854].—Holotype: "no. 49. / *Ag. manipularis*, Berk. / Sinchal." (K).

Two specimens, partly destroyed by insects and invaded by a mould. Pileus (of the bigger specimen) about 4.5 mm radius, convex, somewhat sulcate and translucent-striate, pale dingy ochraceous, with the margin incurved. Lamellae subhorizontal(?), somewhat decurrent, concolorous with the pileus or somewhat darker, edge paler. Stipe c. 22×0.1 –1 mm, glabrous for the greater part, yellow-brown above, dark brown below, yellowish-tomentose at the base.

Basidia c. 22 – 27×6.5 – $7 \mu\text{m}$, almost indiscernible, sterigmata not seen. Spores 7.2 – 7.6×3.6 – $4.6 \mu\text{m}$, very few seen undamaged, probably immature, pip-shaped, smooth, amyloid. Cheilocystidia 45 – 70×10 – $13.5 \times 6.5 \mu\text{m}$, fusiform, thin-walled, with the apex usually somewhat apiculate. Pleurocystidia present? Hyphae of the pileipellis 2.7 – $3.5 \mu\text{m}$ wide, branched, clamped, smooth, embedded in a gelatinous matrix. Hyphae of the cortical layer of the stipe 1 – $4 \mu\text{m}$ wide, branched, clamped, undulate to crispate (artifact?), smooth (not diverticulate), embedded in a gelatinous matrix.

This is a member of section *Caespitosae* (A.H. Smith ex Sing.) Maas G., but obviously different from all North American species treated by A.H. Smith (1947).

It may be pointed out that *Mycena manipularis* and its var. *microporus* as described by Corner (1954: 267 and 269) refer to a different taxon, based on *Favolus manipularis* Berk. Whether or not this taxon should be placed in *Mycena* requires a discussion which is out of place in the present context.

AGARICUS (MYCENA) MYRIADEUS Berk.

Agaricus (Mycena) myriadeus Berk. in Hooker J. Bot. 2: 78. 1850.—*Mycena myriadea* (Berk.) Sacc., Syll. Fung. 5: 271. 1887.—Holotype: "538. *Agaricus myriadeus*, B. / [in a different hand:] no. 130 / *Ag. myriadeus*, Berk. / Darjeeling" (K).

Three groups of densely fasciculate, immature basidiomes glued to one piece of paper, and four separate and older specimens attached to another. Pileus up to 16 mm diam., convex, umbonate in some younger, slightly depressed in several older specimens, shallowly sulcate, fulvous in the younger, yellow-brown in the older specimens. Lamellae ascending, broadly adnate, decurrent with a tooth, concolorous with the pileus. Stipe up to 65 mm long, 0.5 – 1 mm wide, glabrous for the greater part, concolorous with the pileus, tomentose at the base.

Basidia agglutinated, damaged, none seen with sterigmata, diffusing a blue colour into the surrounding Melzer's fluid. Spores of different kinds present but none obviously belonging, neither clearly amyloid. Cheilocystidia absent.

The unsatisfactory results of the microscopic investigation give no clue about the generic relation of the present species.

AGARICUS (MYCENA) NUBIGENUS Berk.—Fig. 18

Agaricus (Mycena) nubigenus Berk. in Hooker J. Bot. 2: 78. 1850.—*Mycena nubigena* (Berk.) Sacc., Syll. Fung. 5: 269. 1887.—*Mycena galericulata* var. *Mycena nubigena* (Berk.) Rick in Lilloa 2: 285. 1938 (not validly publ. and misapplied).—Holotype: "no. 78. / *Ag. nubigenus*, Berk. / Darjeeling" (K).

One half specimen and a fragment of a smaller second specimen glued to a piece of paper. Pileus 13 or 14 mm radius, shallowly conical, glabrous, yellowish grey-brown. Lamellae agglutinated, pale dingy yellowish. Stipe c. 30 × 1–1.5 mm, flattened, apparently somewhat fissile, subfulvous.

Basidia not seen. Spores not seen. Cystidia (it is impossible to say whether the few seen were cheilocystidia or pleurocystidia), 70–80 × 13.5–18 × 6.5–8 μm, fusiform, thin-walled, without clamps(?). Lamellar trama (as far as distinguishable) staining more deeply yellow-brown in Melzer's reagent, not reddening. Hyphae of the pileipellis indiscernible.

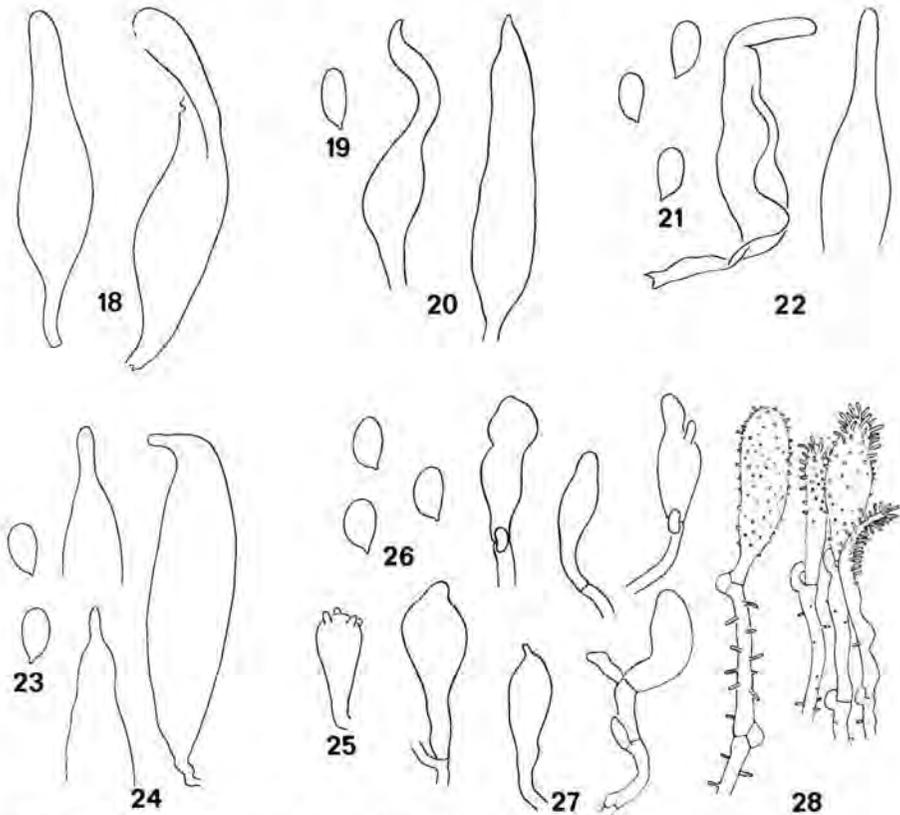


Fig. 18. *Agaricus (Mycena) nubigenus* (holotype). — Cystidia.
 Figs. 19, 20. *Agaricus (Mycena) rubiaetinctus* (holotype). — 19. Spore. — 20. Cheilocystidia.
 Figs. 21, 22. *Agaricus (Mycena) russulinus* (holotype). — 21. Spores. — 22. Cheilocystidia.
 Figs. 23, 24. *Agaricus (Mycena) xanthophyllus* (holotype). — 23. Spores. — 24. Cheilocystidia.
 Figs. 25–28. *Hiatula boninensis* (holotype). — 25. Basidium. — 26. Spores. — 27. Cheilocystidia.
 — 28. Terminal cells of hyphae of pileipellis. All figs., × 700.

Assuming that the spores of the intact fungus are amyloid and, thus, the species is a member of the genus *Mycena*, the type is easily identifiable as belonging to section *Fragilipedes* (Fr.) Quél., one of the truly difficult groups of grey-brown species. It may be pointed out that in the original account *Agaricus nubigenus* was stated to be allied to *A. galericulatus*. This recalls a remark made by Romagnesi (apud Kühner, 1938: 488) who in describing *Mycena jacobi* Maire (also a member of the *Fragilipedes*) drew the attention to the resemblance of this species to *Mycena galericulata*. It is true that the cheilocystidia of *A. nubigenus* are not unlike those of *M. jacobi*, but otherwise too little is known about the former species to venture any conclusion.

AGARICUS (MYCENA) PRASIUS Berk.

Agaricus (Mycena) prasius Berk. in Hooker J. Bot. 2: 81. 1850.—*Mycena prasia* (Berk.) Sacc., Syll. Fung. 5: 264. 1887.—Type: reported absent (K).—Type locality: Sikkim, Himalaya range, top of Tonglo.

Some of the features mentioned in the original description suggest a greenish form of *Mycena epipterygia* (Scop.: Fr.) S.F. Gray, but it was emphasized that there was none of the viscosity of that species. In *M. epipterygia*, moreover, the lamellae are neither few in number, nor "free or adnexed" but always decurrent with a tooth.

In the absence of material it is no use speculating on the identity of *A. prasius*.

AGARICUS (MYCENA) RUBIAETINCTUS Berk.—Figs. 19, 20

Agaricus (Mycena) rubiaetinctus Berk. in Hooker J. Bot. 2: 79. 1850.—*Mycena rubiaetincta* (Berk.) Sacc., Syll. Fung. 5: 291. 1887.—Holotype: "539. *Agaricus rubiaetinctus*, B. / [in a different hand:] no. 84. / *Ag. rubiaetinctus*, Berk. / Darjeeling" (K).

One half of a heavily pressed specimen glued to a piece of paper. Pileus c. 9 mm radius, almost blackened. Lamellae agglutinated, ascending, dark brown. Stipe broken off from its base, black-brown.

Basidia agglutinated, collapsed and damaged, apically staining dark blue in Melzer's reagent (signifying that the spores must be amyloid). Spore (only one observed, but not in Melzer's solution) $10.5 \times 4.5 \mu\text{m}$, elongated, almost cylindrical, smooth, amyloid (see remark with the basidia). Cheilocystidia $55\text{--}65 \times 9\text{--}12.5 \times 4.5\text{--}6.5 \mu\text{m}$, subfusiform, numerous, thin-walled, with their bases lost in collapsed tissue. Pleurocystidia not noticed. Hyphae of the pileipellis most probably radiately arranged, agglutinated, smooth?

See remarks under *A. russulinus*.

AGARICUS (MYCENA) RUFATUS Berk.

Agaricus (Mycena) rufatus Berk. in Hooker J. Bot. 2: 80. 1850.—*Mycena rufata* (Berk.) Sacc., Syll. Fung. 5: 272. 1887.—Holotype: "no. 44 / *Ag. rufatus*, Berk. / Darjeeling" (K).

Two small specimens glued to a piece of paper, with the lamellae almost completely destroyed by insects. Basidia, spores, and cystidia not observed.

Hyphae of the lamellar trama hard to distinguish, giving the impression of having gelatinized walls, which would agree with the description of the pileus as viscid. It is not possible to say whether the species is a member of *Mycena*.

AGARICUS (MYCENA) RUFOPICTUS Berk.

Agaricus (Mycena) rufopictus Berk. in Hooker J. Bot. 2: 82. 1850.—*Mycena rufopicta* (Berk.) Sacc., Syll. Fung. 5: 294. 1887.—Holotype: "543. *Agaricus rufo-pictus*, B. [in a different hand:] no. 48 / *Ag. rufo-pictus*, Berk. / Darjeeling" (K).

Two unequally large specimens glued to a piece of paper, both moulded. Pileus 10–14 mm diam., with concentrically wrinkled surface, yellow-brown. Lamellae c. 1 mm broad, adnate to subdecurrent, concolorous with the pileus surface, edge not infrequently dark brown, shiny. Stipe 44–52 × 1–2 mm, broken off from the base, glabrous for the greater part (but locally covered with patches consisting of what seem to be spores of some Myxomycete), subfulvous to dark brown, towards the base covered with a dense, dingy yellowish tomentum.

Basidia destroyed. Spores not seen with any certainty. Cheilocystidia?, at least none seen of the kind typical of section *Hygrocyboideae* (Fr.) Sing. Edge of the lamellae formed by a gelatinous layer c. 90 μm high, in which are embedded intertwined, collapsed, thin-walled hyphae which are locally inflated to form (intercalary?) spindle-shaped bodies, c. 36 × 9–15 μm. Hyphae of the pileipellis collapsed, smooth, embedded in a gelatinous layer. A small fragment of a lamella placed in Melzer's reagent results in various parts staining dark violet-blue, but these patches cannot be identified as agglomerations of amyloid spores.

Berkeley considered the species allied to *Mycena epipterygia* (Scop.: Fr.) S.F. Gray, but the lack of cheilocystidia of the kind known to occur in that species, and the smooth hyphae of the pileipellis show the supposition to be erroneous. Any other suggestion must remain conjectural; it is not even certain that the type is a member of *Mycena*.

AGARICUS (MYCENA) RUSSULINUS Berk.—Figs. 21, 22

Agaricus (Mycena) russulinus Berk. in Hooker J. Bot. 2: 80. 1850.—*Mycena russulina* (Berk.) Sacc., Syll. Fung. 5: 272. 1887.—Holotype: "no. 43. / *Ag. russulinus*, Berk. / Darjeeling" (K).

Pileus 8–15 mm diam., convex, with a low umbo, shallowly sulcate, yellow-brown to subfulvous. Lamellae ascending, free or, perhaps, narrowly adnate, concolorous with the pileus. Stipe 17–22 × 1 mm, glabrous for the greater part, subfulvous, darker below, sparsely covered with dingy yellowish fibrils at the base.

Basidia (two seen undamaged) c. 28 × 6.5–7 μm, clavate, 4-spored, with sterigmata up to 7 μm long. Spores 9.0–9.6 × 5.4–6.3 μm, immature, elongated, pip-shaped, smooth, amyloid. Cheilocystidia (as far as discernible) 60–80 × 13.5 × 2.7–3.6 μm, fusiform, thin-walled, subapiculate. Pleurocystidia not noticed. Hyphae of the pileipellis collapsed, narrow, smooth. One hypha of the pileitrama observed with what may have been a clamp.

The original descriptions of *Agaricus rubiaetinctus*, *A. russulinus*, and *A. xanthophyllus* very much suggest that different developmental stages of the same species have been described. The material of the three types, moreover, were collected on woody substrata, all near Darjeeling, and at altitudes which differ little from each other. As may be gathered from the three descriptions, the species is remarkable for its tendency to turn increasingly red in all its parts

with age. Taking into account that the condition of all three types is distressingly poor, the agreement of such important microscopic features as shape and amyloidity of the spores, shape and size of the cheilocystidia, apparent lack of pleurocystidia, and the apparent absence of diverticulate hyphae of the pileipellis is significant. I am convinced that the three species as described by Berkeley actually represent a single species, for which *Mycena russulina* is here chosen as the correct name. *Agaricus rubiaetinctus* and *A. xanthophyllus* are here formally reduced to its synonymy, since their types in microscopic respect are even somewhat more incomplete than the material of *A. russulinus*.

It would seem that no section in *Mycena* is available to accommodate the present species, but for a section to be described as new material without defects or at least in much better shape is preferred.

AGARICUS (MYCENA) XANTHOPHYLLUS Berk.—Figs. 23,24

Agaricus (Mycena) xanthophyllus Berk. in Hooker J. Bot. 2: 80. 1850.—*Mycena xanthophylla* (Berk.) Sacc., Syll. Fung. 5: 272. 1887.—Holotype: "528. *Agaricus xanthophyllus*, B. / [in a different hand:] no. 42. *Ag. xanthophyllus*, Berk. / Darjeeling" (K).

Two halves of a specimen (possibly the same specimen) glued to a piece of paper. Pileus 12–13 mm diam., convex with a slight umbo, shallowly sulcate, glabrous, yellow-brown to subfulvous. Lamellae agglutinated and much broken, ascending, free, yellow-brown to subfulvous. Stipe c. 28 × 1 mm, glabrous for the greater part, yellow-brown, fairly dark reddish brown below, covered with dingy yellow-brown fibrils towards the base.

Basidia crumpled and damaged, none seen with sterigmata. Spores 8.1–9.0 × 4.5–5.4 μm, with few exceptions all crumpled, pip-shaped, smooth, amyloid. Cheilocystidia – 65 × 10.5–16 × 2.2–3.5 μm, fusiform, fairly numerous, thin-walled, apiculate, the majority seen without their bases. Pleurocystidia not noticed. Hyphae of the pileipellis most probably radiately arranged, collapsed, indistinguishable individually, smooth (at least none seen diverticulate).

See remarks under *A. russulinus*.

ADDENDUM

The following species has been overlooked in my previous publication on Berkeley's species (Maas Geesteranus, 1982: 273–285).

HIATULA BONINENSIS Berk. & Curt.—Figs. 25–28

Hiatula boninensis Berk. & Curt. in Proc. Am. Acad. Arts Sci. 4: 118. 1858[?].—*Mycena boninensis* (Berk. & Curt.) Sing. in Beih. Sydowia 7: 39. 1973; Singer, Agaricales, 3rd ed.: 389. 1975.—Holotype: "1360. *Hiatula Boninensis*, B & C [written in ink] / *Hiatula Boninensis*, B & C / U.S.E.E. [written in pencil]" (K).

A single specimen glued to a piece of paper. Pileus 6 mm diam., brownish. Lamellae hardly separately discernible but apparently widely spaced, free or, possibly, stellately receding from the stipe, now fairly pale yellowish brown, but fresh said to be ventricose, white. Stipe with the base broken off, 11 × 0.5 mm, minutely puberulous, brownish.

Basidia 18–24 × 8–11 μm, immature, clavate or somewhat obpyriform, one seen with 4 incipient sterigmata, presumably clamped. Spores 8.2–9.8 × 4.9–5.5 μm, probably all immature, pip-

shaped, smooth, weakly amyloid, with clouded-granular contents. Cheilocystidia 25–30 × 8–12 μm, fusiform or somewhat clavate, sometimes apiculate, clamped (but clamp-connections not infrequently malformed or developing into side-branches). Pleurocystidia absent. Hyphae of the pileipellis 0.9–2.7 μm wide, branched, anastomosing, clamped, smooth but terminally with scattered excrescences, the terminal cell inflated, 20–36 × 6.5–12.5 μm, more or less densely covered with warts or cylindrical excrescences. Hyphae of the cortical layer of the stipe seem to carry some scattered excrescences (which proved impossible to determine with certainty).

Along with the type specimen, a second specimen was received with the following annotation: “*Mycena* ‘*Corrugaria*’-group — teste Singer (from unnumbered material).” The two specimens proved to be conspecific. Singer (1975: 389) later incorporated this ‘*Corrugaria*-group’ in his section *Radiatae* Sing., and he held the opinion that *Mycena boninensis* could well be a member of it. The description of section *Radiatae*, however, contains some elements that do not tally with the present species (“basidia often remarkably short and broad,” “cheilocystidia often absent, if present... sometimes hairlike”), while Singer was reticent about such a highly conspicuous feature as the diverticulate terminal cells of the hyphae of the pileipellis. Actually, it is felt that section *Radiatae* in the sense of Singer is a heterogeneous taxon, and seems best restricted to its type species, *Mycena radiata* (Dennis) Sing. which (if the illustration and the interchanged description by Dennis [1953: 497, fig. 41] are correctly understood) is characterized by globose spores and absence of cheilocystidia.

Since no section can be found to accommodate *M. boninensis*, the following is proposed as new.

MYCENA sect. **Exornatae** Maas G., sect. nov.¹

Basidiomata statura media. Pileus brunneolus. Lamellae distantes, liberae (an stellatim a stipite recedentes?), ventricosae, albae. Stipes minute puberulus. Basidia clavata, 4-sporigera. Sporae inequilateraliter ellipsoideae, laeves, tenui-amyloideae. Cheilocystidia fusiformia, fibulata. Pleurocystidia nulla. Hyphae pileipellis angustae, ramosae, fibulatae, magna ex parte laeves, apicibus inflatis diverticulatis.—Species typica: *Mycena boninensis* (Berk. & Curt.) Sing.

Basidiomata medium large. Pileus brownish. Lamellae distant, free (or, possibly, stellately receding from the stipe), ventricose, white. Stipe minutely puberulous. Basidia clavate, 4-spored. Spores pip-shaped, smooth, weakly amyloid. Cheilocystidia fusiform, clamped. Pleurocystidia absent. Hyphae of the pileipellis narrow, branched, clamped, smooth for the greater part, the terminal cell inflated, diverticulate.—Type species: *Mycena boninensis* (Berk. & Curt.) Sing.

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¹*Exornatus*, embellished, referring to the striking, diverticulate terminal cells of the pileipellis.

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ON TWO MYCENAS THUS FAR UNREPORTED FROM NORWAY.

R. A. MAAS GEESTERANUS, OEGSTGEEST, THE NETHERLANDS &
Ø. WEHOLT, FREDRIKSTAD, NORWAY,

In this paper two species of Mycena are recorded which were not previously authenticated for the Norwegian flora by a description. One of these species, Mycena arcangeliana, proved to give some difficulty in the identification. This led to the realization that it might be useful to tabulate its macroscopic features so as to bring out the full variability of the species as it is known in the Netherlands.

Mycena arcangeliana Bres. apud Barsali.

Mycena arcangeliana Bres. apud Barsali in Bull.

Soc. bot. ital: 78. 1904.

Mycena oortiana Hora in Trans. Br. mycol. Soc. 43: 452. 1960.

Pileus c. 15 mm across, campanulate, with pronounced umbo, smooth, distinctly translucent-striate almost to the disc, olivaceous greyish brown at the centre, more yellowish olive farther outwards, paler towards the margin. Odour of iodoform after the material had been kept in a closed box for a day. Lamellae 25-30 reaching the stipe, moderately tender, ascending, narrowly adnate, pale yellowish with a slight shade of the colour of the pileus, turning pale pinkish on drying out, edge convex, concolorous. Stipe c. 50 x 1-1,5 mm, hollow, firm, equal, smooth, pruinose above, glabrous for the greater part, pale yellowish, almost cream above, gradually darkening to olivaceous grey towards the base, densely covered with long, coarse, flexuous, whitish fibrils towards the base.

Basidia c. 24 x 8-9 μm , clavate, 4-spored, clamped.

Spores 9,4-11,0 x 5,0-6,5 μm , pip-shaped, smooth, amyloid.

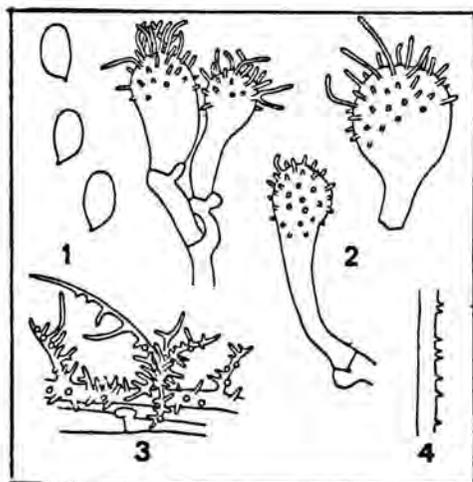
Cheilocystidia 27-40 x 9-20 μm , not occurring mixed with basidia (lamellar edge homogeneous), slender-clavate to obpyriform, clamped, covered with fairly evenly spaced warts or cylindrical excrescences, the latter often of very unequal length, measuring up to 20x0,9-1,3 μm . Pleurocystidia similar. Lamellar trama brownish vinaceous in Melzer's reagent. Hyphae of the pileipellis 1,8-3,5 μm wide, clamped, diverticulate, with some of the excrescences becoming very much longer and intricately branched, forming densely coralloid clusters. Hyphae of the cortical layer of the stipe diverticulate.

Norway : Østfold, Rygge, Kajalunden, 27.Nov. 1982. Ø.Weholt M 90/82, solitary on a fallen, decayed twig of Fagus

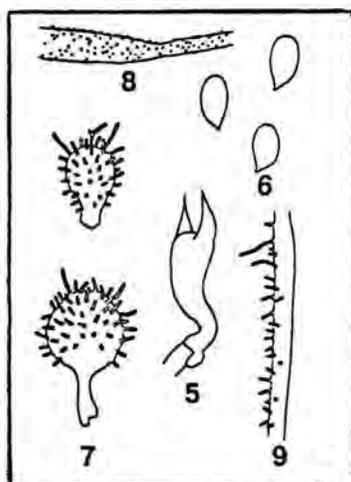
Kühner (1938: 297; as M. arcangeliana var. oortiana) did not know the species and adopted the description as given by Oort (1928: 229), but subsequently (Kühner & Romagnesi, 1953) he dropped the name, presumably on the assumption that the species does not occur in France. However, Mycena arcangeliana probably is very widely distributed in Europe since its known area of distribution at present includes Norway, the Netherlands (L), Great Britain (as M.oortiana Hora), Belgium (L), Switzerland (L), Italy, and the Island of Corsica (L).

In the Netherlands, Mycena arcangeliana is a very common species, showing great variability such as may not be encountered in regions where conditions seem less favourable. A phenomenon which is not clearly understood but may be associated with external influences is that there exist pale forms (with a predominance of clear yellow shades) and dark forms (in which the yellow component is less pronounced or lacking). Intergrading forms between the two extremes establish that all belong to one and the same species.

PALE FORM	DARK FORM
<p>Pileus stramineous, pale citrine, or pale sulphureous, with darker centre of an olivaceous to sepia brownish shade, finally losing the yellowish component, and turning pale grey to pale sepia grey-brown, not becoming flushed with pinkish or incarnate shades with age.</p> <p>Lamellae pale citrine to pale sulphureous, becoming whitish, tending to turn pinkish or flesh-colour on drying out.</p> <p>Stipe pale violaceous grey, but this colour apparently soon largely superseded by pale grey or pale sepia grey-brown shades, the base long remaining pale greyish violet, apically watery white to dingy whitish.</p>	<p>Pileus watery sepia brown to fairly dark grey-brown, darker at the centre, and not infrequently with some olivaceous hue, paler towards the margin where a more or less pronounced yellowish shade may linger. Turning neither pinkish nor incarnate with age.</p> <p>Lamellae pale grey-beige or very pale sepia grey-brown at times with a yellowish or olivaceous touch, paler towards the edge, tending to turn pinkish or flesh-colour on drying out.</p> <p>Stipe at first violaceous grey, fairly pale bluish violet to steel blue, with age becoming increasingly tinged with sepia brown, the lilaceous to violaceous shades persisting longest near the base of the stipe, apically watery whitish to pale watery brownish.</p>



Figs. 1-4 : *Mycena arcangeliana*.
(Weholt M 90/82).
1. Spores. 2. Cheilocystidia.
3. Hyphae of the pileipellis.
4. Part of a hypha of the
cortical layer of the stipe.



Figs. 5-9 : *Mycena mirata*.
(Weholt M 83/82).
5. Basidium. 6. Spores.
7. Cheilocystidia.
8. Part of a hypha of the
pileipellis.
9. Part of a hypha of the
cortical layer of the stipe.

ALL FIGS. x 700.

Mycena mirata (Peck) Sacc.

Agaricus miratus Peck in Bull. Buffalo Soc.nat.Sci.1:48.1873.

Mycena mirata (Peck) Sacc.,Syll. Fung. 5: 290. 1887.

Prunulus miratus (Peck) Murrill in N.Am. Flora 9: 327. 1916.

Basidiomata more or less gregarious. Pileus 3-6 mm across, hemispherical to campanulate, somewhat sulcate, translucent-striate, finely pruinose, pale greyish, paler to almost white towards the margin. Flesh very thin. Odour indistinctive. Lamellae 8-10 reaching the stipe, tender, ascending, broadly adnate, decurrent with a tooth, white, with convex, white edge.

Stipe -20 x 0,4 mm, hollow, straight to curved, equal, smooth, pruinose to minutely puberulous above, glabrous farther below, pale greyish for the greater part, white towards the apex, attached to the substratum by long, fairly coarse, whitish fibrils radiating from the base.

Basidia 21,5-24 x 6,5-9 µm, clavate, 2-spored, clamped, with plump sterigmata up to 8 µm long. Spores 8,1-10,0 x 4,6-5,4 µm, pip-shaped, smooth, weakly amyloid. Cheilocystidia 14,5-23 x 8-15 µm not mixed with basidia (lamellar edge homogeneous), clavate to obpyriform, clamped, covered with fairly evenly spaced, often unequally long, mostly simple, cylindrical excrescences 1,7-7 x 0,5-0,9 µm. Pleurocystidia absent. Lamellar trama strongly vivescent in Melzer's reagent. Hyphae of the pileipellis 2,5-9,5 µm wide, clamped, fairly densely covered with warts or minute cylindrical excrescences. Hyphae of the cortical layer of the stipe covered with unequally long (up to 20 µm), very narrow (c. 0,8 µm) excrescences.

Norway : Telemark, Bamble, Langesund, Gjømle, 19.Nov. 1982.

Ø.Weholt M 83/82. on bark of Sorbus.

As far as Europe is concerned, Mycena mirata is also known from the following countries : Denmark (L), Finland, the Netherlands (L), Great Britain (Pearson, 1955: 60-61), Belgium (L), France (Kühner, 1938: 282), Czechoslovakia (Kubička, 1958: 36).

From the North American continent it is known from Canada and the United States (both MICH). Kristoffersen (1981: 38) mentioned the species in an ecological and sociological paper, but omitted to give a description.

Smith (1947: 114) commented upon the difficulty which "will very likely be experienced in distinguishing M. capillaris from M. mirata". Apart from the characters he mentioned which "will serve to distinguish them (the species) at once", there is yet another. The lamellar edge in Mycena mirata is homogeneous, entirely made up of cheilocystidia, whereas it is heterogeneous in M. capillaris, containing cheilocystidia as well as basidia.

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Studies in Mycenas 73–92

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In the present paper, some of the older species, particularly those described by Fries and Lasch, are discussed. While a number of them prove to be unidentifiable and, as a consequence, their names should be deleted as nomina dubia, others may not even belong to the genus *Mycena* or turn out to be synonyms.

Mycena picta which appears to be a species with an unusual set of characters is proposed as the type species of section *Pictae*.

Some of the North American species of *Mycena* are shown to be different from the European originals whose names they bear. They appear to be new species which will have to be formally described. Work to this end, including many microscopic drawings, is in preparation and will be published in a separate series.

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73. AGARICUS AVENACEUS Fr.

Agaricus avenaceus Fr., Syst. mycol. 1: 150. 1821. – *Mycena avenacea* (Fr.) Quéf. in Mém. Soc. Emul. Montbél. II 5: 241. 1872. – Type locality: Sweden, apparently Femsjö (according to Fries, Monogr. Hym. Suec. [*Mycena*]: 7. 1857).

Kühner (1938: 419) stated of the species he named *Mycena avenacea*: "Il est peu probable que cette espèce soit le *M. avenacea* de Fries, qui viendrait dans les hêtraies, et aurait un stipe cinerascens et un chapeau brun, puis «caesio-lividus»." This is plain language, but Kühner avoided giving his interpretation of Fries' species.

Taking into account the description Fries gave of the lamellae of *A. avenaceus*: "lamellis . . . candidis, margine fusco," it seems only natural to look for its proper place within section *Rubromarginatae*. In this section, the one European species with some elements in its description that come reasonably near those of *A. avenaceus* is *Mycena viridimarginata* P. Karst., recently redescribed from ample fresh material by Kubičková & Klán (1981: 36), and known for the rather variably coloured edges of its lamellae. But the differences between the two species are such as to preclude any thought of *A. avenaceus* and *M. viridimarginata* being the same thing. Fries stated that his species occurred among fallen leaves in beech woods, its lamellae were crowded, and its stipe was radicate. *Mycena viridimarginata*, by contrast, is a species of coniferous woods, its lamellae are "subdistant to distant" (Kubičková & Klán), and the stipe is not rooting. From this it follows that an interpretation of *Agaricus avenaceus* is not possible. Since moreover there is no known record of a species having been found in more recent times in Sweden answering to Fries' description, the binomial is best obliterated as a nomen dubium.

Dennis, Orton & Hora (1960: 120) had taken this step long ago by choosing the unambiguous name *Mycena olivaceomarginata* (Massee apud Cooke) Masee. For a redescription of the microscopic details of the type of that species, see under *M. olivaceomarginata*.

Kühner (l.c.) suggested that *M. avenacea*, which he accepted in the sense of Schroeter (1889), be renamed *Mycena brunneomarginata*, but the expression used ("Nous proposerions . . .") indicates that he did not definitely accept this name change.

74. MYCENA CINEREA Masee & Crossl.

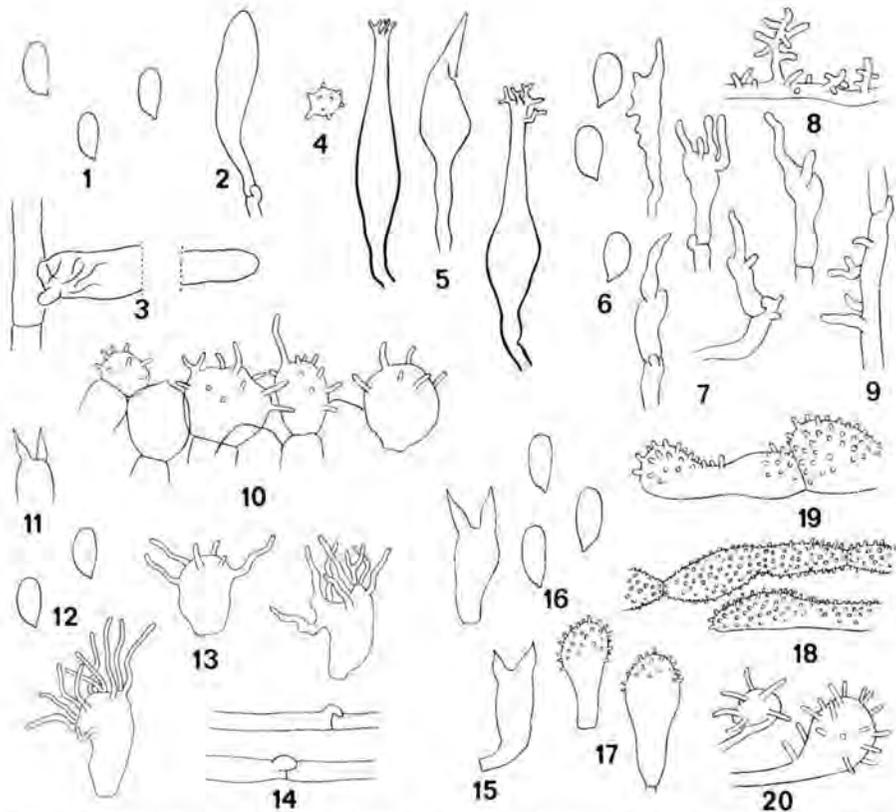
Mycena cinerea Masee & Crossl. in *Naturalist* 28: 1. 1902; *Fungus Flora Yorks.*: 49. 1905. — Holotype: not known to be in existence (not in K, NY). — Lectotype: represented by a water-colour, microscopic drawing, and brief description (NY).

The original description is here copied as the journal in which it appeared may not be easily accessible.

"Entirely grey or dull lead colour; smell strong, resembling radishes. Pileus 1.5–2 cm., slightly gibbous or obtuse, soon expanded, margin striate, paler and silky when dry; gills adnate, rather distant, mealy with the spores, edge paler; spores elliptical, smooth, $8 \times 5 \mu$, cystidia fusiform; stem 5–7 cm. long, slender, cylindrical, glabrous, base downy, white."

"Among short grass. First collected at Selby, Yorks., afterwards met with at Louth, Lincs., and at Kew, Surrey."

Masee's pencilled notes accompanying the water-colour at NY also include the indication "Herbarium grounds Kew 10/[18]95." His water-colour, show-



Figs. 1–3. *Agaricus limbatus* Lasch (isotype, B). – 1. Spores. – 2. Cheilocystidium. – Caulocystidium.

Figs. 4, 5. *Agaricus lineatus* var. *atrocinerus* Sacc. (lectotype). – 4. Spore. – 5. Cheilocystidia.

Figs. 6–9. *Agaricus olivaceomarginatus* Massee apud Cooke (holotype). – 6. Spores. – 7. Cheilocystidia. – 8. Part of a hypha of the pileipellis. – 9. Hypha of the cortical layer of the stipe.

Fig. 10. *Mycena picta* (Fr.: Fr.) Harmaja (Netherlands: Province Utrecht, Amerongen, 2 Oct. 1980, Th.W. Kuyper; L) – Terminal cells of the cheilocystidia.

Figs. 11–14. *Mycena picta* (Fr.: Fr.) Harmaja (Norway: Østfold, Borge, Skjaerviken, 24 July 1981, R. Kristiansen; L). – 11. Basidium. – 12. Spores. – 13. Terminal cells of the cheilocystidia. – 14. Hyphae of the pileipellis.

Figs. 15–20. *Mycena polyadelphia* (Lasch) Kühn. (Netherlands: Province Gelderland, near Wilp, 7 Nov. 1981, G. & J.H. Piepenbroek; L). – 15. Basidia. – 16. Spores. – 17. Cheilocystidia. – 18. Hyphae of the pileipellis. – 19. Terminal cells of a hypha of the pileipellis. – 20. Caulocystidia (turned 90 degrees).

All figs., $\times 700$.

ing a broadly umbonate pileus, dark grey lamellae, and a pronounced sepia brown shade in two of the specimens, combined with the description of the odour, leaves no doubt about the identity of the species. *Mycena cinerea* is identical with *M. aetites* (Fr.) Quél., as surmised by Dennis, Orton, & Hora (1960: 179).

75. *AGARICUS DEBILIS* Fr.

Agaricus debilis Fr., Epicr. Syst. mycol.: 112. 1838 — *Mycena debilis* (Fr.) Quélet. in Mém. Soc. Emul. Montbél. II 5: 107. 1872. — Type locality: Sweden.

Fries, apparently under the impression of the delicacy of his species, stated that basidiomata found outside the forest wilted within an hour if the weather was fair [= dry]. This graphic description immediately recalls the equally evocative line "Flétri d'un souffle" written by Kühner (1938: 263) to help describe *Mycena polyadelpha* (Lasch) Kühn. It is, in fact, difficult not to think of this species if it were not for the remarkable variation in colour of *A. debilis*. Whereas *M. polyadelpha* is entirely white (but may become brownish with age), Fries mentioned such diverse colours like whitish, incarnate, livid (which is a leaden grey), etc. (which is taken to stand for yet one or more colours). It may be asked whether Fries really described a single species (quite apart from the question whether that species is a *Mycena*). The feeling of doubt is aggravated on consulting the two illustrations to which Fries referred (Bulliard, pl. 518 fig. P, and Flora danica pl. 1670 fig. 1), the former most probably representing two separate species, both of which look rather different from the specimens depicted in the latter. Considering the uncertainty regarding the identity of *Agaricus debilis*, the best course seems to abolish the name altogether as a nomen dubium.

Quélet did not give an interpretation of his own of the species, his description and Fries' being almost verbally the same.

J.E. Lange's (1914) interpretation of *M. debilis* was recognized by Kühner (p. 252) to represent *Mycena smithiana* Kühn., and he had the same opinion with regard to the species described as *M. debilis* by Beardslee & Coker (1924: 80).

Bresadola (1928: pl. 249 fig. 1) gave an illustration of what he considered to be *M. debilis* but, compared with the two figures quoted by Fries, his fungus is more robust, while the lamellae appear to be decurrent (clearly ascending in the figures mentioned by Fries). Also, the width of the stipe in his fungus is indicated as 1–2 mm which is not in agreement with Fries' description "filiformi-capillari." Bresadola moreover failed to mention the fibrillose base of the stipe and instead depicted this base as somewhat rooting, whereas Fries had described the stipe as "basi arrhizo fibrilloso." Another difference is that Bresadola described the pileus as "fuscidulus, margine albedo," which is not necessarily the same as the original "ex albedo . . . fuscenscens." It would seem, therefore, that Bresadola's *M. debilis* is a different species from *Agaricus debilis*.

Smith (1947: 130) described a *Mycena debilis*, for the illustration of which he referred to Bresadola's pl. 249 fig. 1 and to Fries (1867: pl. 82 fig. 4). As discussed above, the species described and illustrated by Bresadola differs from the original *A. debilis* in too many points to be considered conspecific. As regards the second illustration cited by Smith, it should be pointed out that the basidiomes depicted do not represent the typical form of *A. debilis*. Fries (p. 90) clearly said that they were what he called *Agaricus debilis* forma *fallax*, differing from the typical form in having a brownish pileus becoming paler [with age] and a

shorter and firmer stipe. Setting aside that Smith's choice of the illustrations is unfortunate, it seems unlikely that his interpretation of *A. debilis* can be proved to be the correct one.

With even less confidence Rabenhorst, *Fungi europaei* 1103 must be viewed. The material for this number was collected by C. Kalchbrenner and subsequently distributed as *Agaricus debilis*, without a single descriptive note. The Berlin copy of this exsiccatum possesses amyloid spores measuring $7.6\text{--}9.0 \times 4.5\text{--}4.9 \mu\text{m}$ and rather collapsed, balloon-shaped cheilocystidia which apically are densely covered with short cylindrical excrescences. Whether this material represents the true *A. debilis* must be left undecided.

76. AGARICUS EXCISUS Lasch.

Agaricus excisus Lasch in *Linnaea* 4: 534. 1829 – *Mycena excisa* (Lasch) Kummer, *Führ. Pilzk.*: 111. 1871. – Type locality: Germany, Brandenburg, near Driesen.

Lasch characterized his species by saying that it was "*Ag. polygrammo proximus*" and this was presumably taken by later authors as an indication that the species belonged to the genus *Mycena*. This interpretation very probably is correct but there is no consensus as to the identification of the species.

Kühner (1938), rejecting the conceptions of the species of Bresadola (p. 329), Ricken (p. 493), and J.E. Lange (p. 517), followed the interpretation of Smith (p. 493), but subsequently dropped the binomial altogether from the 'Flore' (Kühner & Romagnesi, 1953). He placed *M. excisa* sensu Smith in the group of the *Fuscescentes*, a synonym of sect. *Fragilipedes* (Fr.) Quél. (see Maas Geesteranus, 1980: 106). The original description by Lasch is not inconsistent with this choice, but does not entirely exclude a second possibility—true *M. excisa* could equally well be a member of section *Mycena*. Both sections are without doubt the most difficult of the genus, comprising many species which all look rather similar macroscopically. Since a type specimen of *A. excisus* is not known to be in existence, while also no authentic material was distributed in the exsiccatum series issued by Klotzsch or Rabenhorst (see Kohlmeyer, 1962), it is virtually impossible to be certain about the identity of the species. The conclusion to be drawn from this is that the name, being a nomen dubium, should be deleted.

77. AGARICUS FUSCELLUS Lasch.

Agaricus fuscillus Lasch in Rabenh., Klotzsch. *Herb. viv. mycol.*, Cent. 20: no. 1905. 1854; in *Flora* 13: 266. 1855. – *Mycena? fuscilla* (Lasch) Sacc., *Syll. Fung.* 5: 283. 1887. – Isotype: Rabenh., Klotzsch. *Herb. viv. mycol.* no. 1905 (BR; not in M, S).

The copy of the exsiccatum received from BR consists of three basidiomes glued to a piece of paper. Pileus 9–12 mm across, apparently heavily pressed since grains of sand appear embedded in the tissue, glabrous, ochraceous yellow-brown to dark hazel. Lamellae poorly discernible, rumpled and agglutinated, brown. Stipe about $20 \times 1\text{--}1.5$ mm, flattened, glabrous, paler or darker red-brown, whitish-tomentose at the base.

Basidia $20\text{--}22.5 \times 5.5 \mu\text{m}$, immature, clavate, one seen with two incipient sterigmata, clamped. Spores $4.9\text{--}5.4 \times 2.8 \mu\text{m}$, rare (four observed), pip-shaped, smooth, colourless, non-amyloid.

Cheilocystidia absent. Lamellar trama not virescent in Melzer's reagent. Pileipellis made up of narrow, thin-walled, smooth, clamped hyphae. Pileitrama not virescent in Melzer's reagent.

Judging from the few microscopic details available in connection with Lasch's macroscopic description, *Agaricus fuscellus* is not a member of *Mycena*.

78. MYCENA GALERICULATA var. ALBIDA Gillet.

Agaricus [Mycena] galericulata β *albida* Alb. & Schw., Consp. Fung.: 191. 1805 (nomen nudum).

Agaricus galericulatus albus Secr., Mycogr. suisse 2: 292. 1833 (not validly publ., see Intern. Code, 1978: Art. 23. 6. c).

Mycena galericulata var. *albida* Gillet, Hym.: 276. 1876. — Type locality: France.

Mycena galericulata var. *albida* Sacc. in Flora ital. crypt. 1 [pars 1: 275. 1915] fasc. 15: 1359. 1916. — Type locality: Italy.

Mycena galericulata var. *candicans* Vel., Českè Houby: 316. 1920. — Type locality: Czechoslovakia.

It is only natural to turn to Kühner's monograph (1938) for the name of a fungus which obviously belongs to *Mycena galericulata* (Scop.: Fr.) S.F. Gray but which is entirely white instead of brownish. However, no definitely accepted record of a white form is to be found in this work. Although Kühner (p. 329) did mention three white varieties described by Velenovský (1920: 316) and even gave the French translations of the Czech descriptions, he apparently was not inclined to accept the varietal epithets, as he did in the case of e.g. *Mycena galopus* var. *alba*. No white form of *M. galericulata* was reported by Ricken (1915), Oort (1928), J.E. Lange (1936), A.H. Smith (1947), Konrad & Maublanc (1948), Pearson (1955), Dennis, Orton & Hora (1960), Moser (1978), and Jahn (1979), and this, considering the broad experience of these authors taken together, would seem to justify the conclusion that var. *albida* is of rare occurrence. Among the sixty odd collections of *M. galericulata* in the 'Rijksherbarium', three belong to var. *albida*, all having been collected in a small area of the comparatively newly reclaimed and reafforested polder called 'Oost-Flevoland'.

NETHERLANDS: Oost-Flevoland, Harderbos, 11 Sept. 1980, Th.W. Kuyper, deciduous wood, mainly *Fagus*; De Abbert, 7 Oct. 1981, Mrs G.J.M.G. Tjallingii, on stump of *Fagus*; Roggebotzand, 6 Nov. 1981, Mrs G.J.M.G. Tjallingii, on stump of *Alnus* (L).

79. AGARICUS (MYCENA) LIMBATUS Lasch — Figs. 1–3.

Agaricus (Mycena) limbatus Lasch in Rabenh., Klotzsch. Herb. viv. mycol., Cent. 13: no. 1203. 1849. — *Mycena limbata* (Lasch) Sacc., Syll. Fung. 5: 274. 1887. — Isotype: Rabenh., Klotzsch. Herb. viv. mycol., Cent. 13: no. 1203 (B, L, M).

The exsiccatum received from B consists of two halves of a basidiome (probably of two separate specimens) glued to a piece of paper. Pileus c. 12 mm across, heavily pressed, conico-campanulate, ochraceous yellow-brown. Lamellae ascending, narrowly adnate to almost free, brownish, with slightly paler edge. Stipe 45–50 \times 1 mm, puberulous, yellow-brown above, darker reddish brown below, somewhat tomentose towards the base.

Basidia clavate, clamped, none seen with sterigmata. Spores $8.1-9.8 \times 4.5-4.7 \mu\text{m}$, pip-shaped, smooth, weakly amyloid. Cheilocystidia $30-36 \times 4.5-6.5 \mu\text{m}$, cylindrical, subfusiform or clavate, thin-walled, clamped. Pleurocystidia not observed. Lamellar trama stained purplish brown in places in Melzer's reagent. Caulocystidia $25-100 \times 5.5-12.5 \mu\text{m}$, subcylindrical, clamped.

The description by Lasch (a copy of which is to be found in Bot. Ztg 7: 293. 1849), stating the margin to be "coeruleo-purpureo-pallescente" and differently coloured from the pileus ("pallescente-fusco"), and the base of the stipe "coeruleo v. virescente villosu-tomentoso," together with the microscopic features described above demonstrate the identity of *A. limbatus* with *Mycena amicta* (Fr.) Quél. Possibly without having seen the material, Lange (1914: 21) had come to the same conclusion. Kühner, however, apparently had some doubts (1938: 675), and left *A. limbatus* among the Incertae sedis.

The copies of *Agaricus limbatus*, distributed in Rabenhorst, Fungi europaei 502 (B, M), belong to a different (and unidentified) species, having different spores and cheilocystidia.

80. AGARICUS (MYCENA) LINEATUS var. ATROCINEREUS Sacc. — Figs. 4, 5.

Agaricus (Mycena) lineatus var. *atrocinereus* Sacc. in Atti Soc. veneto-trent. Sci. nat. Padova 2(2): 67. 1873. — *Mycena lineata* var. *atrocinerea* (Sacc.) Sacc. in Flora ital. cryptog. 1(1): 261. 1915. — Lectotype: "Agaricus (*Mycena*) *lineatus* Bull. t. 522 f. 3./v[ar.] *atrocinereus*/in fragmentis ligneis Selva/Bizz[ozzero?] [18] 72 Sept." (PAD).

Type material consisting of three basidiomes, in part badly moulded, springing from a piece of bark, and of which two are subfasciculate. Pileus c. 3.5 mm across, parabolical, dingy red-brown, much darker apically. Lamellae c. 0.4 mm broad, ascending, reddish brown, with convex edge. Stipe $20-25 \times 0.3$ mm, curved, cylindrical, puberulous above, tomentose below, very dark red-brown to black, with woolly mycelial threads radiating out from the base.

Basidia $22-25 \times 7 \mu\text{m}$, clavate, some observed to have 4 incipient sterigmata. Spores $4.5-4.9 \times 4.5 \mu\text{m}$, immature, subglobose, with a few prominent, blunt excrescences, and with a large apiculus, non-amyloid. Cheilocystidia $40-50 \times 8-11.5 \mu\text{m}$, fusiform, in the lower part often firm-walled to somewhat thick-walled, apically usually furcate to branched. Lamellar trama not reddening in Melzer's reagent. Cortical part of the pileus hymeniform, made up of closely packed elements covered with a dense, coralloid mass of branched excrescences.

This is *Mycenella margaritispota* (J.E. Lange) Sing.

Saccardo mentioned three localities — Selva, Costa, and Fragona; material seems to have been preserved only of the first provenance.

81. AGARICUS (MYCENA) MAMMILLATUS Pass.

Agaricus (Mycena) mammillatus Pass. in Nuovo G. bot. ital. 4: 66. 1872. — *Mycena mammillata* (Pass.) Sacc., Syll. Fung. 5: 299. 1887. — Type locality: Italy, Parma.

Passerini observed that his species was intermediate between *A. stylobates* Pers. and *A. echinipes* Lasch, differing from the former in its adnate lamellae, and from the latter in its orbicular base and different colour. The difference from Lasch's species is obvious and requires no further discussion, but Passeri-

ni was wrong in thinking that the attachment of the lamellae to the stipe could be used to segregate *A. mammillatus* from *Mycena stylobates*. In this species the lamellae are sometimes described as free or free and collariate, but that is only part of the story. The best description is by Smith (1947: 53): "lamellae . . . attached by a line or very narrowly adnate, sometimes seceding and adhering to each other and thus forming a collar around the stipe . . ." It is even possible to find somewhat retarded specimens of *M. stylobates* which have the lamellae still firmly adnate. *Agaricus mammillatus*, therefore, no doubt refers to a stage of *Mycena stylobates* with the lamellae still attached to the stipe.

82. MYCENA OLIVACEOMARGINATA (Massee apud Cooke) Massee – Figs. 6–9.

Agaricus olivaceomarginatus Massee apud Cooke, Handb. Br. Fungi, 2nd ed.: 369. 1890 & Ill. Br. Fungi (Hym.) 7: pl. 959 fig. A. 1890. – *Mycena olivaceomarginata* (Massee apud Cooke) Massee, Br. Fung. Flora 3: 116. 1893. – *Mycena avenacea* var. *olivaceomarginata* (Massee apud Cooke) Rea, Br. Basidiomyc.: 374. 1922. – Holotype: "specimen fig^d in Cooke's 'Illustrations' / *Ag. Myc. olivaceo-marginatus* n. sp./on lawn, Kew Gardens/G. Massee – /86" (NY).

Misapplied name: *Mycena avenacea* sensu Kühner, Genre *Mycena*: 413. 1938.

Basidia 24–30 × 8–9 μm, clavate, 4-spored, clamped, seen only with incipient sterigmata. Spores 8.5–9.2 × 4.6–5.4 μm (few seen and probably immature), pip-shaped, smooth, amyloid. Cheilocystidia 13.5–20 × 4.5–6.5 μm, clavate to somewhat irregularly shaped, passing into a slender neck or without neck but instead with one to several, shorter or longer excrescences up to 13.5 μm long, at times also with short lateral projections, clamped. Pleurocystidia none seen. Lamellar trama brownish vinescent in Melzer's reagent. Hyphae of the pileipellis 2.2–3.5 μm wide, clamped, more or less densely diverticulate, with simple to much branched excrescences. Caulocystidia absent. Hyphae of the cortical layer of the stipe clamped, sparsely diverticulate.

Massee's description and coloured illustration, together with the microscopic details given above clearly fix the identity of this species which some authors (e.g. Bon, 1970: 144 and Moser, 1978: 176) continue to call *M. avenacea*.

83. AGARICUS PARABOLICUS Fr.

Agaricus parabolicus Fr., Epier. Syst. mycol.: 107. 1838. – *Agaricus galericulatus* [var.] *parabolicus* (Fr.) Rabenh., Deutschl. Krypt. Flora I: 526. 1844. – *Mycena galericulata* var. *parabolica* (Fr.) Kummer, Führ. Pilzk.: 111. 1871. – *Mycena parabolica* (Fr.) Quél., Champ. Jura Vosges: 242. 1872. – Type locality: Sweden.

Kühner (1938) offered no opinion of his own on the identity of *Agaricus parabolicus*, but he mentioned or discussed the interpretations of von Höhnelt (p. 235), J.E. Lange (p. 305), Bresadola (p. 334), and Ricken (p. 498). This number of different opinions clearly demonstrates the obvious insufficiency of the original description for a correct recognition of the species. The name *Mycena parabolica* was nevertheless taken up again in two recent publications (Pegler, 1977: 235, and Moser, 1978: 182). In both cases the species was considered to be a member of section *Mycena*. Why not a member of section *Fragili-*

pedes? Assuming for a moment that *A. parabolicus* actually belongs to the genus *Mycena*, it may be remarked that sections *Mycena* and *Fragilipedes* are predominantly differentiated by their cheilocystidia, while to be able to distinguish the species of both sections much more information is required than is furnished by Fries' description.

However, Fries described the stipe of his species as bluish black and he also said: "basi barba nigricante." Of all the European species of *Mycena* known to me, dark-stemmed or not, none possesses *blackish* fibrils at the base of the stipe. From this it seems plausible to infer that *Agaricus parabolicus* is not a *Mycena*.

84. AGARICUS PELTATUS Fr.

Agaricus peltatus Fr., Epicr. Syst. mycol.: 110. 1838. — *Mycena peltata* (Fr.) Gillet, Hym.: 270. 1876. — Type locality: Sweden, Småland.

Fries described a species characterized by a very dark ("nigro-fuscus") pileus, while the stipe was said to be "livescens." There is no consensus as to the exact meaning of this colour term, but "livescens" may be taken either to represent or to pass into a colour which includes very dark shades of bluish grey, violet-grey or purplish grey. This would suggest that perhaps the fungus seen by Fries may have been an immature member of *Entoloma* subgen. *Leptonia* (Fr.) Noordeloos, the lamellae of which had not yet turned incarnate. Kühner (1938: 672), on the other hand, regarded *A. peltatus* as belonging to *Mycena* but, failing to interpret the original description, placed the species among the *Incertae sedis*. Since Fries' account offers no clue to prove or disprove either opinion, it is here suggested that *Agaricus peltatus* be abandoned as a *nomen dubium*.

Smith (1947: 287) thought to have found *Mycena peltata* in North America, but some points in his redescription are at variance with those given by Fries. According to Smith, the fungus grows gregariously; the pileus is stated to be "nearly opaque or but faintly striatulate when moist" and its surface "lubricous to subviscid from a . . . somewhat gelatinous pellicle;" the stipe is "rather tough and cartilaginous." Fries described his species as subfasciculate, said nothing of the surface of the pileus being lubricous which he moreover found to be "ad medium dense striatulo," while the stipe was stated to be "subfragilis." These differences are serious enough to justify the conclusion that the North American material is not conspecific with *Agaricus peltatus*.

85. MYCENA PICTA (Fr.: Fr.) Harmaja — Figs. 10–14.

Agaricus pictus Fr., Obs. mycol. 1: 83. 1815; Fr., Syst. mycol. 1: 166. 1821. — *Omphalia picta* (Fr.: Fr.) Gillet, Hym.: 299. 1876. — *Xeromphalina picta* (Fr.: Fr.) A.H. Smith in Pap. Mich. Acad. Sci. 38: 76. 1953. — *Mycena picta* (Fr.: Fr.) Harmaja in Karstenia 19: 52. 1979. — Type locality: Sweden, Femsjö.

There exist few recent or comparatively recent descriptions of the present species (Cejp, 1936: 113; Smith, l. c.; Breitenbach, 1967: 68; Harmaja, l. c.), while

of the microscopic characters no illustrations seem to have been published. Since the cheilocystidia of this species (i) are of particular interest, (ii) were stated by some authors to be difficult to observe, and (iii) never seem to have been clearly understood, a more detailed description of these structures seems in order.

Cheilocystidia made up of contiguous, catenulate chains of inflated cells, of which only the proximal ones are clamped, the terminal cells being $13.5\text{--}24 \times 9\text{--}16 \mu\text{m}$, obpyriform, globose, ellipsoid or, more rarely, clavate, variously diverticulate (with the excrescences simple or, more rarely, furcate or branched, up to $14.5 \mu\text{m}$ long and $1.3\text{--}1.8 \mu\text{m}$ wide), devoid of clamps, and forming an almost uninterrupted if narrow strip of epithelium.

It is these terminal cells which have been mistaken for the entire cheilocystidia (Cejp, l. c.; Smith, l. c.), presumably because these are the parts which become more easily detached on tapping the coverglass.

Harmaja (l. c.) thought that "*Xeromphalina picta* sensu Smith (1953), though no doubt a *Mycena*, is different from my *Mycena picta*, possessing more voluminous spores and cheilocystidia." As regards the so-called cheilocystidia, it may be pointed out that the description given above sufficiently accounts for the variation in diameter of the terminal cells. The development of the basidia seems also subject to some variation. Sometimes 2-spored basidia are to be found among the 4-spored ones on the same lamella or seem to be even more numerous. At other times, spores may not develop in great numbers (Breitenbach, l. c.), or it may be difficult to find spores that are not misshapen and crumpled (as in one Dutch collection). It is clear that these irregularities may affect the size of the spores. Seen in this light, Harmaja's objections should be taken to be somewhat less fundamental than considered by himself.

Harmaja described a "darker, pale fulvous" edge to the lamellae which may have been the principal feature to make him think that *Mycena picta* is "related to *M. aurantiomarginata* (Fr.) Quél." In this opinion, he was followed by Krieglsteiner (1981: 71). A similarly coloured edge of the lamellae is known to occur in one of the Dutch collections (L), but this character is not considered to have sufficient weight to indicate a relationship to section *Rubromarginatae* Sing. ex Maas G. *Mycena picta* in its essential features is quite certainly a *Mycena*, but its unique set of characters causes it to occupy an isolated position within the genus. The following sectional name is proposed.

MYCENA sect. *Pictae* (A.H. Smith) Maas G., stat. & comb. nov.

Xeromphalina subsect. *Pictae* A.H. Smith in Pap. Mich. Acad. Sci. 38: 76. 1953 (basionym). — Monotype: *Mycena picta*.

Basidiomata small. Pileus dry, cylindrical, not expanding at maturity, glabrous. Flesh thin. Odour indistinctive. Lamellae tender, horizontal to somewhat decurrent, with their breadth much greater than their length, pallid or pale brownish. Stipe cartilaginous, apically (for a length equaling the height of the pileus) abruptly dilated, glabrous, with its base springing from the centre of a whorl of radiating fibrils.

Basidia clavate, 4-spored (but 2-spored ones sometimes preponderant), clamped. Spores pip-

shaped, smooth, amyloid. Cheilocystidia consisting of chains of catenulate cells, the uppermost of which are diverticulate, and only the lowermost of which are clamped. Pleurocystidia absent. Lamellar trama vinescent in Melzer's reagent. Hyphae of the pileipellis smooth, clamped. Caulocystidia absent. Hyphae of the cortical layer of the stipe smooth.

86. *AGARICUS PLICATOCRENATUS* Fr.

Agaricus plicatocrenatus Fr., Monogr. Hym. Suec. 2: 294. 1863. – *Mycena plicatocrenata* (Fr.) Gillet, Hym.: 257. 1876. – *Mycena epipterygia* var. *plicatocrenata* (Fr.) Quél., Ench. Fung.: 40. 1886. – Type: represented by a drawing (S; not seen).

Kühner (1938: 347) apparently had some confidence as to the validity of the species, but practically the entire description given by Fries suggests that he had come across a number of ageing (“stipes . . . pallide rubellus”) and somewhat drought-shrivelled specimens (“pileus profunde plicatus . . . et margo eximie crenatus . . . viscidulus?, sed absque pellicula secernibili”) which are fully referable to *Mycena epipterygia* (Scop.: Fr.) S.F. Gray.

87. *AGARICUS PLICOSUS* (Fr.) Fr.

Agaricus metatus var. *plicosus* Fr., Syst. mycol. 1: 145. 1821. – *Agaricus plicosus* (Fr.) Fr., Epicr. Syst. mycol.: 110. 1838. – *Mycena plicosus* (Fr.) Kummer, Führ. Pilzk.: 109. 1871. – Type locality: Sweden.

Agaricus metatus var. *plicosus* as described by Fries in 1821 may be visualized as a terrestrial fungus with a fragile pileus, with broad, tender, thickish, grey lamellae, and with a grey stipe, villous at the base. This description suggests one of the grey species of *Mycena*, of which there exist quite a number, and of which the identification is difficult at all times even with the help of modern appliances. In his later description, Fries (1838) emphasized that the pileus was plicate-sulcate (not lineate-striate as stated in 1821) and the lamellae distant and thick. If one is inclined to adhere to Fries' description of 1821, the conclusion must be that this species is some unidentifiable member of *Mycena*, but if the 1838 description is to be regarded as an emendation of the former, the question may be raised whether the species really belongs to *Mycena*. Which-ever view is preferred, there will always remain a certain amount of doubt and *Agaricus plicosus*, therefore, is best abandoned as a nomen dubium.

Kühner (1938: 320) rejecting the interpretations of *Mycena plicosus* suggested by J.E. Lange, Ricken, and Velenovský, retained the one given by Smith. None of these, however, proves to be acceptable.

Lange (1914: 18) did describe a *Mycena plicosus* var. *marginata* which he stated to be different from “the type” (= var. *plicosus*) only in the coloured edge of the lamellae, but his description is most incomplete and gives no clue as to his concept of the typical variety of the species.

Ricken (1915: 441) described the stipe as “starr aber elastisch” (features never described by Fries) and the flesh as “zählich” (contradicting Fries' “fragilis”). Obviously, Ricken's interpretation is untenable, but this conclusion is based on different arguments from those put forward by Kühner.

Velenovský's interpretation cannot be accepted either, since this author described the pileus as yellowish to brownish, and the lamellae as white with a red-brown edge.

Smith (1947: 278), finally, used for the description of the species he thought to represent *M. plicosa* such characters as "very rigid but brittle" flesh and a "rigid . . . very brittle" stipe. As in the case of Ricken's interpretation, Smith's is here rejected, being based on the unjustifiable acceptance of alien characters.

88. *AGARICUS PLUMBEUS* Fr.

Agaricus plumbeus Fr., Hym. eur.: 144. 1874. – *Mycena plumbea* (Fr.) P. Karst. in Bidr. Känn. Finl. Nat. Folk 32: 114. 1879. – Type locality: Sweden, Uppsala.

Smith (1947: 248) explained that he had used the name *Mycena plumbea* for his collections "because Fries placed it in the *Filipedes* and emphasized the dense pruinose covering of the cap as well as the fragile stipe." However, Smith ignored some minor, although perhaps significant, differences between his and Fries' descriptions, such as the colour of the pileus (Fries: "cinereo-plumbeo" and "passim caerulescens," Smith: "dark mouse gray at first [dark bluish black], becoming hair brown, drab, and finally drab gray"), the colour of the lamellae (Fries: "pileo concoloribus," Smith: "white to nearly concolorous with the pileus"), and, above all, the habitat (Fries: "In pratis muscosis," Smith: "on spruce needles"). In view of these discrepancies, there seems to be no reason for identifying Smith's collections with the species described by Fries. As to the identity of the latter, the description rather makes one think of some diminutive species of *Entoloma*, not a *Mycena*.

89. *MYCENA POLYADELPHA* (Lasch) Kühn. – two-spored; Figs. 15–20.

Basidiomes in small groups. Pileus up to 1.5 mm across, convex, shallowly sulcate, very little translucent-striate, minutely granular-puberulous, white. Lamellae 6–11 reaching the stipe, absent in small specimens, tender, somewhat arcuate, decurrent, white. Stipe up to 10 × 0.2 mm, curved to flexuous, fragile, cylindrical, pruinose to glabrescent, sparsely puberulous at the base, insititious, watery white.

Basidia 18–24 × 7–8 μm, clavate, 2-spored, without a clamp, sterigmata up to 9 μm long. Spores 9.8–10.7 × 4.5 μm, elongated pip-shaped, smooth, amyloid. Cheilocystidia 20–27 × 8–15 μm, clavate, without clamp, with short cylindrical excrescences, in the smaller basidiomes sometimes lacking. Pleurocystidia absent. Lamellar trama somewhat vinescent in Melzer's reagent. Hyphae of the pileipellis without clamps, more or less densely covered with warts or short, cylindrical excrescences, the terminal cells often inflated, somewhat raised, and equally diverticulate. Hyphae of the cortical layer of the stipe without clamps, some (especially near the base of the stipe) leaning outwards, very much inflated apically, and covered with cylindrical excrescences up to 7 μm long.

NETHERLANDS: province Gelderland, estate De Poll near Wilp, 7 Nov. 1981, Mrs G. Piepenbroek 1274, on fallen *Quercus* leaves (L).

Mycena polyadelpha is usually stated to be four-spored, but on at least two occasions it was described as two-spored (Cejp, 1929: 83, as *Delicatula*; J.E. Lange, 1936: 64, as *Omphalia*). Kühner (1938: 256) dismissed Lange's rec-

ord with the remark that, although the lamellae had been described as narrow and arcuate-decurrent, "ce caractère paraît facilement variable chez les petites espèces," thus intimating that the Danish find rather belonged to some other species. He was inclined to think (p. 265) that both Lange's and Cejp's fungi were nothing but a form of his newly described *Mycena smithiana*. Here, he was mistaken. It is certainly true that *M. smithiana* and *M. polyadelpha* are very close microscopically, but the macroscopic differences are apparent. Apart from those indicated by Kühner himself, there is yet another which concerns the lamellae. The edge of the lamellae is convex in *M. smithiana*, concave in *M. polyadelpha*, exactly as described by Cejp and Lange.

90. AGARICUS STANNEUS Fr.

Agaricus griseus Pers., Mycol. eur. 3: 255. 1828 (not *A. griseus* Batsch, Elench. Fung., Cont. 1: 87, pl. 17 fig. 80. 1786). – *Agaricus stanneus* Fr., Epicr. Syst. mycol.: 111. 1838 (name change). – *Mycena stannea* (Fr.) Quél., Champ. Jura Vosges: 242. 1872. – Type locality: Germany.

In publishing the binomial *A. stanneus*, Fries introduced a new name to replace Persoon's *A. griseus*. Since nothing indicates that Fries saw fresh specimens himself, it is rather surprising to find that his description should give some details not mentioned by Persoon as well as others even conflicting with those of *A. griseus*. Neither description is of much help when trying to interpret the name *A. stanneus*, so it seems best to delete the name as a nomen dubium.

In the exsiccata series 'Lundell & Nannfeldt, Fungi exs. suec., praes. upsal.' material was distributed (no. 123) under the name *Mycena stannea*. Lundell stated that his specimens "agree exactly with Fries's description," but this requires some comment. Fries described the lamellae as "vix confertae" and "denticulo decurrente adnatis," which does not correspond with the actual situation in the Swedish exsiccatum. In the copy received from C, the lamellae number 30 or more and they are narrowly adnate, with no trace of a decurrent tooth. But there is something more. It is emphatically pointed out that both Fries' and Persoon's descriptions have to be taken into account for the interpretation of *Agaricus griseus/stanneus*. Analysis of these descriptions demonstrates that the Friesian species is of rather sturdier proportions ("Stipes 2–3 unc. 1., 1 lin. cr. Pileus unc. [immo 1½] usque latus") than Persoon's ("Stipes 3–4 unc. altus, sed tenuis ½ lin. . . . Pileus 4–5 lin. latus").

From this discussion it should be clear that (i) *A. garicus stanneus* Fr. cannot be taken to be identical with *A. griseus* Pers., and (ii) *Mycena stannea* sensu Lundell (with the stipe 60–75 × 1–2 mm and the pileus 15–20 mm across) very probably differs from either.

As regards the true identity of Lundell's material, this must await an examination, the result of which will be published in a future paper.

91. *AGARICUS TENELLUS* Schum.: Fr.

Agaricus tenellus Schum., Enum. Pl. Saell. 2: 302. 1803; Fr., Epicr. Syst. mycol.: 111. 1838. – *Mycena tenella* (Schum.: Fr.) Quél. in Mém. Soc. Emul. Montbél. II 5: 343. 1873; not *Mycena tenella* (Batsch) Sacc. in Flora ital. cryptog. 1 (Hym. 1): 245. 1915. – *Mycena vitrea* var. *tenella* (Schum.: Fr.) Kühn., Genre *Mycena*: 289. 1938. – *Mycena iodiolens* var. *tenella* (Schum.: Fr.) Kühn. & Romagn., Flore anal. Champ. sup.: 102. 1953 (not val. publ.). – Type locality: Denmark.

Fries stated that he had not seen this species but he referred to Schumacher's no. 1759 (with an exclamation mark), so it is to the latter's description (as an essential part of the protologue) one has to turn for information on the fungus. Although Fries assumed the species to be a *Mycena*, amenably followed by later authors, certain elements in the original description suggest a different disposition. Greyish flesh-coloured basidiomes growing cespitosely on wood, with white flesh, pinkish white lamellae, and with the stipes "carnoso fibrosis, basi conglutinatis" (without a word of the base of the stipe being tomentose or strigose), seem to point to some other genus (possibly some immature specimens of *Psathyrella?*), rather than *Mycena*. For those, however, who prefer to maintain *A. tenellus* in *Mycena*, the following may be pointed out. It is actually possible to find several species of *Mycena* to which some part of Schumacher's description can be applied, but invariably, and significantly, there will always remain one or two features that do not fit.

It should be clear that *Agaricus tenellus*, whether taken to be a *Mycena* or not, is unlikely to be interpreted correctly and therefore best dismissed as a *nomen dubium*.

Mycena tenella as described by Smith (1947: 108) is a different species from the original *Agaricus tenellus*. The flesh is said to be cartilaginous (not mentioned by Schumacher), while its colour is left undescribed (a striking feature in Schumacher's description because it is the only white part in an otherwise coloured fungus). The stipe in Smith's material is described as "dark drab gray . . . rather firm and elastic," which is equally inconsistent with the original description while, finally, Smith's plate 9 shows his *Mycena tenella* to be terrestrial.

92. *MYCENA URANIA* (Fr.: Fr.) Quél.

Agaricus uranius Fr., Obs. mycol. 2: 156. 1818; Fr., Syst. mycol. I: 144. 1821. – *Mycena urania* (Fr.: Fr.) Quél. in Mém. Soc. Emul. Montbél. II 5: 243. 1872. – Type locality: Sweden, Hallanäs forest.

Smith (1935: 603; 1947: 271) commented upon some differences between the description by Fries and his own, the more serious of which is that the Swedish author (1821) "described the stipe as flaccid," whereas Smith found the stems in his collections "usually rigid enough to hold the small caps upright." Smith was not accustomed to refer to earlier literature, else it would have convinced him that Fries' original words (1818: 157, "stipes . . . tenax flexibilis") conform well to his own, whereas the later description (1821: 144, "stipite flaccido") must be attributed to an error.

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In the present paper, the attention is focussed on a number of species of *Mycena* described both in older and more recent literature. An attempt is made at the interpretation of the original descriptions of the species of the former category.

Mycena invisibilis Joss. is validated by presenting a Latin description. *Mycena radicata* Thiers is transferred to *Mycenella*.

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93. AGARICUS ATROCYANEUS Batsch.

Agaricus atrocyaneus Batsch, Elench. Fung., Cont. 1: 101, pl. 18 fig. 87. 1786. – *Agaricus batschii* Fr., Obs. mycol. 1: 47. 1815 (name change). – *Agaricus atrocyaneus* Batsch: Fr., Syst. mycol. 1: 147. 1821. – *Mycena atrocyanea* (Batsch: Fr.) Gillet, Hym.: 271. 1876. – Type locality: Germany, presumably around Jena.

Fries assumed that the species described by Batsch belonged to what he called tribus *Mycena*. Later authors, following his (Fries') lead, all regarded *A. atrocyaneus* as a true *Mycena*, but this view is open to serious doubt.

The descriptions given by Fries (as *A. batschii* and *A. atrocyaneus*), although not quite identical with the original one, do not differ significantly from

Batsch's account. The latter yields information on two important points: (i) the stipe was said to be standing on earth, while (ii) it was neither described nor depicted as having a tomentose or villose base. The genus *Mycena* does include species with a glabrous insititious stipe, but these are known to grow on decayed bark of trees or fallen twigs and leaves, not on earth. Truly terrestrial *Mycenas* have the base of their stipes more or less densely covered with conspicuous fibrils, no matter whether this base is rooting or not.

The two arguments given above lead me to conclude that *Agaricus atrocyaneus* is not referable to *Mycena*; it may be some species of the genus *Entoloma* (Fr.) Kummer.

Kühner (1938: 473) did not know the species and accepted it in the sense of Smith. The latter (Smith, 1947: 255) described a very different species characterized by (i) distant lamellae (whereas those in Batsch's fungus were crowded, since the pileus was described as "dense striato-sulcato"), (ii) which were said to be "pale gray, edges . . . dark grayish" ("pallidius cyanaeae; versus marginem albescunt" in Batsch's description), and (iii) "stipe . . . base white-strigose."

Both Kühner and Smith took *Mycena nigricans* Bres. to be a synonym of *M. atrocyanea*, but the type packet of *M. nigricans* contains a species of *Entoloma* (Maas Geesteranus, 1981b: 426), whereas to all appearance the species described by Smith is a true *Mycena*.

In more recent times, finds of "*M. atrocyanea*" or what was believed to be some related species were reported by Hintikka (1963: 80) and Watling & Gregory (1980: 556). It is not known what species the collections of these authors are referable to.

94. MYCENA ATROCYANEA var. LIGNICOLA P. Henn.

Mycena atrocyanea var. *lignicola* P. Henn. in Verh. bot. Ver. Brandenb. 31: 161. 1980. — Type locality: Berlin, Zoological and Botanical Gardens.

The description does not describe the variety, but indicates the substrata on which the fungi were found growing. Considering that the true identity of *Agaricus atrocyaneus* has always been misjudged, var. *lignicola* must remain a nomen dubium.

95. MYCENA ATROCYANEA var. MAINGAUDII Quélet.

Mycena atrocyanea var. *maingaudii* Quélet. in C.r. Ass. franç. Av. Sci. 16 (2): 587. (1887) 1888. — *Mycena maingaudii* (Quélet.) Quélet., Flore mycol.: 211. 1888. — Type locality: western France.

Going by the description given by Quélet, var. *maingaudii* differs from the original *Agaricus atrocyaneus* in several respects, the more important of which are (i) the uncinat lamellae which (ii) stain reddish when touched, and (iii) the stipe which is said to be "blanchâtre au sommet, hérissé et blanc à la base." It may be asked whether these differences are not suggestive of something more fundamental than mere varietal diversity. But, even assuming that the present taxon really belongs to *Mycena*, as long as type material cannot be located, it

is not possible to identify var. *maingaudii* with any certainty for lack of necessary microscopic details.

96. AGARICUS ATROMARGINATUS Lasch.

Agaricus atromarginatus Lasch in *Linnaea* 3: 387. 1828. – *Mycena atromarginata* (Lasch) Kummer, *Führ. Pilzk.*: 109. 1871. – Type locality: Germany, Brandenburg.

Among a number of *Mycenas* found “in pinetis,” Lasch also enumerated a large and dark species which he named *A. atromarginatus*, characterizing it as follows: “Pileo striato atro-livido, lamellis adnatis canis atro-marginatis, stipite exsucco nigro-striato.”

“Pileus . . . 2–2½ unc. latus, interdum ater aut atro-purpureus. Lamellae dentibus brevibus adnatae . . . Stipes 3–4 unc. longus . . . pileo subconcolor, basi radicans, lanatus.”

“Ad truncos putridos subcespitosus . . .”

For a good understanding of one of the colour terms used by Lasch, it should be pointed out that Dade (1943: 5) determined atrolividus as a “deep shade of moderately greyed Violaceous and Purpureus.” Accepting this circumscription, there is very little indeed (excepting the size of the pileus) that could prevent *A. atromarginatus* from being identified as *Mycena purpureofusca* (Peck) Sacc. Some uncertainty may be felt since the colours mentioned by Kühner (1938: 426) for *M. purpureofusca* are not that dark, but it should be remembered that he did not know this species from personal observation, relying for his description on that by J. Schaeffer. In the absence of evidence to the contrary, therefore, the above interpretation of a puzzling name seems to be a satisfactory one.

Fries (1838: 101) adopted Lasch’s binomial but he described two forms of this species – a solitary, terrestrial form which he knew from the surroundings of Uppsala, and a second form (the true *atromarginatus* of Lasch) which was said to be “caespitosus, firmior, truncigenus,” and which he referred to his own *Agaricus janthinus*. Careful reading of Fries’ account reveals that the solitary form was again subdivided into two forms – one being “cinereo-fusco,” and the other with the pileus “purpurascenti-fusco.”

The gradual development of Fries’ concept of the species is well shown in a much later work (1867: 83, pl. 78 fig. 3) in which *Agaricus atromarginatus* was described and depicted as having (i) a fuscous pileus with a somewhat paler margin, (ii) beautifully grey lamellae (“pulchre canae”) with a slight tendency to become flesh-coloured at the sides, and (iii) a [fairly pale] grey-brown stipe which may assume a purplish shade. It should be pointed out that the fungus so described differs in several points from Lasch’s original. Lasch described the lamellae “dentibus brevibus adnatae” (“leviter adnexae” in the Friesian concept), and the stipe as having almost the same colour as the pileus (“pileo subconcolor”), with black striae, radicans, and with a woolly base (“basi radicans, lanatus”). In the Friesian concept, the stipe is shown to be much paler than the pileus, without darker striae, said but not shown to be radicans, and only “obsolete fibrillosus.”

At the same time Fries accepted the existence of a variety with pronounced dark purplish brown colours which he considered to come close to his *A. janthinus*. He also admitted to have come to doubt the identity of his and Lasch's fungi, but that he was reluctant to propose a new name.

The above digression has been necessary to show the growth of Fries' concept and its influence on Kühner's view (1938: 424) of what *Mycena atromarginata* should look like. There is hardly any room for doubt that Kühner's idea of the species was largely based on Fries' illustration, with the important difference, however, that he described *M. atromarginata* absolutely devoid of any purplish shades and growing in woods of deciduous trees. Clearly, his concept is not referable to the original *A. atromarginatus*.

Smith (1947: 214) reported on a find of *M. atromarginata* from Colorado, but he said that his description was "adapted from that of Kühner."

Malençon & Bertault (1975: 226) recorded *M. atromarginata* sensu Kühner from Morocco, but they introduced a novel character in that they stated that both the pileus and the stipe were covered with a "revêtement gélifié entièrement séparable." This was never described by Kühner. Their material obviously belongs neither to the original *A. atromarginatus*, nor to Kühner's concept of that species.

97. MYCENA BERKELEYI Masee – Figs. 1, 2.

Mycena berkeleyi Masee, Br. Fungus-Flora 3: 104. 1893. – Holotype: "*Agaricus excisus* (*Mycena berkeleyi* Mass.) / Hothorpe / 468 Nov. 15. 1881" (K).

Basidia immature or badly crushed. Spores 8.1–9.4 x 6.2–6.7 μm , immature, broadly pip-shaped, smooth, colourless, amyloid. Cheilocystidia 30–40 x 7–11.5 μm , clavate to somewhat irregularly shaped, clamped, covered with cylindrical, curved, usually simple excrescences up to 9 μm long. Pleurocystidia absent. Lamellar trama faintly purplish brown in Melzer's reagent. Hyphae of the pileipellis gelatinized, badly discernible, but obviously diverticulate.

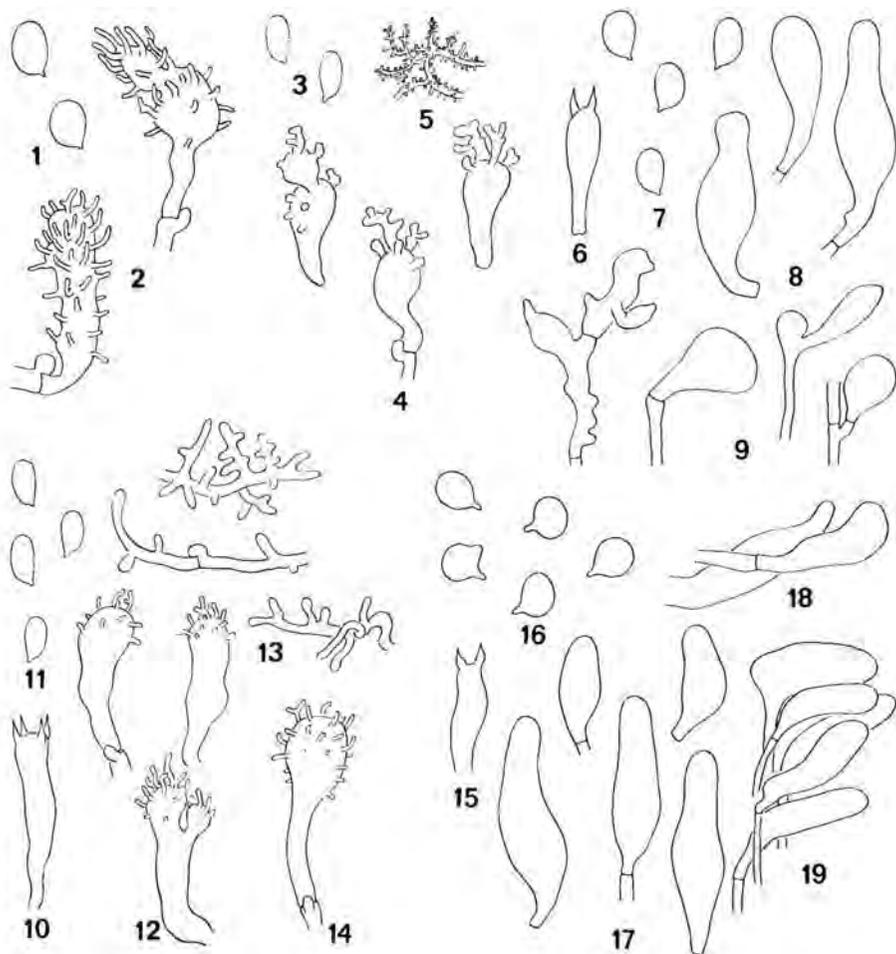
Dennis (1948: 199), describing a few microscopic details of the type (minus its cheilocystidia), concurred with the opinion given earlier by R. Maire, and regarded it "highly probable" that *Mycena berkeleyi* was a form of *M. galericulata*. Later (Dennis & al., 1960: 175) the identity of *M. berkeleyi* was pronounced "doubtful." However, Masee's macroscopic description combined with the microscopic details given above make it perfectly clear that Maire's suggestion was correct: *M. berkeleyi* and *M. galericulata* (Scop.: Fr.) S.F. Gray are the same species. From the fact that the cheilocystidia were found to possess clamps, it can be deduced that the basidia of the type must be 4-spored.

98. MYCENA CAERULEA Vogl.

Mycena caerulea Vogl. in Bull. Soc. bot. ital.: 122. 1894. – Type locality: Italy, Ligurian Apennines, Busalla.

Vogolino described a species which he insisted was distinctly different from the *Lactipedes* group of the genus *Mycena*. The species was characterized by a cartilagineous pileus of a brown-blue colour ("brunneo-caeruleus"), and the

capacity of all parts of the fungus of producing a blue liquid when squeezed (“totus fungus compressus succum caeruleum stillat”). The combination of characters indicated is puzzling, and it may be asked whether this species belongs to *Mycena*.



Figs. 1, 2. *Mycena berkeleyi* (holotype). – 1. Spores. – 2. Cheilocystidia.
 Figs. 3–5. *Mycena caesia* (holotype). – 3. Spores. – 4. Cheilocystidia. – 5. Part of a hypha of the pileipellis.
 Figs. 6–9. *Agaricus minutulus* (lectotype). – 6. Basidium. – 7. Spores. – 8. Cheilocystidia. – 9. Caulocystidia.
 Figs. 10–13. *Mycena plicosa* sensu A.H. Smith (A.H. Smith 1167). – 10. Basidium. – 11. Spores. – 12. Cheilocystidia. – 13. Hyphae of the pileipellis.
 Fig. 14. *Mycena plicosa* sensu A.H. Smith (A.H. Smith 6157). – Cheilocystidium.
 Figs. 15–19. *Mycenella radicata* (holotype). – 15. Basidium. – 16. Spores. – 17. Cheilocystidia. – 18. Terminal cells of two hyphae of the pileipellis. – 19. Caulocystidia.
 All figs., x 700.

99. MYCENA CAESIA Peck – Figs. 3–5.

Mycena caesia Peck in Bull. Torrey bot. Club 22: 486. 1895. – *Prunulus caesius* (Peck) Murrill in N. Am. Flora 9: 327. 1916. – Holotype: “*Mycena caesia* Pk. / Newfoundland / Leg. A.C. Waghorne / Sept. / Among *Sphagnum*” (NYS).

Basidia (immature) clavate, 4-spored, clamped. Spores 7.9–8.3 x 4.5 μm , pip-shaped, smooth, amyloid. Cheilocystidia 17–21 x 8–10 μm , clavate, clamped, with coarse, variously shaped, not infrequently branched excrescences. Pleurocystidia not seen. Lamellar trama vinescent in Melzer’s reagent. Hyphae of the pileipellis 1.5–4.5 μm wide, more or less densely covered with warts or cylindrical excrescences.

For the macroscopic description of the species, see Peck’s account; the microscopic details given above are based on the holotype. This is *Mycena atroalboides* (Peck) Sacc.

The “bluish-gray hue” of the lamellae mentioned by Peck is no longer visible in the type material; the colour of the lamellae is fairly pale yellow-brown like in other dried collections of *M. atroalboides*. Smith (1947: 473), although still feeling somewhat uncertain, believed that *Mycena caesia* and *M. atroalboides* could very well be the same. There is no doubt about it.

100. MYCENA CORTICOLA Peck.

Mycena corticola Peck in Rep. N.Y. St. Mus. nat. Hist. 44: 130, pl. 2 figs. 8–12. 1891. – *Omphalopsis corticola* (Peck) Murrill in N. Am. Flora 9: 312. 1916. – Holotype: “*Omphalia corticalis* Pk. [herbarium name] / Carrollton / Chas. H. Peck Sept.” (NYS).

Smith (1947: 359) indicated that he had studied Peck’s type and had found the material to be very scanty. “Cystidia were not found on the gill edges, but . . . their apparent absence in *O. corticola* cannot be given a great deal of emphasis.” Smith concluded that in all probability Peck’s material belonged to *Mycena hiemalis* (Osb. apud Retz.: Fr.) Quél.

Bigelow (1970: 27) in a study on the Omphalinas of North America accepted this view.

The type material of Peck’s species consists of three separate pieces of bark, each bearing one or more stipes from which the pileus is missing. Only one immature basidiome was found intact, with the margin of its pileus strongly involute. This basidiome very likely is too young to be of much use, so it was decided to refrain from trying to find cheilocystidia. Instead, special attention was given to Peck’s description which states that the pileus is “convex, becoming expanded and umbilicate,” and “lamellae . . . at first arcuate and adnate, then decurrent.” These two characters suffice to suggest that *M. corticola* and *M. hiemalis* are not the same, for in the latter the pileus is not known to become umbilicate, and the lamellae are not arcuate, that is, with the edge concave. *Omphalia corticola* certainly deserves further attention.

101. MYCENA ECHINULATA Quél.

Mycena echinulata Quél. in C. r. Ass. franç. Av. Sci. 18 (2): 509, pl. 15 fig. 7. 1890 [not *Mycena echinulata* (Berk.) Sacc., Syll. Fung. 5: 298. 1887]. – *Mycena brunaudiana* Sacc. & Trav., Syll. Fung. 20: 141. 1911 (name change). – Type locality: France, Fouras.

Kühner (1938: 675) did not know this species, and placed it among the *Incertae sedis*, more precisely, among the species "pour lesquelles on ignore la forme des cystides." However, it is by no means established that Quélet's material actually possessed cheilocystidia. If, moreover, Quélet was correct in his observation that the spores were punctate, *Mycena echinulata/brunaudiana* does not belong to *Mycena*.

102. MYCENA EUCALIPTICOLA Losa.

Mycena eucalipticola Losa in An. Jard. bot. Madrid 3: 219. 1943 (nomen nudum).

Some comments were made by the author of this species, but he gave neither a description nor a reference to an earlier publication containing a description.

103. AGARICUS (MYCENA) FARREUS Lasch apud Fr.

Agaricus (Mycena) farreus Lasch apud Fr., Epicr. Syst. mycol.: 103. 1838. — *Mycena farrea* (Lasch apud Fr.) Kummer, Führ. Pilzk.: 109. 1871. — Type locality: presumably Germany.

The colour of the pileus was described as "flavus [licet] incarnatus, siccus albidus." From this, one may visualize a fungus with a strongly coloured, pure yellow, pileus which on ageing turns more flesh colour, finally to become whitish. Within the genus *Mycena* as it occurs in Europe one could think of *M. citrinomarginata* Gillet, *M. flavescens* Vel., *M. renati* Quél., or species of the sections *Hygrocyboideae* (Fr.) Sing. and *Adonideae* (Fr.) Quél. However, none of these species has a pileus whose surface could be described as "nitide-furfurello."

Kühner (1938: 676) listed *M. farrea* among the insufficiently known species. The strongest opinion voiced in connection with the identity of *M. farrea* is that by Dennis, Orton & Hora (1960: 186) which briefly stated: "not known." I agree, but would like to emphasize that in view of the characters indicated above *Agaricus farreus* is not a *Mycena*.

104. AGARICUS FLAVIPES Sibth.

Agaricus flavipes Sibth., Flora oxon.: 365. 1794. — *Mycena flavipes* Sibth.: S.F. Gray, Nat. Arrang. Br. Pl. 1: 619. 1821 (not *Mycena flavipes* Quél. in Mém. Soc. Emul. Montbél. II 5: 422, pl. 1 fig. 4. 1873). — Type locality: Great Britain, Headington, Wick Copse.

Curiously enough, *Agaricus flavipes* has been severely ignored in literature, and it is only incidentally mentioned in the British Check list (Dennis, Orton & Hora, 1960). However, Sibthorp's brief but accurate description and his reference to Schaeffer's plate 31 render it more than plausible to regard *A. flavipes* as identical with *Mycena epipterygia* (Scop.: Fr.) S.F. Gray.

105. *Mycena invisibilis* Joss. ex Maas G., spec. nov.

Mycena invisibilis Joss. in Bull. trimest. Soc. mycol. Fr. 59: 16, fig. 3. (1943) 1945 (no Latin descr., not val. publ.).

Basidiomata gregaria. Pileus 1–2(–3) mm latus, convexus vel applanatus, membranaceus, subhygrophanus, siccus, striatus, sulcatus, epruinosis, e niveo flavescens, demum dilute

stramineus. Caro tenuissima. Lamellae 10–12, molles, suburgidae, horizontales vel arcuatae, late adnatae vel decurrentes, pileo concolores, acie integrae. Stipes 2–3(–5) x 0.2 mm, basi curvatus, aequalis, levis, glaber, pileo concolor, insititius, basi haud bulbosus fibrillisque destitutus.

Basidia 15–18 x 8.5–9 μm , clavata, 4-spores. Sporae 5.6–7.6 x 3.6–5 μm , late subellipsoideae, leves, amyloideae. Cheilocystidia 9–16 μm lata, subglobosa, surculis brevibus cylindraceisque obtecta. Pleurocystidia nulla. Hyphae pileipellis 2–3 μm latae, surculis sparsis 1–3 μm longis obtectae, extremo inflatae, 5–10 μm latae. Hyphae pileitramae e cellulis 30–70 μm longis, inflatis. Hyphae superficiales stipitem obtegentes tenues, fibulatae, surculis 4–5 μm longis munitae.

Ramenta vegetabilia in caldaria incolit.

Typum repraesentat Josserandii figura 3

The above is a Latin translation of Josserand's French description. On my request, Mr Josserand replied (March 30, 1983) that he possessed four exsiccata of the species but, in view of their extreme smallness ("on ne distingue pratiquement plus rien dans l'enveloppe"), it was decided to indicate Josserand's illustration as representative of the type, rather than choosing one of the said exsiccata with almost predictably disappointing result.

Mycena invisibilis is a member of section *Polyadelphia* Sing. ex Maas G. Although in the original description basidia and cheilocystidia were not specifically stated to have clamp connections, these must have been present, as the hyphae of the cortical layer of the stipe were described as "présentant quelques boucles."

106. MYCENA MINUTULA (Peck) Sacc. — Figs. 6–9.

Agaricus minutulus Peck in Bull. Buffalo Soc. nat. Sci. 1: 47. 1873. — *Mycena minutula* (Peck) Sacc., Syll. Fung. 5: 263. 1887. — Lectotype: "*Agaricus minutulus* Pk. / Portville Cattarangus Co. / C.H. Peck / *Mycena* / Sept. 1872" (NYS).

Mycena olida Bres., Fungi trid. 1: 73. pl. 79 fig. 1. 1887; Icon. mycol. 5: pl. 240 fig. 1. 1928. — *Marasmiellus olidus* (Bres.) Sing. in Lilloa 22: 302. ("1949") 1951. — Holotype: "*Mycena olida* Bres. n. sp. / Sui [illegible] vivi nei prati di Magras / Aut. 1882. Leg. Bresadola" (S).

Lamellae ascending, with convex edge.

Basidia c. 21.5 x 5.5–7 μm , clavate, 2-spored, without clamp, with sterigmata up to 4.5 μm long. Spores 7.3–8.8 x 5.4–6.3 μm , pip-shaped to broadly pip-shaped, smooth, non-amyloid. Cheilocystidia 30–58 x 11–14.5 x 6.5–9 μm , protruding considerably, occurring mixed with basidia (lamellar edge heterogeneous), lageniform, less frequently clavate to almost cylindrical, clampless, smooth. Pleurocystidia similar. Lamellar trama remaining unstained in Melzer's reagent. Hyphae of the pileipellis 1.8–3.5 μm wide, smooth. Caulocystidia up to c. 14.5 μm wide, simple to branched, clavate to variously shaped, clampless, very thin-walled.

The type box of *A. minutulus* contains several specimens glued to small pieces of paper which I numbered in pencil 1–7. The specimens on numbers 1–6, redescribed above, are conspecific, while no. 7 belongs to a very different species. Although most of its pileus is gone (but the brownish stain it imparted to the paper proves the pileus to have been intact when the specimen was attached), enough remains for the following brief description.

Basidia immature, none seen with sterigmata. Spores not seen. Cheilocystidia cylindrical to clavate, covered with short cylindrical to knobby excrescences, not infrequently terminated apically by a swollen, globose head. Pleurocystidia absent. Lamellar trama remaining unstained in Melzer's reagent. Stipe solid, made up of hyphae with thick, brown walls, while the hyphae of its cortical layer are covered with massive, thorn-like excrescences.

One of the features of this specimen does not conform to Peck's description which states the "Plant . . . [to be] white throughout." This specimen's stipe, however, must have been brown. A second discrepancy is that its stipe is solid, not hollow, as mentioned in Peck's field notes quoted by Smith (1947: 102). It is obvious that Peck's description refers to numbers 1–6, not to no. 7 which to judge from its cheilocystidia appears to be a species of *Marasmiellus*, and which seems to be the very specimen from which Smith drew up his redescription.

Beardslee & Coker (1924: 72) gave a redescription of what they considered to be *Mycena minutula*, but in view of some discordant characters (stipe said to be pinkish in upper half, very narrow spores, conical shape of the cystidia) their material represents a different species.

Mycena minutula is identical with what has been known as *Mycena olida* in Europe, but the former epithet is the older.

107. MYCENA MONTANA Quél.

Mycena laevigata sensu Quél., Flore mycol. Fr.: 218. 1888. — *Mycena montana* Quél. in C. r. Ass. franç. Av. Sci. 18(2): 509, pl. 15 fig. 5. 1890 [name change; not *Mycena montana* (Peck) Sacc., Syll. Fung. 5: 255. 1887]. — *Mycena queletii* Sacc. & Syd., Syll. Fung. 14: 84. 1899. — Type locality: France.

Because this species was described as a member of the genus *Mycena*, but remained unknown ever since, it continues to occupy one's mind. Kühner (1938: 678) placed the species among the incompletely known taxa, and this seems to have been the reason why *M. montana* was subsequently completely ignored. Earlier, however, Lange (1914: 11) had accepted the species as a member of his subgenus *Mycenella* on account of Quélet's description: "Spore ovoïde sphérique . . . finement aculéolée." One of the features by which *Mycenella* (J.E. Lange) Sing. is characterized is the large, strongly protruding apiculus. This was neither described by Quélet nor illustrated, so that Lange's view must be regarded as untenable. The very same ornamentation of the spores, however, also excludes "*Mycena*" *montana* from the genus *Mycena*.

108. MYCENA PLICOSA sensu A.H. Smith — Figs. 10–14.

Mycena pilcosa sensu A.H. Smith in Mycologia 27: 599. 1935; N. Am. Spec. *Mycena*: 278, pl. 50B, text fig. 33(4,5). 1947. — Material examined: "*Mycena pilcosa* (Fr.) Gillet / Ann Arbor, Saginaw Forest, Mich. under spruce / Nov. 21, 1934 / A.H. Smith 1167" and "Nov. 3, 1936 / A.H. Smith 6157" (both MICH).

Basidia 27–30 x 6.5 μ m, 4-spored, slender-clavate, clamped, with sterigmata 5.5 μ m long. Spores 8.1–9.0 x 3.6–4.5 μ m, pip-shaped, smooth, amyloid. Cheilocystidia 27–30 x 8–11.5 μ m, at times hardly protruding and not easy to find, clavate or somewhat irregularly shaped, clamped, more or less sparingly covered with fairly coarse, curved to somewhat flexuous excrescences 3.5–6.5 μ m long. Pleurocystidia not seen. Lamellar trama staining reddish brown in Melzer's reagent. Hyphae of the pileipellis 1.8–3.5 μ m wide, clamped, diverticulate, the excrescences with rounded apices.

Smith adopted the Friesian epithet for his *Mycena* but made it clear that his species differed from the original *Agaricus pilcosus* in having numerous and thin lamellae. Another difference is that Smith described the flesh as "very rigid

but brittle" and the stipe as rigid, very brittle, whereas Fries (1821: 145) merely stated the pileus to be fragile (never mentioning the condition of the stipe) which, together with the thickish but fragile lamellae, evokes the image of a very different species from Smith's interpretation. There exist a few other interpretations of the Friesian species (Maas Geesteranus, 1983:), none of which is relevant, however, since the original is unidentifiable anyway.

In my opinion, *M. plicosa* sensu Smith is one of the several forms of variable *M. atroalboides* (Peck) Sacc., which is borne out by the identical microscopical features.

109. *AGARICUS PROLIFERUS* SOW.: Fr.

Agaricus proliferus Sow., Col. Fig. Engl. Fungi 2: [22], pl. 169. 1799; Fr., Epicr. Syst. mycol.: 105. 1838. – *Mycena proliferata* (Sow.: Fr.) Gillet, Hym.: 273. 1876. – Type locality: Great Britain, Kennington.

Sowerby's beautifully executed illustration, rather than his insignificant description, at once reminds one of some rooting, if sterile (hence the pale lamellae) species of *Psathyrella* (Fr.) Quél. The widely hollow stipe and the habitat ("among a gravelly sand by the side of a stream") would be in accordance with this view.

Fries' interpretation of *A. proliferus* obviously refers to some quite different species but is unidentifiable.

110. *MYCENA QUERQUECINA* LOSA.

Mycena querquecina Losa in An. Jard. bot. Madrid 3: 218. 1943. – Type locality: Spain, monte del Pazo de Santa Cruz.

The author described the species without a Latin diagnosis and stressed the provisional character of its status by adding "ad interim." Since no further details regarding *M. querquecina* were published, the species must be regarded as not definitely accepted and, hence, not validly published.

111. *Mycenella radicata* (Thiers) Maas G., *comb. nov.* – Figs. 15–19.

Mycena radicata Thiers in Mycologia 50: 515. 1958 (basionym). – Holotype: "*Mycena radicata* Thiers / 2 Apr. 1953 / Texas, Montgomery Co., Sam Houston National Forest, near Richards / H.D. Thiers 1778 / Scattered in humus near decayed hardwood log" (MICH).

Pileus markedly rugulose and shiny. Lamellae c. 22 reaching the stipe, c. 1 mm broad, tender. Stipe puberulous above, nearly glabrous farther below, the rooting base thinly tomentose.

Basidia c. 19 x 6.5 μ m, narrowly clavate, 2-spored, without clamp, with sterigmata c. 4.5 μ m long. Spores 8.2–8.8 x 5.8–7.3 μ m, subglobose to globose, smooth, non-amyloid, with large apiculus up to 1.8 μ m long. Cheilocystidia 22–42 x 7–10 μ m, subfusiform to sublageniform, clampless, thin-walled or with slightly thickened cell-walls in the basal part, with rounded tips. Pleurocystidia similar but mostly larger, 35–82 x 6.5–13.5 μ m, somewhat thin-walled to fairly thick-walled (cell-walls c. 1 μ m), numerous. Lamellar trama not stained in Melzer's reagent. Hyphae of the pileipellis 1.8–4.5 μ m, radiately arranged, smooth, clampless or occasionally with an abortive clamp, infrequently with the terminal ends more or less widened (up to 8 μ m) and assurgent. Hyphae of the cortical layer of the stipe 1.5–3.5 μ m wide, smooth, clampless, the terminal cells geniculately curving outwards and representing the caulocystidia, 22–27 x 6.5–9 μ m.

The description of the species as given above is based on a part (a single specimen) of the holotype. Contrary to the original publication, all basidia sufficiently mature to bear sterigmata were found to be 2-spored (and clampless¹), while the spores proved to be non-amyloid. The globose shape of the spores and their very pronounced apiculus identify the species as a member of *Mycenella* (J.E. Lange) Sing., although it deviates from all members of this genus in that the pileipellis shows very few structures to which the term dermatocystidia could be applied. The cells seen at the few terminal ends of the hyphae of the pileipellis were assurgent, rather than erect as is the rule, but Singer's illustration (1964: 167, fig. 3), showing a section of the cuticular layer of the pileus of *Mycenella funebris* Sing., demonstrates that intermediate shapes do exist.

Judging from its description, *Mycenella subtropicalis* Sing. (1953: 7) looks rather similar but differs in having very broad lamellae (narrow in *M. radicata*) and thick-walled cheilocystidia (thin-walled in *M. radicata*). *Mycenella salicina* (Vel.) Sing. differs in narrowly adnate to almost free lamellae, 4-spored basidia, and in the abundance of dermatocystidia.

112. *MYCENA RUGOSOIDES* Peck — Figs. 20–23.

Mycena rugosoides Peck in Bull. N.Y. St. Mus. 67 (Bot. 6): 22. 1903. — *Prunulus rugosoides* (Peck) Murrill in N. Am. Flora 9: 334. 1916 — Lectotype: "*Mycena rugosoides* Pk. / North Elba Sept. 17 '02 / Chas. H. Peck / 2 Brown" (NYS).

Lamellae up to c. 25 reaching the stipe, tender, ascending, adnate. Stipe towards its base very densely covered with coarse, long, flexuous, and more or less woolly fibrils.

Basidia c. 28 x 7 μm , clavate, 4-spored, clamped. Spores 8.1–9.1 x 4.6–5.5 μm , pip-shaped, smooth, strongly amyloid. Cheilocystidia 27–40 x 8–10.5 μm , clavate or apically irregularly branched, covered with unevenly spaced, fairly coarse, usually curved excrescences up to 5.5 μm long. Pleurocystidia not seen. Lamellar trama faintly reddish brown in Melzer's reagent. Hyphae of the pileipellis 1.8–3.5 μm wide, clamped, the narrower hyphae smooth, the wider ones roughened or verrucose or occasionally with scattered excrescences. Hyphae of the cortical layer of the stipe 1.8–3.0 μm wide, clamped, with small warts or diverticulate.

Although Peck recognized three forms of his *M. rugosoides*, the label of the type box indicates the presence of four separate collections — 1. Whitish; 2. Brown; 3. Blackish; 4. Small brown. Microscopic investigation demonstrates numbers 2, 3, and 4 to be conspecific and different from number 1. Of these four collections, number 2 with the heavily coated lower part of its stipe (much less developed in the other three collections) corresponds entirely with Peck's description "stem . . . villose tomentose at the base." This is why number 2 is here chosen as lectotype.

Smith (1947: 341) placed *Mycena rugosoides* under the synonymy of *M. maculata* P. Karst., a view with which I concur. However, nothing indicates that Smith drew his conclusion after personal inspection of Peck's material;

¹ If, therefore, Thiers' observation is correct that he found the basidia to be also 4-spored, this character in connection with the lack of clamps would point to the possibility of the type being a mixture of two species.

there is no doubt that he would have commented on the heterogeneity of the collections.

Mycena maculata has been considered to be characterized by smooth hyphae of the pileipellis (Kühner, 1938: 336; Maas Geesteranus, 1981 a: 226), but a German collection (L) examined of late established the incompleteness of the observation. It is true that the narrowest hyphae of the pileipellis are smooth, but the wider ones may have rough or verrucose cell-walls or even show scattered excrescences. This is confirmed by the lectotype of *M. rugosoides*.

113. MYCENA SACCHARIFERA var. GRAMINICOLA Kill.

Mycena saccharifera var. *graminicola* Kill. in Denkschr. bayer. bot. Ges. Regensb. 13: 90. 1933. – Type locality: Bavaria, Hauzenstein.

If Killermann was correct in his observation that the spores of his fungus were globose and 3 μm across, and that cystidia were absent, his var. *graminicola* definitely does not belong to *M. saccharifera*. He stated to have found his material "an faulen Grashalmen nach längerem Regen," which is more likely to be the habitat of a small species of *Coprinus*. Accepting that Killermann's collection is referable to some very immature *Coprinus* (which would explain the colourless to faintly coloured spores), it seems doubtful whether identification is possible with so little information.

114. MYCENA SALICICOLA Losa.

Mycena salicicola Losa in An. Jard. bot. Madrid 6: 442, fig. 14. 1945. – Type locality: Spain, Santiago.

The description of the species is fairly detailed, but since a Latin diagnosis is lacking the species is not validly published.

115. AGARICUS STROBILINUS Fr.

Agaricus strobilinus Fr., Syst. mycol. 1: 150. 1821. – *Mycena strobilina* (Fr.) S.F. Gray, Nat. Arrang. Br. Pl. 1: 621. 1821. – Type locality: Sweden.

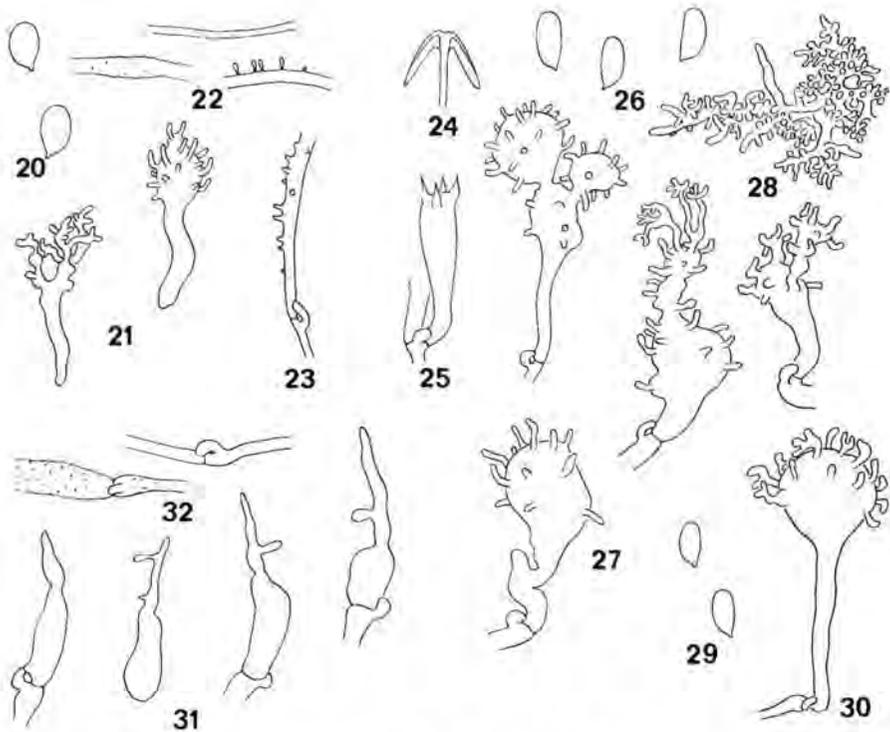
Fries adopted the epithet *strobilinus* from *A. strobilinus* Pers. which is a name change for *A. coccineus* Sow. From Persoon's account (1801: 393) it is obvious that he did not know the species and had relied for his description on that given by Sowerby (1799: 33) as well as the latter's illustration (pl. 197). This is attested by Persoon's addition of "(Q. ic.)" which I take to stand for *Qualis icon* (Like the illustration). Moreover, it would be inexplicable why Persoon should be in doubt whether or not the surface of the pileus was smooth ("pileo . . . laevi?") if he had seen fresh specimens himself.

Sowerby's description is of little use except for his observation (also clearly shown in his hand-coloured illustration) that the stipe "is woolly at the base, solid." What Sowerby failed to mention is that this woolly covering has a dark brown colour. This is not the usual, dull grey discolouring that can be observed when lead white was used for the illustration. Consequently, the original colour

of the fibrils at the base of the stipe was *not* white and this, in connection with the solid stipe, makes it highly doubtful that *A. coccineus* Sow. / *A. strobilinus* Pers. could possibly be a member of the genus *Mycena*.

Fries gave a description which differs from Sowerby's plate in some very essential points. The stipe was said to be "exsucco . . . basi albo-strigoso," and "utique fistulosus," while the lamellae were described as "rubellae, margine obscure sanguineo." This, in my opinion, is sufficient reason to regard *Agaricus strobilinus* Fries as a different species from *A. strobilinus* Pers. and, since Fries stated to have seen fresh material, to indicate Sweden as the type locality.

It now remains to interpret the Friesian species. If "In pinetis ad ramulos &c." is accepted as the usual habitat of *A. strobilinus*, the description appears to apply to both *Mycena purpureofusca* (Peck) Sacc. and *M. seynii* Quél., although it may be argued that thus far there is no definite proof of the latter



Figs. 20–23. *Mycena rugosoides* (lectotype). – 20. Spores. – 21. Cheilocystidia. – 22. Hyphea of the pileipellis. – 23. Hypha of the cortical layer of the stipe.

Figs. 24–28. *Mycena subplicosa* sensu A.H. Smith (A.H. Smith 3329). – 24. Section of the pileus. – 25. Basidium. – 26. Spores. – 27. Cheilocystidia. – 28. Part of a hypha of the pileipellis.

Figs. 29, 30. *Mycena subplicosa* sensu A.H. Smith (A.H. Smith 7944). – 29. Spores. – 30. Cheilocystidium.

Figs. 31, 32. *Mycena vulgaris* var. *caespitosa* (holotype). – 31. Cheilocystidia. – 32. Hyphae of the pileipellis.

Fig. 24, x 1; all others, x 700.

species having been found so far north in Europe. But Fries also clearly stated that his species was "frequentior in fagetis umbrosis" which is definitely not the place to look for either *M. purpureofusca* or *M. seynii*. What species Fries actually had in mind probably is very hard to decide but it seems plausible to assume that the beech forest fungus was an important element in his description of *A. strobilinus*. The conclusion to be drawn from the foregoing discussion is that *A. strobilinus* Fr., with a description consisting of two alien elements and consequently being impossible to identify, must be rejected as a nomen dubium.

The descriptions by Ricken (1915: 423) and Moser (1978: 177) are referable to *Mycena purpureofusca*.

116. MYCENA SUBPLICOSA sensu A.H. Smith – Figs. 24–30.

Mycena subplicosa sensu A.H. Smith, N. Am. Spec. *Mycena*: 280, pl. 47 B, text fig. 33 (7, 8). 1947. – Material examined: "*Mycena subplicosa* Karsten / Lapush, Wash. Oct. 25, 1935 under fir / A.H. Smith 3329" and "*Mycena subplicosa* Karsten / McKenzie Pass, Oregon Oct. 18, 1937 under Douglas fir / A.H. Smith 7944" as well as A.H. Smith 8494 and 18128 (all MICH).

Basidia 25–28 x 6.5–8 μm , 4-spored, clavate, clamped, with sterigmata 3.6–4.5 μm long. Spores 8.1–9.4 x 4.0–4.7 μm , elongated pip-shaped, smooth, amyloid. Cheilocystidia 22–65 x 10–22.5 μm , short- to long-stalked, clavate, obovoid, globose or somewhat irregularly shaped, clamped, covered with scattered, coarse, and curved to flexuous excrescences up to 20 μm long. Pleurocystidia similar, infrequent. Lamellar trama vinescent in Melzer's reagent. Hyphae of the pileipellis 1.8–2.7 μm wide, profusely branched, clamped, forming densely coraloid clusters. Hypoderm made up of radiating, subparallel hyphae 2.7–10.5 μm wide, branched, clamped, and gradually passing into the inflated hyphae (-36 μm) of the pileal trama. Cell-walls of the hyphae of the cortical layer of the stipe not gelatinized.

Smith was well aware of the provisional nature of his identification of the collections he had named *Mycena subplicosa*. The true *M. subplicosa* of Karsten has been shown to be identical with *M. vitilis* (Fr.) Quél., a species which among other things is characterized by clampless cheilocystidia and somewhat gelatinizing cell-walls of the cortical hyphae of the stipe.

To judge from Smith's macroscopic description and the microscopic details given above, *Mycena subplicosa* sensu Smith is identical with *M. atroalboides* (Peck) Sacc.

117. MYCENA TENELLA sensu A.H. Smith.

Mycena tenella sensu A.H. Smith, N. Am. Spec. *Mycena*: 108, pl. 9, text fig. 7 (7,8). 1947. – Material examined: "*Mycena tenella* (Fr.) Quél. / El[illegible]ka River, Olympics, Wash. 9-27-1941 / Alexander H. Smith 17350 / on fern debris; Mt. Angeles, Olympics, Wash. 10-4-[19]41 / Alexander H. Smith 17529 / on fern debris" (both MICH).

Basidia 18–28 x 8–10 μm , obpyriform to clavate, 4-spored, clamped, with sterigmata 4.5–5.5 μm long. Spores 8.8–10.1 x 4.9–6.2 μm , pip-shaped, smooth, amyloid. Cheilocystidia 19–35 x 9–20 μm , occurring mixed with basidia (lamellar edge heterogeneous), subglobose to clavate or obpyriform, more or less densely covered with warts and/or cylindrical, mostly curved excrescences up to 6.5 μm long. Lamellar trama staining fairly pale brownish vinaceous in Melzer's reagent. Hyphae of the pileipellis up to 13.5 μm wide, clamped, densely covered with warts or a tangled growth of cylindrical excrescences c. 4.5 x 0.9 μm . Hyphae of the cortical layer of the stipe with scattered to crowded, short, cylindrical excrescences.

Both Smith's macroscopic description and the microscopic details given above clearly demonstrate that *M. tenella* sensu Smith is nothing but *M. pterigena* (Fr.: Fr.) Kummer. Smith separated the two on the basis of the different colours of their pilei (p. 79), but he described developmental stages of both *M. tenella* and *M. pterigena* with very similar colours. Of *M. pterigena* he stated that "the colored gill edge should not be considered an important diagnostic character. The pigment appears to be quite unstable." This is equally true of the pigment of the pileus, however. Such collections which have the pilei "merely pale gray" are certainly hard to recognize as members of subsection *Pterigenae* and could easily be mistaken for some species of section *Cinerellae* if it were not for their differently shaped cheilocystidia and their association with ferns.

As pointed out in an earlier paper (Maas Geesteranus, 1983: 398), *Mycena tenella* (Schum.: Fr.) Quél. is best dismissed as a nomen dubium.

118. MYCENA URANIA (Fr.: Fr.) Quél. — 2-spored.

Pileus up to 11 mm across, plano-convex, slightly umbilicate, sulcate, grey-brown. Odour faintly raphanoid. Lamellae 15–17 reaching the stipe, tender, adnate, narrow, pale grey, with whitish edge. Stipe 80 x 8 mm, hollow, glabrous for the greater part, concolorous with the pileus, paler above, densely covered with long, coarse, flexuous, whitish fibrils towards the base.

Basidia 23–27 x 8–9 μm , clavate, 2-spored, without clamp, with sterigmata up to 9 μm long. Spores 9.8–11.6 x 5.3–5.5 μm , pip-shaped, smooth, amyloid. Cheilocystidia 22.5–27 x 8–18 μm , clavate to obpyriform, strikingly narrow-stemmed, without clamp, covered with evenly spaced, cylindrical excrescences. Pleurocystidia infrequent, similar. Lamellar trama brownish vinescent in Melzer's reagent. Hyphae of the pileipellis 1.8–5.5 μm wide, without clamps, densely diverticulate, excrescences 0.9–2.5 x 0.9 μm . Hyphae of the cortical layer of the stipe without clamps, diverticulate.

WEST GERMANY: Baden-Württemberg, Grissheim, 30 Oct. 1982, W. Winterhoff 82320, in Mesobrometum (herb. Winterhoff and L).

The macroscopic description is partly adapted from notes taken by the collector, while the microscopic details are based on reexamination of the material.

The 2-spored form of the species does not seem ever to have been reported. The redescriptions by Favre (1960: 413), Kubička (1963: 87), M. Lange (1955: 44), Orton (1964: 55), and Smith (1947: 270) all indicate the basidia as 4-spored, while no information on the number of spores was given in the publications by Bon & Van Haluwijn (1982: 51) and Raitelhuber (1978: 20). A collection from Trondheim (Norway, leg. Ö. Weholt; L) appears to have 4-spored basidia.

The question arises whether the 2-spored form of *M. urania* could be the same as *Mycena caesiolivida* Bres. which is also 2-spored (see Maas Geesteranus, 1981b: 422). It is certainly true that the two taxa have several features in common, but a fundamental difference is that *M. caesiolivida* possesses clamps.

The descriptions of the colours of *M. urania* differ from one author to the other, and the explanation is that the original violet colour fades with age, turning brownish in various shades. In this respect, the species demonstrates its affinity with *M. arcangeliana* Bres. apud Barsali. For a description of the changes

of the colouration in the latter species, see Maas Geesteranus & Weholt (1983: 217).

119. AGARICUS VITREUS Fr.

Agaricus vitreus Fr., Syst. mycol. 1: 146. 1821. – *Mycena vitrea* (Fr.) Quél. in Mém. Soc. Emul. Montbél. II 5: 243. 1872. – Type locality: Sweden.

The interpretation of the name of this species has long been a source of doubt or the species was simply ignored. J.E. Lange (1914, 1936) never mentioned *Mycena vitrea*. Oort (1928: 238) was uncertain whether the citation of Fries as author of the species was applicable to the Dutch material. Kühner (1938: 285) used the citation "(Fries?), sensu Ricken," but refrained from giving an opinion on the Friesian concept of the species. Smith (1947) ignored the binomial. Pearson (1955: 63) said "variously interpreted." Summarizing, the position is that apparently Fries' species is not, or at least not generally, accepted, but arguments for the rejection were never given.

Fries mentioned the proximity of his species to *Agaricus galopus* and *A. avenaceus*, from which it could be inferred that *A. vitreus*, too, belongs to *Mycena*, but there is an obstacle to such an assertion. Fries described the stipe as "livido splendente." These two features rather suggest that *A. vitreus* could be a member of the genus *Entoloma*. However, neither assumption can be proved (or disproved) with any degree of certainty, and the name therefore must be rejected as a nomen dubium.

120. MYCENA VULGARIS VAR. CAESPITOSA Kauffm. & Smith – Figs. 31, 32.

Mycena vulgaris var. *caespitosa* Kauffm. & Smith in Pap. Mich. Acad. Sci. 17: 186. 1933. – Holotype: "*Mycena vulgaris* var. *caespitosa* Kauff. & A.H. Sm. / Michigan, Alger Co., Rock River 18 Sep. 1929 / C.H. Kauffman 177a" (MICH).

Basidia c. 25 x 7 μ m, clavate, 4-spored, clamped, with sterigmata up to c. 5.5 μ m long. Spores 7.2–7.6 x 4.5–4.7 μ m, pip-shaped, smooth, strongly amyloid. Cheilocystidia 30–36 x 4.5–8 x 1.8–2.7 μ m, lageniform to fusiform, clamped, the slender neck not infrequently showing lateral excrescences. Pleurocystidia absent. Lamellar trama faintly brownish virescent in Melzer's reagent. Hyphae of the pileipellis 1.8–7 μ m wide, clamped, the narrowest ones smooth, the wider ones minutely verrucose-rough to somewhat rugulose.

Kühner (1938: 393), recognizing that this variety had no connection with *Mycena vulgaris* (Pers.: Fr.) Kummer, proposed the binomial *Mycena pseudovulgaris* Kühn. This turned out to be a superfluous name, however, since Smith (1947: 322), having discovered that var. *caespitosa* was indistinguishable from *Mycena laevigata* (Lasch) Gillet, placed the varietal epithet under the synonymy of the latter. Singer (1969: 135), doubting the correctness of this decision, maintained the name *M. pseudovulgaris* for material collected in Argentina, but it may be observed that his material seems to represent a different species, to judge from the very much darker colour of the pileus and the conspicuously diverticulate hyphae of the pileipellis ("diverticula to 9 μ m long"). The shape of the spores would seem to be different, too, although this is less apparent from their respective sizes. Smith described the spores as

“broadly ellipsoid, 6–8 x 3–4 μm ,” while Singer said “6.5–9 x 2.5–3.8 μm , oblong to oblong-subcylindric.” It is possible that the rather narrow spores mentioned in Smith’s description must be attributed to some coincidence (since my own measurements give a greater width), but his judgment is perfectly correct—var. *caespitosa* and *Mycena laevigata* are one and the same thing; he was equally correct in regarding the darker shade of the North American material as an expression of the variability of *M. laevigata*. Three North American collections of *M. laevigata* (A.H. Smith 3919, 7024, 18164; MICH) selected at random for inspection appeared characterized by a striking combination of features: cheilocystidia slender, narrow hyphae of the pileipellis smooth, broader hyphae of the pileipellis usually conspicuously roughened or even verrucose. These are the elements which equally characterize the European (Norwegian, German, Austrian, and Italian) members of *Mycena laevigata*.

121. *MYCENA VULGARIS* f. *LUTEA* Heim.

Mycena vulgaris f. *lutea* Heim in Treb. Mus. Cienc. nat. Barcelona (Bot.) 15(3): 93. 1934 (nomen nudum). — Type locality: Spain, Sant Sadurní d’Osormort.

The author omitted to give a proper description of this form, leaving its name not validly published.

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Added in proof.

***Mycena invisibilis* (Joss. ex Bon) Maas G., comb. nov.**

Mycena invisibilis Joss. *in Bull. trimest. Soc. mycol. Fr.* **59**: 16, fig. 3 (1943)1945 (not val. publ.; no Latin descr.). – *Delicatula invisibilis* Joss. ex Bon *in Docums mycol.* **13** (49): 38. 1983 (basionym); *in Agarica* **4**(8): 77, fig. 3A-D. 1983. – Neotype: Weholt 85/82 (in Herb. Bon).

Bon is the validating author, not Maas Geesteranus, but the species is a *Mycena*, not *Delicatula*.

Studies in Mycenas 122–146

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Some of the results of the systematic revision of North American *Mycena* collections are reported, while interpretations are presented of the names of various taxa at some time referred to *Mycena*.

Sincere thanks are due to the authorities of the herbaria at Albany (NYS), Ann Arbor (MICH), and Vladivostok (VLA) for the loan of valuable material. Special thanks are given to Dr. Scott A. Redhead (Ottawa) for the gift of an English-translated Russian publication. Acknowledgement is also made to the Director of the 'Rijksherbarium' for providing working facilities.

122. MYCENA ALBOGRISEA Peck – Figs. 1–5.

Mycena albogrisea Peck in Bull. N.Y. St. Mus. 116: 27. 1907. – *Prunulus albogriseus* (Peck) Murrill in N. Am. Flora 9: 327. 1916. – Holotype: "Mycena albogrisea Pk. / Bolton / Sept. 16 / Chas. H. Peck" (NYS).

Basidiomata scattered. Pileus 6–10 mm across, parabolical to subcampanulate, obtuse, translucent-striate, sulcate, glabrous, greyish white. Flesh thin. Odour not recorded. Lamellae arcuate, broadly adnate, decurrent, concolorous with the pileus, with concave edge (although apparently convex in some of the dried specimens). Stipe 25–50 × 1 mm, hollow, equal, somewhat pruinose above, glabrous farther down, covered with fairly coarse fibrils at the base, paler than the pileus.

Basidia c. 24–27 × 7 μm, clavate, clamped, a few seen with four incipient sterigmata. Spores 8.1–9.8 × 4.5–4.9 μm, elongated pip-shaped, smooth, amyloid. Cheilocystidia 36–55 × 5.5–10.5 μm, occurring mixed with basidia (lamellar edge heterogeneous), clavate to subcylindrical, clamped, covered with unevenly spaced, irregularly shaped, fairly coarse, simple to somewhat branched ex-

crecences. Pleurocystidia not observed. Lamellar trama pale vinaceous brownish in Melzer's reagent. Hyphae of the pileipellis 1.8–2.5 μm wide, very much branched and forming dense masses, the branches diverticulate. Hyphae of the cortical layer of the stipe diverticulate.

Attached to fallen needles of coniferous trees.

The macroscopic description of the species is adapted from Peck's and complemented by my own observations on the dried material. The microscopic details are based on reexamination of the type.

Mycena albogrisea is identical with *M. cinerella* (P. Karst.) P. Karst. Smith (1947: 283, 284) regarded Peck's species as a "small form of *M. filopes*," but the differences are obvious. In *Mycena filopes*, the lamellae are ascending and narrow (not arcuate and broad as in Peck's type); the cheilocystidia are differently shaped from those of *M. albogrisea* and, above all, the excrescences covering these cheilocystidia do not in the least resemble those found in *M. albogrisea*.

123. MYCENA ALCALINA var. LUTEOPES Killerm.

Mycena alcalina var. *luteopes* Killerm. in Denkschr. bayer. bot. Ges. Regensb. 18: 110. 1931. – Type: represented by Cooke, Ill. Br. Fungi 2: pl. 234/235 upper figs. 1881–1883.

Killermann's description is insufficient for recognition of his taxon, but the illustration he referred to is perfectly clear. Var. *luteopes* is identical with *Mycena inclinata* (Fr.) Quél. (compare also Kühner's opinion, 1938: 340).

124. MYCENA ATROCYANEA var. NIGRICANS Luc. apud Gillot & Luc.

Mycena atrocyanea var. *nigricans* Luc., Fig. champ.: pl. 184. 1887 (nomen nudum); Luc. apud Gillot & Luc. in Bull. Soc. Hist. nat. Autun 2: 209. 1889. – Type locality: France, Laplanche, near Luzy.

Lucand's book which I have seen only once is a volume of mycological illustrations without descriptions. The description of var. *nigricans*, therefore dates from 1889. Var. *nigricans* was said to differ from the type among other things "par la couleur plus noirâtre de toutes ses parties, sans reflets bleus . . ." It should be pointed out that Gillot & Lucand's concept of the typical variety of *M. atrocyanea*, an illustration of which is given in pl. 1 fig. 4, is much more suggestive of a species of *Mycena* (with copious tomentum at the base of the stipe) than can be said of dubious *Agaricus atrocyaneus* Batsch (see Maas Geesteranus, 1983b: 499). In fact, both Lucand's illustration of what he regarded as *M. atrocyanea* and his var. *nigricans* would seem to be easily referable to *Mycena leucogala* (Cooke) Sacc.

125. MYCENA BROWNII A.H. Smith – Figs. 6–10.

Mycena brownii A.H. Smith, N. Am. Spec. *Mycena*: 363, textfig. 43 (6, 9). 1947. – Holotype: "Mycena brownii A.H. Sm. / Washington, Grays Harbor Co., Lake Quinault / 1 Nov. 1925 / C.A. Brown / on *Rubus canes*" (MICH).

Basidiomata growing singly. Pileus 2-5 mm across, conical to convex, translucent-striate, sulcate, feeling moist to the touch, glaucous grey to fuscous, paler towards the margin. Flesh thin, somewhat pliable. Odour and taste not recorded. Lamellae c. 9 reaching the stipe, tender, arcuate, broadly adnate, somewhat decurrent, pale greyish, with pallid edge. Stipe up to 15 mm long, 0.5 mm wide, hollow, equal for the greater part, minutely puberulous above, glabrous farther below, villous towards the base, pallid, the base abruptly bulbous.

Basidia $28-36 \times 7.5-8 \mu\text{m}$, slender-clavate, 4-spored, clamped, with sterigmata $4.5-5.5 \mu\text{m}$ long. Spores $8.1-8.3 \times 4.9-5.4 \mu\text{m}$ (few seen and probably immature), pip-shaped, smooth, amyloid. Cheilocystidia $27-35 \times 3.5-8 \mu\text{m}$, occurring mixed with basidia (lamellar edge heterogeneous), clavate, clamped, covered with unevenly spaced, fairly coarse, simple to somewhat branched, curved to flexuous excrescences up to $9 \mu\text{m}$ long and $1.8-4.5 \mu\text{m}$ wide. Pleurocystidia not observed. Lamellar trama staining pale brownish vinaceous in Melzer's reagent. Hyphae of the pileipellis $1.5-3.5 \mu\text{m}$ wide, clamped, covered with warts and cylindrical excrescences $1.3-1.8 \mu\text{m}$ wide which may grow out to dense and much branched masses. Hyphae of the cortical layer of the stipe $1-2 \mu\text{m}$ wide, clamped, diverticulate, with excrescences up to $20 \mu\text{m}$ long and $1.8 \mu\text{m}$ wide.

On decaying stems of *Rubus*.

"Known only from the type locality" (Smith, 1947: 364).

The macroscopic description of the species is adapted from Smith's and complemented by my own observations on the dried material. The microscopic details are based on reexamination of a fragment of the holotype.

In the key supplied by Smith (1947: 356-358), the taste of *Mycena brownii* is indicated as mild, although this is an unproved supposition. Smith (p. 364) observed that he had found the material "among Kauffman's unidentified collections," while (p. 363) "odor and taste [had] not [been] recorded." The lack of information on the odour of *M. brownii* proves the only uncertain element in a complex of features which leaves no doubt that *Mycena brownii* and *M. cinerella* (P. Karst.) P. Karst. are the same species.

Smith laid some emphasis on the fact that *M. brownii* occurred "on decaying stems of *Rubus*," but *M. cinerella* is not very particular in the choice of its habitat, being known to grow on humus, fallen leaves, needles, twigs, and decayed wood, in dry as well as wet heaths, under conifers (*Juniperus*, *Larix*, *Picea*, *Pinus*) and broad-leaved trees (*Alnus*, *Betula*, *Quercus*, *Salix*).

126. MYCENA CINERELLA var. VISCIDA Kauffm. & Smith - Figs. 11-14.

Mycena cinerella var. *viscida* Kauffm. & Smith in Pap. Mich. Acad. Sci. 17: 178. 1933; A.H. Smith, N. Am. Spec. *Mycena*: 368, textfig. 45 (5, 6). 1947 (var. "*subviscida*"). - Holotype: "*Mycena cinerella* var. *viscida* Kauff. & A.H. Sm. / Michigan: Alger Co., Rock River / 10 Sept. 1929 / C.H. Kauffman & A.H. Smith 43" (MICH).

Pileus (dried) fairly dark sepia brown. Lamellae tender, ascending, narrowly adnate, decurrent with a short tooth, edge convex. Stipe glabrous for the greater part, with coarse fibrils towards the base.

Basidia c. $23 \times 8 \mu\text{m}$, clavate, 4-spored, clamped. Spores $7.2-8.5 \times 4.5-4.7 \mu\text{m}$, pip-shaped, smooth, weakly amyloid. Cheilocystidia $21.5-32 \times 10-12.5 \mu\text{m}$, forming a sterile band (lamellar edge homogeneous), usually clavate but also quite a few more or less shaped like an hour-glass, clamped (but clamps very difficult to see), almost smooth to covered apically with unevenly spaced, fairly coarse, simple to somewhat branched excrescences $1.8-11.5 \times 1.5-2.5 \mu\text{m}$. Pleurocystidia similar, infrequent. Lamellar trama staining brownish vinaceous in Melzer's reagent. Hyphae of the pileipellis $1.5-3.5 \mu\text{m}$ wide, clamped, branched and diverticulate, excrescences very much obscured by gelatinization of the cell-walls. Hyphae of the cortical layer of the stipe diverticulate.

The above description is based on a reexamination of a fragment of the holotype.

Several of the characters of the present taxon are in agreement with Smith's view that this could be a variety of *Mycena cinerella*. It must be pointed out, however, that section *Cinerellae* Sing. ex Maas G. is characterized by horizontal to arcuate, broadly adnate lamellae, decurrent with a tooth, and with the edge straight to somewhat concave. This is not the case here, and careful consideration of alternative possibilities only results in the identification of var. *viscida* as a member of section *Filipedes* (Fr.) Quél. Taking account of the peculiar shape of a number of the cheilocystidia of the holotype, I am inclined to think that var. *viscida* is identical with *Mycena sepia* sensu Lundell (see Maas Geesteranus, 1980a: 185, figs. 21-25), a species which awaits formal description.

127. AGARICUS COLLARIATUS Fr. 1818.

Agaricus collariatus Fr., Obs. mycol. 2: 164. 1818 not *Agaricus collariatus* With., Bot. Arrang. Veg., 2nd ed., vol.?: page?. 1787-1793 (not seen); Arrang. Br. Pl., 6th ed., 4: 195. 1818. - Type locality: Sweden, presumably surroundings of Lund.

In describing this species, Fries stated that he was in doubt as regards the older synonyms because: "ad adnexionem lamellarum numquam attendentium." This demonstrates the importance Fries attributed to the attachment of the lamellae to the stipe. Some of the details of his description may be given special attention here: "Inter folia dejecta abiecta...stipes...2-4 unc. longus...subfragilis...exsiccatus contortus...lamellae circa stipitem inter se et cum stipite totae connatae...distantes...albidae l. sordide flaventes." Later (1821: 145), Fries changed his mind, pointing out that *A. collariatus* could hardly be anything else than a "status mutatus" of *Agaricus metatus* in whose company it grew ("in hujus consortio vigens"). I am inclined to believe that Fries hit the right nail on the head: *Agaricus collariatus* is an anomalous form of *Mycena metata*.

128. AGARICUS COLLARIATUS Fr. 1838.

Agaricus collariatus Fr., Epicr. Syst. mycol.: 114. 1838. - *Mycena collariata* (Fr.) Quél. in Mém. Soc. Emul. Montbél. II 5: 244. 1872 (not *Mycena collariata* Vel., Novit. mycol. nov.: 24. 1947). - Type locality: Sweden, Upsala, Kongspark.

Fries reestablished *A. collariatus* as an independent species but, although he referred to his Observationes, his second description, of which the following details are here emphasized, is clearly different from the first one: "In graminosis silvarum...stipite...tenaci...nitido...stipes uncialis]...lamellis collariato-adnatis...confertis...albidis l. obsolete incarnatis." On the strength of the differences I conclude that Fries described a different species which came from a different type locality. This second description was repeated practically without change in a much later publication (Fries, 1867: 91), but contained the supplementary remark: "Collarium non adest discretum ut in

Marasmius Rotula; lamellae modo ad stipitem cohaerentes et conjunctae secedentes." It was this addition which ranked high in the redescriptions of *Mycena collariata* by Quélet (l.c., "Lamelles...se décollant du stipe sous forme de tube.") and Ricken (1915: 429, "Lamellen...lösen sich halsbandartig-verbunden vom Stiele ab."). Kühner, however, was in doubt about the identity of *M. collariata*, placing it among the insufficiently known species. But it should be observed that Kühner, rather than tracing the name back to its origin, referred to Ricken, and from this it can be concluded that he technically referred to *Agaricus collariatus* Fr. 1838, a later homonym of *A. collariatus* Fr. 1818, and illegitimate.

129. AGARICUS CRENULATUS Schum.

Agaricus crenulatus Schum., Enum. Pl. Saell. 2: 293. 1803; Fr., Syst. mycol. 1: 112. 1821. - *Mycena crenulata* (Schum.: Fr.) Sacc., Syll. Fung. 5: 252. 1887. - Type locality: Denmark, Sjaelland, near Birkerød.

Schumacher gave a fairly detailed description of an agaric, the most important points of which are the following. Basidiomata solitary, somewhat viscid, purplish brown. Pileus 25-50 mm across ("1-1½-2 poll. latus"). Lamellae very broad, triangular. Stipe 75-100 mm long ("3-4 poll. longus"), somewhat fibrillose. Flesh becoming somewhat purplish. Growing among moss in a coniferous wood.

A fungus combining such prominent characters is not known in *Mycena*, nor is it known to me whether a species of this description has ever since been reported. Fries (l.c.) regarded *A. crenulatus* as a member of his tribus *Clitocybe*, but no modern work features *C. crenulata* as an accepted name or a synonym. *Agaricus crenulatus* may be either a forgotten or an unidentified name, but it is definitely not a *Mycena*, as Saccardo would have it.

130. MYCENA FARREA VAR. GRACILIOR Quélet.

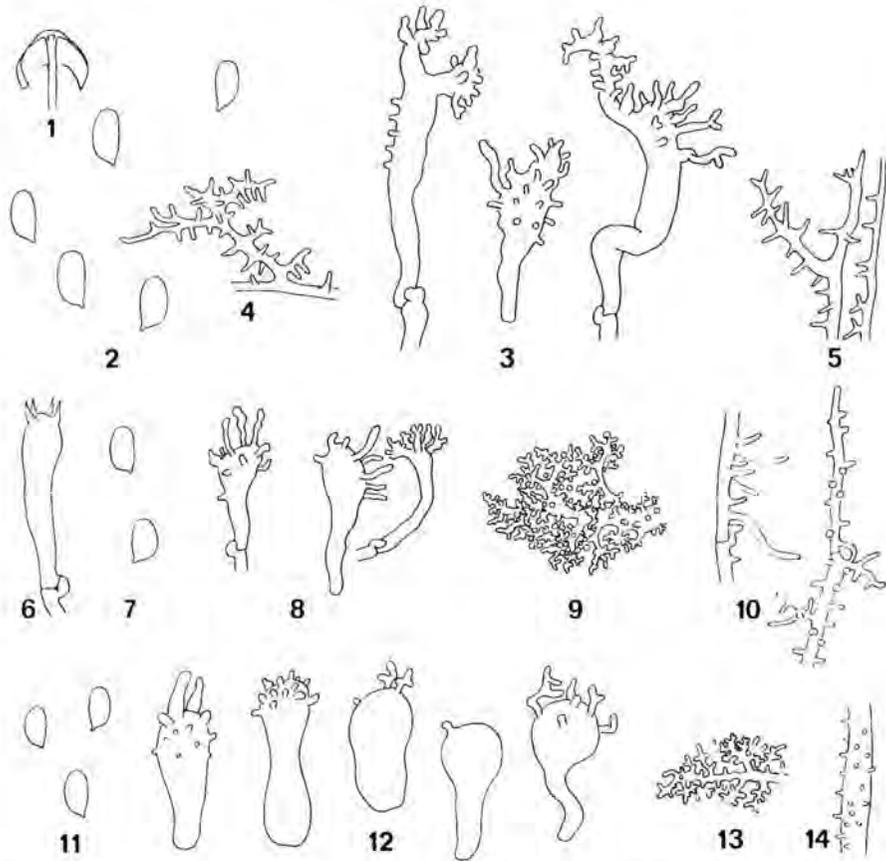
Mycena farrea var. *gracilior* Quélet. in Bull. Soc. mycol. [Fr.] 2: 77. 1886. - Type locality: France, near Autun.

Quélet described his fungus very briefly, but the few characters that do allow a cautious interpretation ("Chapeau incarnat-ochracé...recouvert d'un voile floconneux très délicat, blanc de neige; stipe très grêle...blanc-hyalin") seem to suggest young material of a species of *Psathyrella* (Fr.) Quélet.

131. THE MYCENA FILOPES-COMPLEX.

Arnolds in a recent publication (1982) discussed the problems relating to *Mycena filopes*, *M. metata*, and *M. sepia*. The names he used are *Mycena filopes* sensu Dennis & al. var. *filopes* (p. 407), *M. filopes* var. *metata* sensu Oort (p. 409), *M. sepia* J. Lange var. *sepia* (p. 416), and *M. sepia* var. *tenella* sensu Oort (p. 416).

1. *Mycena filopes* sensu Dennis & al. (1960: 117). It should be noted that in accepting this nomenclature, Arnolds implicitly agreed with the synonymy cited by Dennis & al., one of which being *M. vitilis* var. *typica* Kühn., 1938. One of the synonyms, however, cited by Arnolds, is *M. vitrea* sensu Kühn., 1938. These binomials for Kühner stood for two separate species with rather different shades of the colour of the pileus; Arnolds failed to comment upon the discrepancy. He described the pileus of *M. filopes* as “± pale grey-brown cap-centre (M ± 5D4, 5E5), gradually passing into a broad, very pale grey-brown or whitish marginal zone (M5B3, 5C3).” On looking up the symbols used (Kornerup & Wanscher, 1978), it turns out that the pileus in Arnolds’ concept



Figs. 1-5. *Mycena albogrisea* (holotype). - 1. Section of the pileus. - 2. Spores. - 3. Cheilocystidia. - 4. Part of a hypha of the pileipellis. - 5. Hyphae of the cortical layer of the stipe.

Figs. 6-10. *Mycena brownii* (holotype). - 6. Basidium. - 7. Spores. - 8. Cheilocystidia. - 9. Part of a hypha of the pileipellis. - 10. Hyphae of the cortical layer of the stipe.

Figs. 11-14. *Mycena cinerella* var. *viscida* (holotype). - 11. Spores. - 12. Cheilocystidia. - 13. Part of a gelatinized hypha of the pileipellis. - 14. Part of a hypha of the cortical layer of the stipe.

Fig. 1, $\times 1.5$; all others, $\times 700$.

of *M. filipes* is of a moderately dark grey-brown and rather darker than shown in J.E. Lange's plate 57 fig. F cited by him. This, however, gives insufficient credit to the colour variability of the pileus of the species. To appreciate the full extent of the colour scale, it will be necessary to turn to Fries, but this step should be preceded by another - the citation of a paragraph in a paper by Korf (1982: 252).

The new provisions state clearly that typification of names used in the sanctioning works "is based on the protologue" of the sanctioning author. For those unfamiliar with the term "protologue", that is defined in ICBN as "everything associated with a name at its first publication, i.e. diagnosis, description, illustrations, references, synonymy, geographical data, citation of specimens, discussion, and comments." Thus, if the sanctioning author gives a reference to one or more earlier names or treatments, such names or treatments are considered part of the diagnosis, description, etc. provided in the sanctioning work, as though republished again in full.

Fries (1821: 142), stating that he had seen *Agaricus filipes* fresh (indicated by "v.v."), described the colour of the pileus as "livido-fusco" (which must be seen as a very dark, somewhat leaden-hued grey-brown), but he added the words "colore varius." He also referred to the works of some previous authors, of whom the following are here cited in alphabetical order.

Batsch (1783: 68, pl. 1 fig. 2; as *Agaricus pilosus*): "Mit . . . braun-graulichen [in error for "-graulichem"] Huthe." The pileus in the illustration is of a very pale grey-brown, being only slightly darker at the centre.

Bulliard (1787: pl. 320) gave no description of the colour of the pileus, but all the illustrations in his plate show the pileus to be only a little darker than in Batsch's figure.

Hoffman (1789: 215, pl. 6 fig. 1; as *Agaricus membranaceus*): "Die Mitte ist braun. . . ist er (the pileus). . . von Farbe maussfarb [typographical error, should have been "mausfarb"]." Apparently, the pileus is of a moderately dark grey-brown.

Schumacher (1803: 269): ". . . pileo . . . cinereolivido, vertice umbrino." Umbrinus is a dark sepia brown.

The range of colours in the examples given above, already considerable in itself, can yet be extended by citing the two following collections which constitute the opposite ends of a continuous series of intergrading specimens.

1. Netherlands: Gelderland, Winterswijk, Bekkendelle, 12 Oct. 1980, J. Schreurs (L); pileus extremely pale, almost white, centre sepia brownish.

2. Netherlands: Oost-Flevoland, Abbert, 14 Sept. 1978, Mrs G.J.M.G. Tjallingii (L); pileus very dark grey-brown, in some specimens nearly black.

These two collections conform to all others used to substantiate the argumentation of the present discussion (but here omitted in order not to burden the account) in three important points. (i) The margin of the young pileus, embracing the upper part of the stipe like a cuff, spreads later on and extends beyond the lamellae, a character often remaining visible even in dried material (compare also Bulliard, l.c.: "ses bords sont un peu festonnés"). (ii) Neither the pileus, (iii) nor the lamellae are pink or turn that colour with age.

In conclusion, it can be said that the colour range of the pileus of *M. filopes* is considerable, and certainly more extensive than accepted by Arnolds.

2. *Mycena filopes* var. *metata* sensu Oort. Arnolds' concept of this variety, which he stated to have collected only twice, follows that of Oort (1928: 239), but he made no mention of the difference between the odours as noted by Oort (rather like chlorine, rarely odourless) and by himself ("distinctly iodine-like," which is most probably in error for "iodoform-like"). Except for a difference in view as to the density of lamellae ("distantes" according to Fries, crowded according to Oort, although it should be kept in mind that the intervening space between the lamellae changes with the spreading of the pileus), there is virtually no difference between the macroscopic descriptions by Oort and Fries (1821: 144). I maintain therefore that (i) the use of the expression 'sensu' should be dropped, and (ii) *Mycena metata* is to be understood as conceived by Fries, albeit in a somewhat more restricted sense than accepted in my previous paper (Maas Geesteranus, 1980a: 182). Of the colours mentioned by Fries to describe his *Agaricus metatus*, I am now inclined to retain only "argillaceus" and "incarnato-pallidus", since these are often found together in *Mycena metata*, while they are unknown to occur in *M. filopes*. I herewith admit the possibility of Fries' description to be slightly too inclusive. I am not quite prepared to name such specimens as were described by Fries as "flavus" as well as such with much darker, fuscous colours, so often seen in frondose woods in the Netherlands. In regard to the description and illustration (pl. 7b) Arnolds gave of var. *metata*, both agree entirely with my concept of *Mycena metata* as I know the species from sheltered habitats.

3. *Mycena sepia* J. Lange var. *sepia*. Arnolds described the colour of the pileus of var. *sepia* (p. 407) as "greyish brown, dark brown or blackish brown at centre. . . only slightly paler towards the margin." This variety was said to grow on "humus or fine, decayed litter of several grasses" in various grassland communities, "exceptionally on heather litter" (p. 213), where it was found to be one of the most common fungi: "My observations are based on several thousands of fresh carpophores" (p. 407). Arnolds' illustration of var. *sepia* depicts four specimens which allow an impression of their colour range. The pileus in two of them is fulvous with a dark sepia brown centre; in the third the pileus is very dark sepia brown right to the very margin; the fourth specimen resembles the two former ones with a slightly different shade of brown.

The picture of *M. sepia* derived from Lange's account and illustration looks different. Lange (1936: 46) described the pileus as "dark fuscous (edge whitish pale, disc and striae almost sepia)," while the species was claimed to be rather rare, growing "amongst needles in plantations of *Pinus* and *Picea*." Moreover, the colour of the pileus in his illustration (pl. 54 fig. 1) gives the impression of being nearer dark grey than sepia brown, leave alone fulvous.

It may be asked whether, in view of these discrepancies, *M. sepia* sensu Arnolds is referable to the species described by Lange. I still adhere to the view that Lange's *sepia* is a dark form of *Mycena filopes* (Maas Geesteranus, 1980a: 183), but I have no satisfactory suggestion yet as to how to assess Arnolds' *sepia*.

Arnolds' careful work has led me to revise some of my opinions and to polish my insight in this remarkably complicated group. But some problems remain and, while admitting the desirability of naming all fungi that turn up in permanent plots staked out for a mycocoenological investigation, I feel that some time must be allowed for a reasonable solution to mature.

4. *Mycena sepia* var. *tenella* sensu Oort. The illustration of var. *tenella* given by Arnolds (pl. 7c) resembles strikingly Lange's plate 56 fig. F of *Mycena metata* as far as the colour of the pileus is concerned. The stipes, to be sure, are rather shorter than those depicted by Lange, but it should be remembered that Arnolds collected his specimens in open grasslands and found them to be rare (which implies limited acquaintance with their variability), whereas Lange's *metata* (p. 46) was said to be "Very common, often in great numbers, on the needle-bed in coniferous woods (*Picea*)." The difference in length of the stipes may very well be explained by the differences in habitat. Kühner (1938), citing Lange's plate 56 fig. F as representative of what he called *M. vitrea* var. *tenella*, described the pileus of the 4-spored form (p. 289) as "d'une teinte fauvâtre-brunâtre, toujours mêlée de rosé ou de carné," and the pileus of the 2-spored form (p. 292) as "d'un brunâtre-carné ou incarnat fuscéscent, à centre quelquefois plus foncé." He also included a description by Favre which reads: "brun incarnat ou beige rosé, plus foncé vers le mamelon." These colours correspond satisfactorily with those indicated by Arnolds. They are also the very colours I am convinced Fries must have seen in his *Agaricus metatus* which he found "In pinetis ad terram. . . vulgatissimus."

Whether Arnolds' interpretation of var. *tenella* is identical with Oort's may be questioned, but is of little consequence in the present case. The important point is that his *M. sepia* var. *tenella* and *M. filopes* var. *metata* are shown to be mere variants of a single species: *Mycena metata*.

To conclude the discussion, the following key is given, mainly to outline the specific limits of *Mycena filopes* and *M. metata*. Collections with intermediate or deviating features can, for the time being, neither be named nor keyed out. Again, a solution must be left time to simmer and, above all, requires the cooperation of many dedicated collectors.

1. Pileus pruinose when young, in later stages fairly coarsely innate-fibrillose, giving the impression of being rimose, with the fibrils imparting a silvery lustre to the pileus on drying out; margin at first usually appressed against the stipe and embracing it like a cuff, later spreading and extending beyond the lamellae. Neither the pileus nor the lamellae with pink shades at any stage. Growing singly or in small groups:

M. filopes

1. Pileus not pruinose, either minutely innate-fibrillose and silky or surface lacking any structure, without a silvery lustre on drying out; margin not embracing the stipe and, when spreading, not extending beyond the lamellae. Pileus and/or lamellae usually with pinkish shades from the beginning or turning pink. Gregarious, typically (but not exclusively) occurring in coniferous woods (*Picea*) and often numbering hundreds of specimens:

M. metata

132. MYCENA INCONGRUENS (Britz.) Sacc. & Trav. apud Sacc.

Agaricus amictus var. *incongruens* Britz. in Ber. naturhist. Ver. Augsburg 26: 147 [pl. 11 fig. 109]. 1881. – *Mycena incongruens* (Britz.) Sacc. & Trav. apud Sacc., Syll. Fung. 20: 148. 1911. – Type locality: Germany, South Bavaria.

Singer (1943: 140, note 141) reported on the find of a fungus “die von L. Vasiljeva in Tatarien entdeckt wurde” which he recognized as *Mycena incongruens*, and of which he gave a brief but unmistakable description. There is no doubt that the said fungus represents a stage of *Mycena amicta* (Fr.) Quél., in which both pileus and stipe have lost all trace of bluish colours. This is not new; Stangl & Bresinsky (1969: 67) determined the original var. *incongruens* as nothing but *M. amicta*. The interesting point, however, is that Singer described the basidia as 2-spored, a condition not previously recorded for this species.

133. AGARICUS LILACIFOLIUS Peck.

Agaricus lilacinus Peck in Rep. N.Y. St. Mus. nat. Hist. 24: 63. 1872 (later homonym) [not *Agaricus lilacinus* Mont., Syll. Gen. Spec. cryptog.: 110. 1856 – *Mycena lilacina* (Mont.) Sacc., Syll. Fung. 5: 257. 1887 (not *Mycena lilacina* Raithel., Hongos argentin. 1: 61, 142. 1974)]. – *Agaricus lilacifolius* Peck in Rep. N.Y. St. Mus. nat. Hist. 29: 66. 1878 (name change). – *Omphalia lilacifolia* (Peck) Peck in Rep. N.Y. St. Mus. nat. Hist. 45: 94. 1893. – *Omphalina lilacifolia* (Peck) Murrill in N. Am. Flora 9: 346. 1916. – *Clitocybe lilacifolia* (Peck) Sing. in Lloydia 5: 105. 1942. – *Mycena lilacifolia* (Peck) A.H. Smith, N. Am. Spec. Mycena: 414. 1947. – Holotype: “*Omphalia lilacinifolia* [!] Pk. / Trenton Falls / Chas. H. Peck Aug. / Lilac-gilled *Omphalia*” (NYS).

Smith (l.c.) gave a detailed description of the species but failed to indicate whether or not he had seen the type. He did state that *Mycena lilacifolia* “does not appear to be related to the lilac-gilled species” of *Clitocybe*, to which genus Singer had transferred it. Despite this remark, I am inclined to adhere to Singer’s view. A species with non-amyloid spores, devoid of cheilocystidia, and with a lamellar trama that remains unchanged in Melzer’s reagent is not a member of *Mycena*. Curiously enough, Bigelow (1970: 28) followed Smith’s opinion, rather than Singer’s.

134. AGARICUS LUTEOALBUS Bolt.

Agaricus luteoalbus Bolt., Hist. Fung. Halifax 1: 38, pl.-38 fig. 1. 1788; Fr., Syst. mycol. 1: 152. 1821. – *Mycena luteoalba* (Bolt.: Fr.) S.F. Gray, Nat. Arrang. Br. Pl. 1: 620. 1821. – Type represented by Bolt., Hist. Fung. Halifax 1: pl. 38 fig. 1.

Kühner (1938) referred to *Mycena luteoalba* sensu J. Lange (p. 274), sensu Ricken (p. 314), and sensu Cooke (p. 549), but does not seem to have consulted Bolton’s original publication. This range of possibilities in the interpretation of *M. luteoalba* may have deterred Dennis & al. (1960: 197), for they were content to pronounce it a doubtful species. Yet the choice does not seem too difficult.

Specimens which conform more or less to Bolton’s description and grow among moss in woods may at first sight be referable to *M. flavescens* Vel., *M.*

xantholeuca Kühn., or *M. flavoalba* (Fr.) Quél. The first-named species, however, can be ruled out on account of the colour of its stipe which in the lower half is always grey-brown to sepia brownish. *Mycena xantholeuca* differs from Bolton's description in having the pileus "striolé vers les bords seulement" (Kühner, l.c. 314), not half way or two thirds up to the centre as in Bolton's illustration. Also, in *M. xantholeuca* the stipe was described 60–70 mm long, and "blanc hyalin," not "of a pale yellow, and an inch high." *Mycena flavoalba*, finally, is the species which corresponds with *A. luteoalbus* without any difficulty. It is a common species at lower altitudes throughout Europe, it is equally at home in deciduous and coniferous woods, the striation of the pileus may at times almost reach the centre, and the stipe, although often white, may have a pale but pronounced yellow shade.

It may be argued that Kühner reached the same conclusion more than forty years ago, but it should be remembered that "*Mycena luteoalba* sensu Cooke" is not necessarily the same as the original.

135. AGARICUS MELANOPS West.

Agaricus melanops West. in Bull. Acad. roy. Sci. Bruxelles, ser. 2, 11: 654, fig. 5 (h-m). 1860. – *Mycena melanops* (West.) Gill., Hym.: 261. 1876. – Type locality: Belgium, Gand (?).

Briefly characterized, this is a rather small, white, exannulate, lepiotoid species with a small dark brown umbo, possibly introduced from some South African country, for it was found "dans la serre de . . . sur la terre d'une cuve contenant un *Strelitzia*, ainsi que . . . etc." The attention is drawn to this species – which is not a *Mycena* – because it is likely to be overlooked, Westendorp's paper being one of those publications which are not easily accessible.

136. MYCENA MELLEA L. Vas. – Figs. 15–20.

Mycena mellea L. Vasil'eva, Hymenomyc. Fungi (Agaricales) Soviet Maritime Terr.: 148. 1973. – Holotype: "*Mycena mellea* L. Vass. / [illegible] / 30.VII.1969; Vasil'eva L.N." (VLA).

Basidiomata scattered. Pileus 3–8 mm across, almost globose to convex, sulcate, minutely rugulose-furfuraceous at the centre, cupreous brownish, cupreous ochraceous yellow (dried somewhat umbilicate at the centre, and the margin in most cases strongly involute, touching the stipe). Flesh fairly thin. Odour not recorded. Lamellae c. 9–11 reaching the stipe, tender, subarcuate to subhorizontal, broadly adnate, cream. Stipe 10–15 × 1 mm, hollow, curved, equal for the greater part, puberulous, fairly coarsely so below, colour not recorded, the base attached to the substratum by more or less conspicuous (in some cases hardly visible), radiating, whitish fibrils.

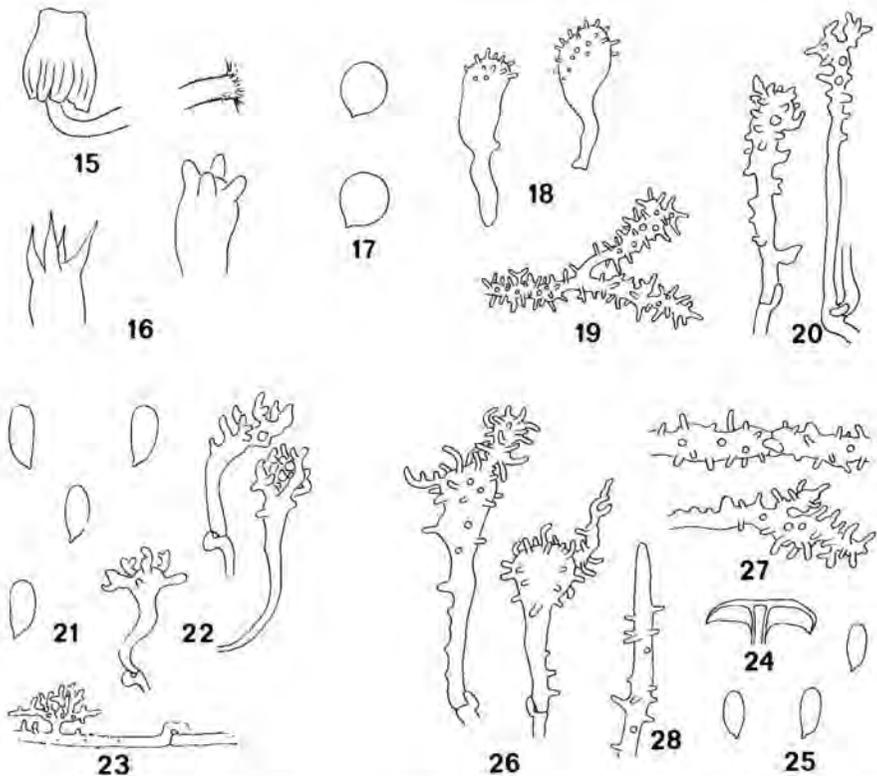
Basidia 35–40 × 10.5–12.5 μm, clavate, 4-spored, clamped, with sterigmata up to 9 μm long. Spores 9.8–10.2 × 9.0–9.4 μm, globose, smooth, amyloid. Cheilocystidia 24–33 × 5.5–11.5 μm, clavate, clamped, covered with evenly spaced, simple, cylindrical excrescences 1.5–3.5 × 0.9 μm. Pleurocystidia absent. Lamellar trama staining weakly brownish vinaceous in Melzer's reagent. Hyphae of the pileipellis 1.5–3.5 μm wide, clamped, more or less densely diverticulate, terminally widened to 6.5 μm. Hyphae of the cortical layer of the stipe 1.5–3 μm wide, clamped, smooth to sparingly diverticulate, the terminal cells 40–74 μm long, covered with coarse excrescences, apically widened to c. 7 μm.

Growing on the trunks of living oaks.

The macroscopic description of the species is adapted from the Latin diagnosis published by Vasil'eva and an English translation of the Russian account, complemented by my own observations on the dried material. The microscopic details are based on reexamination of the type. (Dr. S. Redhead, Ottawa, very kindly presented the 'Rijksherbarium' with a copy of a translated extract of Vasil'eva's paper.)

This is *Mycena meliigena* (Berk. & Cooke apud Cooke) Sacc., a species which now appears to have a much wider area of distribution than thus far known.

Vasil'eva's description and illustration of a "disklike base" to the stipe is misleading. In most specimens, a whorl of radiating fibrils fastens the base of the stipe to the substratum, but in others these fibrils are hardly visible.



Figs. 15-20. *Mycena mellea* (holotype). - 15. Basidiome. - 16. Basidia. - 17. Spores. - 18. Cheilocystidia. - 19. Part of a hypha of the pileipellis. - 20. Terminal cells of the hyphae of the cortical layer of the stipe.

Figs. 21-23. *Mycena peltata* sensu A.H. Smith (A.H. Smith 1157). - 21. Spores. - 22. Cheilocystidia. - 23. Hypha of the pileipellis.

Figs. 24-28. *Mycena serotina* (holotype). - 24. Section of the pileus. - 25. Spores. - 26. Cheilocystidia. - 27. Hyphae of the pileipellis. - 28. Hypha of the cortical layer of the stipe.

Fig. 15, $\times 5$; fig. 24, $\times 2$; all others, $\times 700$.

137. MYCENA PELTATA sensu A.H. Smith – Figs. 21–23.

Mycena peltata sensu A.H. Smith in *Mycologia* 27: 598. 1935; North Am. Spec. *Mycena*: 287, text fig. 34 (5, 6). 1947. – Material examined: “*Mycena peltata* / Michigan, Cheboygan Co., Burt Lake, Rees’ Bog / 15 Oct. 1934, A.H. Smith 1157 / among *Sphagnum*” (MICH).

Basidiomata gregarious. Pileus (dried) up to 12 mm across, campanulate to plano-convex or finally with more or less depressed centre, sulcate, glabrous, shiny, at first sepia brown, then brownish isabelline, with the centre sometimes becoming pallid. Lamellae 16–18 reaching the stipe, tender, at first arcuate, later subhorizontal and deeply decurrent, dorsally intervenose, pale ochraceous yellow, with paler concolorous edge. Stipe – 115 × 0.3–1.5 mm, cylindrical, glabrous above, densely clothed with coarse, yellowish fibrils farther down, lubricous when wet, pale dingy yellowish grey, occasionally with the base somewhat widened to form a small bulb.

Basidia 30–35 × 9–10 μm, clavate, 4-spored, clamped, none seen fully mature. Spores 9.8–10.7 × 4.4–4.9 μm, elongated, pip-shaped to almost cylindrical, smooth, amyloid. Cheilocystidia 18–30 × 1.8–5.4 μm, densely interlaced, difficult to tease apart and to observe individually, clavate to irregularly shaped, clamped with simple to branched, flexuous excrescences up to 9 μm long. Pleurocystidia absent. Lamellar trama turning somewhat purplish brown in Melzer’s reagent. Hyphae of the pileipellis 1.5–3.5 μm wide, clamped, somewhat verrucose or sparsely diverticulate or with 0.9–1.5 μm wide, simple to variously branched excrescences which may form dense masses. Hyphae of the cortical layer of the stipe smooth to somewhat roughened, with gelatinizing walls. Among *Sphagnum*.

The macroscopic part of the description, being based on dried material, is somewhat incomplete. The reason for not adapting the description from Smith’s is that, possibly, his material and Burke’s (which I have not consulted) may not be referable to the same species. The microscopic details are based on my own observations on the material indicated above.

An important feature to be added to the above description is that Smith made mention of the absence of odour and taste. I have little doubt that this observation concerned his own collections, not the material he had received from Burke.

The characteristic combination of a dark brown pileus, decurrent lamellae, lack of odour, cheilocystidia of the ‘*cinerella*-type’, and association with *Sphagnum* easily identifies the species: *Mycena peltata* sensu Smith, at least as exemplified by the collection A.H. Smith 1157, is the same as *Mycena concolor* (J.E. Lange) Kühn.

138. MYCENA PRAELONGA (Peck) Sacc.

Agaricus praelongus Peck in Rep. N.Y. St. Cab. 23: 81. 1873. – *Mycena praelonga* (Peck) Sacc., Syll. Fung. 5: 282. 1887. – *Prunulus praelongus* (Peck) Murrill in N. Am. Flora 9: 330. 1916. – Lectotype: “*Agaricus praelongus* Peck / Sandlake / C.H. Peck June 1869 / *Mycena*” (NYS).

Lamellae tender, ascending, narrow (less than 1 mm broad), adnate, decurrent with a short tooth. Stipe appearing glabrous for the greater part, towards the base covered with long, coarse, flexuous, whitish fibrils.

Basidia 28–36 × 9–10 μm, slender-clavate, 4-spored, clamped, with sterigmata 6.5–7 μm long. Spores 10.3–10.7 × 6.3–7.2 μm, pip-shaped, smooth, amyloid. Cheilocystidia 30–58 × 8–13.5 × 2.7–6 μm, fusiform to lageniform, clamped, apically tapered into a more or less pronounced neck, forming a sterile band (lamellar edge homogeneous). Pleurocystidia infrequent, similar. Lamellar trama faintly brownish vinescent in Melzer’s reagent. Hyphae of the pileipellis 1.8–2.5 μm wide,

covered with globose warts up to 2.7 μm across. Hyphae of the cortical layer of the stipe 1.8–3 μm wide, clamped, diverticulate.

The label stuck to the type box indicates that apart from Peck's material there is also a gathering from Ithaca made by G.F. Atkinson. I examined this collection, provisionally named *Mycena* sp. A, which is characterized by an unusually long stipe (135 mm, not counting its missing base), broad lamellae, and cheilocystidia with long, coarse, irregularly shaped excrescences. This species is a member of section *Mycena*; drawings and a redescription of the microscopical details are deposited at NYS.

The remainder turned out to be a mixture of three different species which were partly pasted to pieces of paper, partly also assembled in an envelope inscribed "Ag. (*Mycena* ?) *praelongus*, n.sp. / Peat marshes S[and] L[ake] June." The majority of the specimens, the lectotype, conform to Peck's description in that they have (i) a "subcylindrical" pileus which (ii) "then [becomes] narrowly conical, inclining to bell shape," and (iii) narrow lamellae. Its microscopical features identify *Mycena praelonga* as a member of section *Fragilipeaes* (Fr.) Quél. which will be treated in a separate paper.

Intermixed there is a second species, *Mycena* species B, with the lamellae broader than those of the lectotype and of a different colour, while their edge turns out to be heterogeneous, that is, made up of basidia and cheilocystidia. A third species, *Mycena* species C, is represented by two specimens which have pale lamellae but dark red-brown edges. Neither species B, nor species C was further investigated.

It seemed to me to be only proper to draw the attention to this confused state of things.

139. *AGARICUS RUBROMARGINATUS* VAR. *EROSUS* Lasch.

Agaricus rubromarginatus var. *erosus* Lasch in *Linnaea* 4: 535. 1829. – *Agaricus rubromarginatus* var. *fuscopurpureus* ["Lasch"] J. Stevenson, *Mycol. scot.*: 27. 1879 (error or avowed name change ?). – *Mycena rubromarginata* var. *fuscopurpurea* (J. Stevenson) Sacc., *Syll. Fung.* 5: 254. 1887 (repetition of error ?). – Type locality: Germany, Brandenburg.

The very first word Lasch used to describe his var. *erosus* is "fuscopurpureus." From this, it may be gathered that *fuscopurpureus* is the colour of the entire fungus, the edge of the lamellae possibly excepted. Lasch described the lamellae as "erosis brunneo-marginatis," which in my opinion should be seen as an expression to indicate that the colour of the lamellar edge, instead of being concolorous with the other parts of the fungus, has corroded to just brown.

Lasch associated his var. *erosus* with *Mycena rubromarginata* (Fr.: Fr.) Kummer, but the lamellae and stipe in this species lack purplish shades. Purplish brown colours do occur in the pileus of *M. purpureofusca* (Peck) Sacc., but identification of var. *erosus* with this species is equally improbable in view of their different habitats. *Mycena purpureofusca* grows in coniferous forests, var. *erosus* was found on the trunk of a *Salix*. It may be asked whether

var. *erosus* could represent somewhat aged and darkened *Mycena sanguinolenta* (Alb. & Schw.: Fr.) Kummer which has lost its capacity to exude red droplets.

140. *MYCENA SEROTINA* (Peck) A.H. Smith – Figs. 24–28.

Omphalia serotina Peck in Bull. Torrey bot. Club 34: 98. 1907. – *Omphalopsis serotina* (Peck) Murrill in N. Am. Flora 9: 314. 1916. – *Mycena serotina* (Peck) A.H. Smith, N. Am. spec. *Mycena*: 375. 1974. – Holotype: “*Omphalia serotina* Peck / Massachusetts, Boston / 18 Dec. 1906 / Mrs E.B. Blackford” (NYS).

Pileus 10–20 mm across, convex, becoming somewhat depressed or subumbilicate at the centre, translucent-striate, delicately pruinose, glabrescent, greyish brown to greyish white or subcinereous. Flesh thin. Odour not recorded. Lamellae 19–22 reaching the stipe, tender, horizontal, broadly adnate, decurrent with a short tooth, up to c. 1.5 mm broad, white. Stipe 15–25 × 1 mm, hollow, equal, pruinose above, glabrescent, thinly tomentose at the base, pallid.

Basidia 21.5–25 × 5–6.5 μm (none seen fully mature), clavate, 4-spored, clamped, with sterigmata up to 4 μm long. Spores 8.1–8.8 × 3.6–4.3 μm (possibly somewhat immature), elongated pip-shaped, smooth, amyloid. Cheilocystidia 18–45 × 6.5–13.5 μm, forming a sterile band (lamellar edge homogeneous), clavate, clamped, covered with not very numerous, evenly spaced, fairly coarse, simple to somewhat branched, and usually curved excrescences up to more than 2 μm wide. Pleurocystidia absent. Lamellar trama pale brownish vinescent in Melzer’s reagent. Hyphae of the pileipellis 3.5–6.5 μm wide, clamped, covered with fairly coarse, simple to somewhat branched excrescences ca. 2 μm wide. Hyphae of the hypoderm inflated to c. 18 μm. Hyphae of the cortical layer of the stipe diverticulate.

“Among fallen leaves in woods” (Peck).

Only known from the type.

Except for information on the odour which was not recorded, all characters of the type agree with those of *Mycena cinerella*. I do not hesitate therefore to relegate *M. serotina* to the synonymy of that species.

Dennis (1951: 469) collected “a single sporophore” of what he believed to be *Mycena serotina* in Trinidad, and described it as having the following characters: (i) “Stipe... smooth except for a fine down of slender wavy hairs about 20 × 1 μm just below the gills,” (ii) “Spores... 5–7 × 2–3 μm, probably non-amyloid,” (iii) “Surface of the pileus formed of parallel thin-walled grey-brown hyphae...,” (iv) “Cystidia none on face or edge of gill.” It may be asked whether this is a *Mycena* at all, but it is most certainly not *M. cinerella*.

141. *AGARICUS SETOSUS* SOW.

Agaricus setosus Sow., Col. Figs. Engl. Fungi 3: [25] pl. 302. 1801; Fr., Epicr. Syst. mycol.: 119. 1838. – *Mycena setosa* (Sow.: Fr.) Gillet, Hym.: 281. 1876. – *Pseudomycena setosa* (Sow.: Fr.) Cejp in Publ. Fac. Sci. Univ. Charles 104: 140. 1930. – Type locality: Great Britain, Costesy near Norwich.

Lange (1936: 48) with some reservation held the opinion that *Mycena setosa* could be identical with *M. mucor*. Kühner (1938: 185) merely recorded Lange’s assumption, while Dennis & al. (1960: 215) dismissed Sowerby’s species by simply repeating “*setosa*, *Mycena* = *M. mucor*,” without further comment. The truth, however, looks different. Whereas in *A. setosus* the stipe is clearly

insidious and shown to be patently hairy from the base to the very apex, there is in *M. mucor*, and at least in the younger stages, always a basal disc which is characterized by radiating hairs from which arises the stipe, the latter being glabrous for the greater part.

As indicated by Noordeloos (1984: in press) *Agaricus setosus* is a member of *Marasmius*.

142. MYCENA SUBTERRANEA Kill.

Mycena subterranea Kill. in Denkschr. bayer. bot. Ges. Regensb. 18: 119, pl. 17 fig. 71, 1931. – Type locality: Germany, Regensburg, Tegernheim.

Killermann described the fungus as having a blackish pileus, narrow and white lamellae, a black and pruinose stipe and, most revealing, cylindrical and strongly prominent cheilocystidia. I have not the slightest doubt about the identity of *M. subterranea* – it is the same as *Mycena leucogala* (Cooke) Sacc. If Killermann failed to mention the characteristic white milk, several causes may be thought of to explain its absence.

143. AGARICUS SUDORUS Fr.

[Without name, Fr., Syst. mycol. 1: 156. 1821, note following no. 46] *Agaricus sudorus* Fr., Epicr. Syst. mycol.: 106. 1838; Hym. eur.: 138. 1874 – *Mycena sudora* (Fr.) Gillet, Hym.: 273. 1876. – Type locality: Sweden.

The description Fries gave of his *A. sudorus* is suggestive of both *Mycena galericulata* var. *albida* Gillet and *M. laevigata* (Lasch) Gillet, although it is clear that Fries did not think of either possibility. Probably, it is by no means easy to tell *M. galericulata* var. *albida* from *M. laevigata* if both are white and if no use is made of their widely different microscopical features. However, Fries described one feature that seems to decide the identity of his *A. sudorus* in favour of *M. galericulata* var. *albida*. He said that the stipe was dry, whereas the notes accompanying the European collections of *M. laevigata* extant at the 'Rijksherbarium' (L) suggest a slippery surface of the stipe, and Smith (1947: 322) also described the stipe of the North American material as "lubricous to somewhat viscid." It may cause some surprise to find *Agaricus sudorus* (which Fries described "pileo viscoso") boldly proclaimed identical with a member of the *galericulata*-kinship, but anyone who has taken the trouble to collect *M. galericulata* in rainy weather will be acquainted with the slimy feel of the pileus.

144. AGARICUS TORQUATUS Fr.

Agaricus torquatus Fr., Syst. mycol. 1: 153. 1821. – *Mycena torquata* (Fr.) Kummer, Führ. Pilzk.: 108. 1871 [not *Mycena torquata* Métrod, Mycènes Madagascar: 26. 1949 (later homonym)]. – *Marasmius torquatus* (Fr.) Masee, Eur. Fungus Flora, Agar.: 60. 1902. – Type locality: Sweden.

Quite a few of the features of the present species as described by Fries are unmistakable, and can be compared directly with the characters which Kühner

(1938: 186) described for *Mycena stylobates* (Pers.: Fr.) Kummer. They follow here: "albus, pileo obtuso plicato glabro" and "Pileus exacte campanulatus, tenax, albidus. . ." ("Chapeau campanulé-surbaissé. . . obtus. . . souvent nettement sillonné, blanc ou blachâtre. . . à pellicule tenace-gélatineuse"); "lamellis collario adnatis venoso-connexis" ("Lames. . . finement collariées en étoile autour du stipe, ± unies par des veinules. . ."), "stipite basi membranula orbiculari plana" (Pied. . . avec à la base un disque. . . bordé par une frange de poils soyeux" [which have the effect of making the disc look flat]); "Ad stipites & ramulos deciduos. . ."

Mycena stylobates is the type species of section *Basipedes* (Fr.) Quél. (see Maas Geesteranus, 1980b: 97) which in Kühner's view included also *Mycena bulbosa* (Cejp) Kühn., *M. clavularis* (Batsch: Fr.) Sacc., *M. longiseta* Höhn., and *M. mucor* (Batsch: Fr.) Gillet. These should be tested for possible identity with *Agaricus torquatus*.

Mycena bulbosa can be ruled out since this species grows on herbaceous stalks (*Juncus* and *Scirpus*), not on "ramulos deciduos." *Mycena clavularis* and *M. mucor* can hardly be mistaken for *A. torquatus* since in both species the pileus is of a greyish or a greyish brown colour. *Mycena longiseta* is equally impossible, for Fries would not have described the pileus as glabrous if he had found that species. Much the same can be said about *M. tenuispinosa* Favre (see Maas Geesteranus, 1983a: 413), a near relative of *M. stylobates* but at his time unknown to Kühner and, hence, not included in the *Basipedes* as he understood this section.

Summarizing, it can be said that (i) *Agaricus torquatus* and *Mycena stylobates* refer to the same species, and that (ii) the former, although the name of one of Fries' own species, must be placed in the synonymy of the latter, since on no account a well-established name should be replaced by a long forgotten one.

145. MYCENA VELENOVSKYI Kühn.

[*Mycena crystallina* Vel., České houby: 324. 1924 (later homonym); not *Mycena crystallina* (Peck) Sacc., 1891] *Mycena velenovskyi* Kühn., Genre *Mycena*: 673. 1938. - Type locality: Czechoslovakia, near Prague.

Kühner substituted this epithet for the illegitimate name used by Velenovský. But rather than a new name, Kühner introduced the name of a new taxon without supplying a Latin diagnosis, while also there is no previously published Latin diagnosis. Kühner's binomial is not validly published.

Pilát's description of *M. crystallina* (1948: 102; a translation of Velenovský's original into Latin) mentioned such characters as "Lamellis. . . rigidis. Sporis magnis. . . 10-14 μ m. Cystidiis. . . curvulato-filiformibus, basi crassioribus, digitato-ramosis, strangulatis vel clavatis." These and the habitat ("In carbonarii loco insolato calido graminoso") are highly suggestive of *Mycena megaspora* Kauffm., while the absence of odour is by no means unusual for this species.

146. MYCENA VIRENS Quél.

Mycena virens Quél., Ench. Fung.: 35. 1886; Flore mycol. Fr.: 220. 1888. – Type locality: France.

Quélet's first description is very brief and reads as follows: 'Pileo cucullato-campanulato, viridi; stipite roseo-olivaceo; lamellis sinuato-adnexis, albis, virentibus.' His reference to Bulliard's plate 560 fig. 2 indicates which shade of green Quélet actually meant, but if that colour was rendered true to nature, it is difficult to think of any European species of *Mycena* – except *M. chlorantha* (Fr.: Fr.) Kummer, a species with the stipe never pinkish olive – whose pileus would match this shade of lightly greyed leek green. However, Quélet's description of the colour of the stipe does bring to mind the peculiar colour pattern of the stipe of *Mycena arcangeliana* Bres. apud Barsali, an impression which is likely to be strengthened on reading Quélet's second description in which the stipe is said to be "violacé, verdoyant." If the two descriptions really refer to the same species (which is often taken for granted but can be no more than an assumption), it does not follow that *Mycena virens* should be an earlier name for *M. arcangeliana*, since Quélet described the spore of his species as "grenelée, verdâtre." And, returning to the earlier description, the colour change of the lamellae from white to green seems sufficient justification to question the supposition of *M. virens* and *M. arcangeliana* being the same species. It seems impossible to find an acceptable interpretation of *Mycena virens*.

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Velenovský's Mycenas described in České houby

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In the present paper interpretations are given of the species of *Mycena* described by Velenovský in České houby.

Velenovský in his work entitled "České houby" described many new Mycenas but, except for a few universally recognized species and some others that were relegated to synonymy, the majority was never heard of again. His specimens of that period are known to be preserved in liquid and, as I once had occasion to observe, it appears that Velenovský thought nothing of putting specimens belonging to different species into the same bottle. Hymenomycetous fungi in general tend to become flabby when kept for a long period in liquid, and Mycenas make no exception. This condition seriously impedes handling and investigation of small specimens, while the risk to which such material is exposed during transport is apt to dissuade the lending institute from readily granting a loan. With these considerations in mind, it seemed reasonable to leave Velenovský's types untouched. This decision was all the more readily made after a letter had been received in which Dr Z. Urban (PRC), in response to my request, stated that the liquid in a number of bottles had evaporated, destroying the contents. The inevitable result, however, of my decision is that a rather large proportion of the species described must remain doubtful or unknown.

In evaluating Velenovský's descriptions, it appeared necessary to be aware of the fact that he only rarely saw and described the entire cheilocystidia. As a rule, the necks or the excrescences projecting beyond the basidia were taken to

represent the cheilocystidia. Another difficulty to assess Velenovský's descriptions is that he almost certainly, and at least on several occasions, measured spores that were immature, resulting in unaccustomed shapes and sizes.

Acknowledgment is made to the Director of the 'Rijksherbarium' for providing working facilities.

MYCENA ADHAERENS Vel.

Mycena adhaerens Vel., České houby: 306. 1920. – Type locality: Czechoslovakia.

This was considered by Kühner (1938: 504) to be the same as *Mycena vitilis* (Fr.) Quél (somewhat confusingly named *M. filipes*). Although there is a considerable difference in spore length [Velenovský: 5–6 μm ; Kühner: 8–11 (–12) μm], I am inclined to follow Kühner. The criterion that turns the scale is Velenovský's description (translated by Pilát, 1948: 94) of what he believed to be the cheilocystidia (but actually represent their excrescences): "Cystidiis acie lamellarum numerosissimis, curvulato-filiformibus, nonnullis ramosis."

MYCENA ARBOREA Vel.

Mycena arborea Vel., České houby: 308, fig. 51(7). 1920 [not *Mycena arborea* (Schulz.) Sacc., Syll. Fung. 5: 294. 1887]. – *Mycena subarborea* Kühn., Genre *Mycena*: 669. 1938 (name change). – Type locality: Czechoslovakia.

The more important characteristics as described by Velenovský (translated by Pilát, 1948: 96) are the following. Pileus not diaphanous, white, somewhat dingy yellowish at the centre. Lamellae distant, broadly adnate, white. Stipe little and minutely pulverulent, white, the base abruptly attached to the substratum by means of hairs. Spores ovoid-globose. Cheilocystidia large, utriculose-inflated, somewhat narrowed [upwards], with rounded apices. Growing on hollowed trunks of willows.

This is *Mycena alba* (Bres. apud Sacc.) Kühn.

MYCENA ATROFUSCA Vel.

Mycena atrofusca Vel., České houby: 320. 1920. – Type locality: Czechoslovakia, Krkonošich.

The description of the stipe (in Pilát's translation, 1948: 100) as rigid suggests that the species belongs to section *Mycena*. In agreement with this view is the statement that the pileus is subviscid when moist. The very dark pileus with its black umbo, the thick and broad lamellae, the dark stipe with its black base, and the large spores (12–15 μm long) all seem to point to *M. atrofusca* being a dark form of *Mycena galericulata*. This is a most variable species which, as described for *M. atrofusca*, is also known to occur on decayed coniferous wood and to grow in bundles. The one character which does not agree with this identification is the tendency of the lamellae to turn brownish when touched ("Lamellis ... tactu paulisper fuscescentibus"). This feature is rather more

suggestive of *Mycena maculata* P. Karst., although certain other characters oppose identification with this species. The conclusion is that *Mycena atrofusca*, although with some doubt, is accepted as synonymous with *M. galericulata*.

MYCENA BALANICOLA Vel.

Mycena balanicola Vel., České houby: 324, 1920. – Type locality: Czechoslovakia, Peruc.

Kühner (1938: 504) placed *M. balanicola* in the synonymy of *Mycena vitilis* (known to him as *Mycena filopes*), but the question mark he added clearly indicates his doubt. In fact, the identification is unlikely to be correct. Velenovský described (Pilát, 1948: 102) the stipe as black-brown, a colour not known to occur in *M. vitilis*. Also, the lamellae of *M. balanicola* were said to be subdissectant, whereas they are rather crowded in *M. vitilis* (Kühner: “plutôt serrées”). In view of the characteristic aspect of the cheilocystidia (“lanceolatis, acutis, crassis, rectis, numerosis”) I have little doubt that *M. balanicola* is identical with a dark form of *Mycena galopus* (Pers.: Fr.) Kummer.

MYCENA BARBATA Vel.

Mycena barbata Vel., České houby: 306, fig. 49(2). 1920. – Type locality: Czechoslovakia, Radotín.

Kühner (1938: 504) reduced this binomial to the synonymy of *Mycena vitilis* (which was known to him under the name *M. filopes*). I agree with this disposition.

MYCENA CIMICARIA Vel.

Mycena cimicaria Vel., České houby: 321, fig. 52(1). 1920. – Type locality: Czechoslovakia.

The following characters are taken from Pilát's translation (1948: 101). Pileus obtusely umbonate, blackish when fresh. Odour very strongly of fresh meal or a species of *Cimex*, an insect. Lamellae deeply emarginate toward the stipe, broad, fairly thick, dark grey, with coarsely crenulate-dentate edge. Stipe firm, elastic, smooth, glabrous, passing into a long, hirsute root.

These macroscopic features unambiguously describe one of the darker forms of *Mycena galericulata*, while the microscopic part of Velenovský's description, although at first sight likely to raise some doubt, does not affect this conclusion. Velenovský described the spores (of 4-spored basidia) as 7–8 μm long, which would seem to be too short. It may be pointed out, however, that the same author described the spores of the 2-spored condition of *M. galericulata* (p. 316) as 8–9 μm long, which is equally below standard, the usual length being 9–12 μm . Velenovský, finally, described the cheilocystidia as exceedingly small, finely tortuous-filiform. In reality, Velenovský missed the cheilocystidia completely, the structures described being the tortuous excrescences covering the cheilocystidia and sufficiently prominent to be visible.

MYCENA CRYSTALLINA Vel.

Mycena crystallina Vel., České houby: 324. 1920 (not *Mycena crystallina* Peck in Rep. N.Y.St.Mus.nat.Hist. 41: 63. 1888). – *Mycena velenovskyi* Kühn., Genre *Mycena*: 673. 1938 (name change). – Type locality: Czechoslovakia, Krč.

Several characters in the description of *M. crystallina* (Pilát's translation, 1948: 102) appear to apply to *Mycena megaspora* Kauffm. These are (i) the crowded, rigid, narrowly adnate, rather broad lamellae, (ii) the firm, striate, grey-brown stipe, (iii) the large spores, (iv) the variously shaped excrescences of the cheilocystidia (mistaken for the cheilocystidia proper), (v) the lack of odour, and (vi) the habitat, being a burnt place. It must be conceded that other characters (permanently acute-conical pileus, white lamellae, and large yellow crystals in the lamellar trama) would seem to contradict the above interpretation, but at least one of the disputable features (the white lamellae) can be shown in the collections of the 'Rijksherbarium' to be not entirely unknown. I am inclined, therefore, to continue to regard *M. crystallina* as a synonym of *M. megaspora*.

MYCENA CYANEA Vel.

Mycena cyanea Vel., České houby: 323. 1920 – Type locality: Czechoslovakia, Troja, near Prague.

Kühner (1938: 310) placed *M. cyanea* in the synonymy of *Mycena urania* (Fr.: Fr.) Quél., but a question mark indicated his doubt. He did not explain the cause of his doubt, but it seems safe to assume that it was his lack of personal experience of *M. urania* which made him feel uncertain. However, from the annotations accompanying recent German and Norwegian collections extant in the 'Rijksherbarium' there is sufficient reason to accept Kühner's cautious opinion as correct. The salient features of Velenovský's description (translated by Pilát, 1948: 102) determining the species are (i) a broadly umbonate pileus, (ii) a somewhat rigid stipe with a bluish grey shade still remaining, and (iii) the lack of odour.

MYCENA CYANESCENS Vel.

Mycena cyanescens Vel., České houby: 312. 1920 (not *Pseudomycena cyanescens* Vel., Novit. mycol. noviss.: 31. 1947). – Type locality: Czechoslovakia.

As explained in a former paper (Maas Geesteranus, 1984: 134), *Mycena cyanescens* is not a member of section *Amictae* A.H. Smith ex Maas G.; it is no longer possible to check its microscopic features, since its type has been destroyed; it must remain a species of uncertain position as long as there is no recent material to replace the type.

MYCENA CYSTIDIFERA Vel.

Mycena cystidifera Vel., České houby: 321, fig. 51 (6). 1920. – Type locality: Czechoslovakia, near Radotín.

Velenovský's description (translated by Pilát, 1948: 100) would seem to suggest that *M. cystidifera* is a member of section *Fragilipedes* (Fr.) Quél., but the description is too incomplete for further investigation. The identity and position of the species are likely to remain undecided.

MYCENA DEALBATA Vel.

Mycena dealbata Vel., České houby: 327. 1920. – Type locality: Czechoslovakia, Moravia, Mouchnice.

Considering its description (translated by Pilát, 1948: 103), this is clearly a member of section *Fragilipedes* (Fr.) Quél., one of the most difficult sections of the genus. For a judgment of a species in this section to have any value the information available is inadequate. Velenovský said that his species resembled *Mycena stannea*, while Cejp (1930: 73) and A.H. Smith (1947: 245) considered the two species to be identical. Even if the two last-named authors should prove to be correct, their opinion is of little help, as the interpretation of Fries' *Agaricus stanneus* will remain equally uncertain (Maas Geesteranus, 1983: 397).

MYCENA DEFORMATA Vel.

Mycena deformata Vel., České houby: 319. 1920. – Type locality: Czechoslovakia, near Kunice.

To judge from Velenovský's description, *Mycena deformata* would seem to be an independent species, but it is far from clear in what section it might be placed. The salient features (taken from Pilát's translation, 1948: 100) are: (i) basidiomata caespitose and densely gregarious, (ii) pileus fairly large, 20–30 mm across, apparently not viscid, greyish, (iii) odour none, (iv) lamellae arcuate, distant, white, (v) stipe watery white above, somewhat greyish below, not rooting, (vi) cheilocystidia (or, perhaps, rather their excrescences) columnar, broad, straight, with obtuse apices. Several sections of the genus *Mycena* possess characters which conform to a number of those enumerated above, but not in a single case to all of them. *Mycena deformata* certainly deserves being searched for in case the type should happen to be lost.

MYCENA FLAVESCENS Vel.

Mycena flavescens Vel., České houby: 323. 1920. – Type locality: Czechoslovakia,

This is a universally recognized species, well-known both in Europe and North America.

MYCENA FUSCESCENS Vel.

Mycena fuscescens Vel., České houby: 319, fig. 49(11). 1920. – Type locality: Czechoslovakia.

The macroscopic characters described by Velenovský (and translated by Pilát, 1948: 99) are unmistakable and suffice for the recognition of the species. The basidiomata appear to be humicolous. The pileus is said to be large, 30–40 mm across, broadly umbonate, pure white at first, turning subfuscous. Odour none. Lamellae conspicuously ventricose, pure white, then becoming spotted with brown. Stipe hollow, fragile, apically mealy-furfuraceous, brownish.

This is *Mycena zephyrus* (Fr.: Fr.) Kummer.

MYCENA GALERICULATA var. CANDICANS Vel.

Mycena galericulata var. *candicans* Vel., České houby: 316. 1920. – Type locality: Czechoslovakia.

This is *Mycena galericulata* var. *albida* Gillet (see Maas Geesteranus, 1983: 390).

MYCENA GALERICULATA var. ELONGATA Vel.

Mycena galericulata var. *elongata* Vel., České houby: 316. 1920. – Type locality: Czechoslovakia, Mnichovice.

According to Kühner (1938: 329), this is a small, white, very long-stemmed fungus with a trailing base, growing among oak leaves. Velenovský's description, although giving many more details, seems to lack (my proficiency in the Czech language is only scanty) sufficient information by which to prove the relationship of var. *elongata* to *M. galericulata*.

MYCENA GALERICULATA var. ERUBESCENS Vel.

Mycena galericulata var. *erubescens* Vel., České houby: 316. 1920. – Type locality: Czechoslovakia, Radotín.

Velenovský described this variety as a pure white fungus from a pine forest and characterized by its quickly turning pink when bruised (see also Kühner, 1938: 329). He regarded this to be a variety of *Mycena galericulata*, but no other features were mentioned which could prove his opinion to be correct.

MYCENA GALERICULATA var. FURCATA Vel.

Mycena galericulata var. *furcata* Vel., České houby: 316. 1920. – Type locality: Czechoslovakia.

This is a form which Velenovský found under *Alnus* and which was characterized by many of its lamellae being furcate.

MYCENA GLAUCOPA Vel.

Mycena glaucopa Vel., České houby: 312. 1920. – Type locality: Czechoslovakia, Vidrhofec.

No suggestion can be made as to the identity of this species.

MYCENA LATERITIA Vel.

Mycena lateritia Vel., České houby: 303. 1920. – Type locality: Czechoslovakia, Mouchnice.

Kühner (1938: 277) asked himself whether Velenovský's *M. lateritia* "n'est pas simplement notre *M. rosella*." Doubt prevented him from accepting the consequences, but his assumption was perfectly justified. The essential features of the species (as translated by Pilát, 1948: 93) are the following. Pileus brick red. Lamellae distant, broadly adnate, with dark red edge. Cheilocystidia globose, narrowed below, covered with prickles. Pleurocystidia numerous, elongate-clavate, obtuse [apparently smooth], narrowed into a long stipe. Growing on fallen coniferous needles.

There can be no doubt, this is *Mycena rosella* (Fr.) Kummer.

MYCENA LAXA Vel.

Mycena laxa Vel., České houby: 312. 1920. – Type locality: Czechoslovakia.

Some of the characters of this species (as translated by Pilát, 1948: 97) seem to be significant. The umbonate pileus is said to be pale tinged with grey, at the centre of a more indeterminate blend of shades described as ochraceous-black-grey. The lamellae are distant, broadly ventricose, almost free, pure white, staining ferruginous when squeezed. The stipe has a silky sheen, is pure white at the apex, fuliginous below, like the lamellae staining ferruginous, with repent, coarsely hirsute base. The spores are large, 12–14 μm long. The excrescences of the cheilocystidia (which Velenovský mistook for the cheilocystidia proper) are small, cylindrical, curved and not infrequently branched. Solitary, growing on decayed branches.

The features mentioned above are suggestive of *Mycena galericulata*, but the discolouring of the lamellae and the stipe on being pressed make me reluctant to pronounce the two species identical.

MYCENA MELINA Vel.

Mycena melina Vel., České houby: 321. 1920. – Type locality: Czechoslovakia, at the base of Mount Boubín.

Velenovský described the more important features of his species as follows (translated by Pilát, 1948: 101). Pileus pale honey-coloured alutaceous. Lamellae distant, broadly adnate and often distinctly decurrent, pallid. Stipe

pale alutaceous. Spores almost globose, 4–5 μm . Cheilocystidia scattered, short [Velenovský obviously saw the protruding necks of the cheilocystidia], filiform, not rarely with a short side branch.

The size of the pileus, described as 20–35 mm in diameter, seems most unusual for the species I have in mind, but otherwise I feel confident that *Mycena melina* is identical with *M. alba* (Bres. apud Sacc.) Kühn. Side-branches projecting from the necks of the cheilocystidia are equally unusual, but are known to occur.

MYCENA MICROSPORA Vel.

Mycena microspora Vel., České houby: 308. 1920 [not *Mycena microspora* Vel., Novit. mycol. noviss.: 29. 1947]. – Type locality: Czechoslovakia, near Hrusice.

The more important characteristics of the species (in the translation of Pilát, 1948: 95) are the following. Basidiome entirely white. Pileus strongly hygrophanous. Lamellae crowded, broadly ventricose, emarginate. Stipe minutely pulverulent. Spores 3–5 μm long. Cheilocystidia numerous, large, obtuse. Occurring together with *Mycena pura*.

This is *Mycena pura* f. *alba* (Gillet) Kühn.

MYCENA MUCRONATA Vel.

Mycena mucronata Vel., České houby: 311. 1920. – Type locality: Czechoslovakia, Mnichovice.

Velenovský said that the species was allied to and resembled *Mycena flavoalba* (Fr.) Quél. Kühner (1938: 553) decided that *M. mucronata* was identical with *M. floridula* (Fr.) Bres. sensu Ricken, later renamed *M. flavoalba* var. *floridula* (Fr.) Kühn. & Romagn. (1953: 113). I subscribe to the last-named view.

MYCENA NITRATA Vel.

Mycena nitrata Vel., České houby: 323. 1920. – Type locality: Czechoslovakia.

Velenovský stated (translated by Pilát, 1948: 101) that the pileus of this species is hygrophanous but non-striate, a condition difficult to visualize in *Mycena*. Other characters, however, such as a greyish pileus with subfuscous centre; a smell which induced the specific epithet; distant, fairly narrow, milk white lamellae; a fragile, hollow, brownish stipe; straight, subulate necks of the numerous cheilocystidia, are all very much suggestive of his own *Mycena praecox*, a synonym of *Mycena abramsii* (Murrill) Murrill. The only obstacle seems to be in the shape and size of the spores which are described as globose-ellipsoid, 5–6 μm long. It may be pointed out, however, that immature spores in *Mycena* are always globose and that elongation takes place gradually with ageing. I am convinced that in spite of some discrepancies *Mycena nitrata* is identical with *M. abramsii*.

MYCENA PERPUSILLA Vel.

Mycena perpusilla Vel., České houby: 307. 1920. – Type locality: Czechoslovakia.

Kühner (1938: 582) was in some doubt whether *M. perpusilla* could be the same as *M. speirea* (Fr.: Fr.) Gillet. There is, however, not a single character in Velenovský's description (translated by Pilát, 1948: 95) to oppose this identification.

MYCENA PHYLLOPHILA Vel.

Mycena phyllophila Vel., České houby: 316. 1920. – Type locality: Czechoslovakia, near Mnichovice.

Kühner (1938: 329) believed that *M. phyllophila* "n'est sans doute aussi qu'une forme blanche, un peu petite, du *M. galericulata*..." I cannot agree. Some of the more prominent features (as translated by Pilát, 1948: 98) are: Pileus smooth, glabrous, white with a pink shade; lamellae pale pink; stipe abruptly attached to fallen leaves (of birch and oak), at the base apparently covered with long fibrils. Cheilocystidia large, globose (Velenovský obviously saw the upper parts of the cheilocystidia), covered with prickles.

This is *Mycena metata* (Fr.) Kummer.

MYCENA PRAECOX Vel.

Mycena praecox Vel., České houby: 325. 1920. – Type locality: Czechoslovakia.

This binomial is synonymous with *Mycena abramsii* (Murrill) Murrill (Maas Geesteranus, 1980: 167).

MYCENA PRUNI Vel.

Mycena pruni Vel., České houby: 317. 1920. – Type locality: Czechoslovakia, near Mirošov.

Velenovský regarded his species as allied and similar to *Mycena galericulata*. Kühner (1938: 329) held the view that *M. pruni* "n'est peut-être que la forme à 4 stérigmates du *M. galericulata*... il n'en diffère guère que par son mamelon obtus brun rouge et par son stipe comprimé, non radicaire." I share Kühner's opinion, feeling that the differences mentioned are negligible.

MYCENA RIGELLIAE Vel.

Mycena rigelliae Vel., České houby: 318, fig. 51(3). 1920. – Type locality: Czechoslovakia.

Although many of the characteristics of this species as described by Velenovský (translated by Pilát, 1948: 99) confirm the interpretation given by Kühner

(1938: 340), i.e. *Mycena inclinata* (Fr.) Quél., there is one major difference, for which I fail to give an explanation. Velenovský described the cheilocystidia as large, broadly clavate, rounded or also shortly acuminate, smooth. As far as known to me, *M. inclinata* has never been described to possess smooth cheilocystidia. Kühner ignored the difference.

MYCENA ROSIPHYLLA Vel.

Mycena rosiphylla Vel., České houby: 307, fig. 49(8). 1920. – Type locality: Czechoslovakia, near Mnichovice.

Velenovský's description (translated by Pilát, 1948: 95) is very much suggestive of *M. rosiphylla* being a member of section *Filipedes* (Fr.) Quél. The two species in this section which come close to the description given by Velenovský are *M. arcangeliana* Bres. apud Barsali and *M. metata* (Fr.) Kummer, but these would seem to differ in having pip-shaped spores (unless, of course, the globose spores of *M. rosiphylla* appear to have been immature), and different looking excrescences of the cheilocystidia. Too little information is available for any definite conclusion, while it is premature to accept *M. rosiphylla* as a species in its own right.

MYCENA SALICINA Vel.

Mycena salicina Vel., České houby: 306, fig. 52(7). 1920. – *Mycenella salicina* (Vel.) Sing. in *Lilloa* 22: 291. ("1949") 1951. – Type locality: Czechoslovakia, Radotín.

A well-known and universally accepted species which was maintained in *Mycena* (Pers.: Fr.) S.F. Gray by Kühner (1938: 620), and subsequently transferred to *Mycenella* (J.E. Lange) Sing. by Singer.

MYCENA SORDIDA Vel.

Mycena sordida Vel., České houby: 315, fig. 51(5). 1920. – Type locality: Czechoslovakia, Potočiny.

If Velenovský correctly observed that his material lacked cheilocystidia, it must be concluded that *M. sordida* is not a member of the genus *Mycena*.

MYCENA SULCATA Vel.

Mycena sulcata Vel., České houby: 302. 1920. – Type locality: Czechoslovakia, near Hrusice.

The following essential characteristics are taken from Velenovský's description (translated by Pilát, 1948: 93). Pileus coarsely sulcate, pale greyish brown, brown at the centre, whitish at the margin. Lamellae distant, thickish, white, with violet edge. Stipe watery pallid, apically with a violaceous tint. Ex-

crescences of the cheilocystidia numerous, narrow, at times with lateral projections. Growing at the edge of a pine wood.

This is *Mycena purpureofusa* (Peck) Sacc. which, to judge from the colours indicated by Velenovský, seems to have been collected and described in a fairly advanced stage of development. However, remembering Kühner's remark (1938: 429): "Les couleurs sont inconstantes... mais il est rare que le champignon manque entièrement de reflet violacé," it is equally possible that Velenovský's specimens represented some minor colour form.

MYCENA SULPHUREA Vel.

Mycena sulphurea Vel., České Houby: 311. 1920. – *Mycena citrinomarginata* var. *sulphurea* (Vel.) Bresinsky & Haas in Beih. Z. Pilzk. 1: 106. 1976 (not val. publ., lacking reference to basionym.) – Type locality: Czechoslovakia.

Bresinsky & Haas (l.c.) thought *M. sulphurea* and *M. citrinomarginata* to be closely related. Although there is something to be said in favour of their view, I am not entirely convinced. Velenovský who rarely failed to describe the base of the stipe as fibrillose-hirsute if any pubescence was visible, in this case stated the stipe to be glabrous. The lamellae were said to be almost free (fairly broadly adnate to somewhat emarginate in *M. citrinomarginata*), and the odour penetrating, pitch-like (none or of radish in *M. citrinomarginata*). These differences may have more weight than assumed and it seems sensible, therefore, not to try to see any definite connection between the two taxa until the type of *M. sulphurea* has been reexamined.

MYCENA THYMICOLA Vel.

Mycena thymicola Vel., České houby: 304. 1920. – Type locality: Czechoslovakia, St. Prokopi.

Kühner (1938: 416) accepted this taxon as a variety of what he named *Mycena avenacea* (Fries ?) sensu Schroeter, a species which I prefer to call *M. olivaceomarginata* (Masseé apud Cooke) Masseé. Bon (1972: 20) raised *thymicola* again to its former status. Whether *thymicola* should be taken to represent a variety or an independent species must be left undecided for the moment, but it certainly seems a recognizable entity.

MYCENA TRICOLOR Vel.

Mycena tricolor Vel., České houby: 303, fig. 51(2). 1920. – Type locality: Czechoslovakia, near Mnichovice.

The macroscopic characters of this species (as translated by Pilát, 1948: 93) are very striking indeed: Pileus pale yellow, with violet centre. Lamellae white, edge full yellow. Stipe violet-tinted, sky blue at the apex. Cheilocystidia globose-utriform, smooth, with citrine contents.

The only section fit to accommodate this colourful species is sect. *Rubromarginatae* Sing. ex Maas G., a conclusion which Kühner (1938: 409) had already reached 45 years ago (under the name "*Ciliatae-Calodontes*").

Velenovský considered *M. tricolor* to be allied to *Mycena citrinomarginata* Gillet, whereupon Cejp (1930: 55) decided that the two species are identical. Without having seen material, I prefer to postpone any judgment.

MYCENA VERNALIS Vel.

Mycena vernalis Vel., České houby: 316. 1920. – Type locality: Czechoslovakia, Myšlín.

Kühner (1938: 297) was not acquainted with this species, but regarded it as a member of section *Filipedes* (Fr.) Quél. This is an error. Velenovský described (translated by Pilát, 1948: 98) the lamellae as "rigid-thick", whereas the *Filipedes* possess tender lamellae. In my opinion, *Mycena vernalis* is nothing but *Mycena galericulata*. Several characters are in keeping with this interpretation: Pileus greyish fuliginous when moist, drying dingy whitish. Lamellae rigid, thick, fairly broad, narrowly adnate, white. Stipe rigid-firm, glabrous, dark greyish fuliginous, pallid only at the apex, with coarse and long fibrils at the base, rooting in decayed wood of fallen branches.

The early date (at the end of April) is not unusual for *Mycena galericulata*, one of the earliest records for the Netherlands being the middle of April. Velenovský was rather surprised by the strong striation (or sulcation?) of the stipe, which reminded him of *M. polygramma* (Bull.: Fr.) S.F. Gray, but this condition could be attributed to the stipe being replete with moisture (the material had been collected in a hot and moist valley). A further discrepancy seems to be that the cheilocystidia were described as globose, sessile, and shortly aculeate. But did Velenovský really find the cheilocystidia sessile, and how should one interpret his term "ostnité" (aculeate)? The cheilocystidia of true *M. galericulata* are *not* aculeate, but to describe these organs in *M. galericulata* Velenovský used the same term "ostnité." I adhere to my view, therefore, that Velenovský's *vernalis* and *M. galericulata* are the same thing.

MYCENA VESTITA Vel.

Mycena vestita Vel., České houby: 307, fig. 49(9). 1920. – *Mycena amicta* var. *vestita* (Vel.) Kubička in Česká Mykol. 16: 195. 1962. – Type locality: Czechoslovakia, Radotín.

Kühner (1938: 196) reduced this binomial to the synonymy of *Mycena amicta* (Fr.) Quél. Some of the features described by Velenovský (translated by Pilát, 1948: 95) are in agreement with this view (e.g. the dingy yellow margin of the pileus), but others seem difficult to reconcile. Velenovský stated the lamellae to be distant (Kühner found them "serrées"), while he described the stipe as being covered with reddish hairs (Kühner was silent about this character). Kubička (l.c.) asserted that specimens with reddish brown to purplish red hairs mainly occur under very wet conditions. It may be asked whether a red

discolouration, apparently induced by some external cause, deserves more than incidental mention.

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Continued attention is given to *Mycena* names in older and more recent literature.

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148. AGARICUS CLAVICULARIS var. CINEREUS Peck – Figs. 1-5.

Agaricus clavicularis var. *cinereus* Peck (presumably a herbarium name). – Original material: "Agaricus clavicularis Fr. / Caroga / Chas. H. Peck / *Mycena* [in a different? hand] var. *cinereus*" (NYS).

Material much broken. Pileus campanulate, somewhat sulcate. Lamellae tender, little ascending, broadly adnate, decurrent with a tooth. Stipe pruinose to minutely puberulous above, densely covered with coarse, long, flexuous fibrils at the base.

Basidia none seen mature, clavate, some with 4 incipient sterigmata, clamped. Spores (immature) 7.2-8.1 × 4.0 μm, pip-shaped, smooth, amyloid. Cheilocystidia 27-50 × 7-11.5 × 3.5-5.5 μm, occurring mixed with basidia (lamellar edge heterogeneous), fusiform to lageniform, more rarely lacking the neck, clavate, clamped, the widest part covered with warts or fairly coarse, cylindrical excrescences 1.8-4.5 × 0.8-2.7 μm. Pleurocystidia similar, numerous. Lamellar trama staining somewhat brownish vinaceous in Melzer's reagent. Hyphae of the pileipellis clamped, covered with cylindrical excrescences which may develop into intricately branched masses. Hyphae of the cortical layer of the stipe diverticulate.

This is *Mycena latifolia* (Peck) A.H. Smith.

It is not customary to pay attention to a herbarium name but this is a special

case. Kauffman & Smith (1933: 179) first reported on a collection which they named *M. clavicularis* var. *cinerea*. Smith (1947: 431) later stated that “the specimens reported as *M. clavicularis* var. *cinerea* Peck by Kauffman & Smith (1933) are referable to *M. vitilis*. . .” The identity of var. *cinerea* was not further verified by Smith, nor was it indicated in which journal, if at all, Peck had published his variety. Since I am by no means sure not to have missed this publication, it seemed to be the proper thing at least to investigate the material and report on it.

149. AGARICUS CRUENTUS Fr.

Agaricus cruentus Fr., Syst. mycol. 1: 149. 1821. – *Mycena cruenta* (Fr.) Quél. in Mém. Soc. Emul. Montbél. II 5: 107. 1872. – Type locality: Sweden.

J.E. Lange (1914: 20) said that “To judge from the figure of Fries it [*A. cruentus*] appears . . . to be a form running into the typical *M. haematopoda*.” He overlooked that this illustration (Fries, 1867: pl. 83 fig. 2), although approved by the author, does not correspond to the original *A. cruentus* which was said to be “solitarius.” In his Monographia, Fries (1857: 225) even said “Semper solitarius,” whereas the illustration depicts a fasciculate group of basidiomata.

Kühner (1938: 222), having examined the same illustration, inclined to the view that *A. cruentus* rather resembled *M. sanguinolenta* but conceded that the former seemed to differ in the uncoloured edge of the lamellae.

It cannot be stated too often that in order to judge Fries' species, his original publications should be consulted, while his later works must be viewed with due caution.

Fries (1821) described (1) the basidiomata of his *A. cruentus* as solitary, (2) the margin of the pileus as very smooth and even (“margine integerrimo”), (3) the lamellae as whitish with a concolorous edge, and (4) the stipe as glabrous. *Agaricus cruentus* and *M. sanguinolenta* appear to have the features 1, 2, and 4 in common, while with regard to feature 3, Lange's (1914: 19) observation may be remembered: “The edging of the gills [in *M. sanguinolenta*] . . . is sometimes very pale.” All told, I have no hesitation in claiming that *A. cruentus* and *M. sanguinolenta* are identical.

150. MYCENA EROSOMARGINATA Kummer.

Mycena erosomarginata Kummer, Führ. Pilzk., 2. Aufl.: 57. 1882. – Type locality: Germany.

“Hut 1, 5–2 cm br[eit] und h[och], kegelförmig, honiggelb, glanzlos. St[iel] dem Hute gleichfarbig, etwa 6 cm h[och], 2 mm dick, glatt. L[amellen] 2–3 mm br[eit], lineal, breit angewachsen, weiss, mit sehr gekerbter Schneide. Auf Grasplätzen bes[onders] in Wäldern, im S[ommer] und H[erbst].”

A fungus described with a honey yellow pileus and stipe calls to mind a species like *Mycena renati* Quél. or possibly also *M. metata* (Fr.) Kummer, but the differences show up soon. Whereas the lamellae of *M. renati* are somewhat

ventricose, those of *M. erosomarginata* are not, while the edge of the lamellae in the former species is not noticeably eroded. The same holds good for *M. metata*, and the stipe in this species is more brownish rather than honey yellow. The description given by Kummer is really too brief for identification of his species; *Mycena erosomarginata* is best dismissed as a nomen dubium.

151. MYCENA GYPSEA var. PRUINATA Quél.

Mycena gypsea var. *pruinata* Quél., Ench. Fung.: 36. 1886 ("Viv."). – Type: represented by Viviani, Funghi Ital.: pl. 21 figs. 5–9. 1834.

Quélet referred to Viviani's illustration and accepted Viviani as the author of the epithet *pruinatus*, but this is an error. The Italian mycologist named his taxon *Agaricus pruinatus*, and it was Fries who changed the epithet into *pruinatus* (see Maas Geesteranus, 1982: 390). Whatever considerations Quélet may have had, his varietal epithet is technically a new name based on the same type as was Fries' epithet, hence nomenclaturally superfluous and illegitimate.

152. MYCENELLA LASIOSPERMA (Bres.) Sing.

Buch (1952: 135) reported on this species and gave a description which compares well with the original account of Bresadola. However, the cystidia pictured by Buch are those of some other species, very likely of a species of *Mycena*; while working with his microscope he must have mixed up his slides.

The interesting part of this record is that the basidiomata were said to be cespitose and growing on wood. With regard to this information, I may refer to an earlier paper (Maas Geesteranus, 1982: 386), in which *M. lasiosperma* is discussed in connection with *M. margaritispota* (J.E. Lange) Sing.

153. MYCENA LINEATA var. OLIVASCENS Quél.

Mycena lineata var. *olivascens* Quél. apud Lucand, Fig. peintes Champ. Fr., fasc. 12: pl. 277. 1890 (this particular plate not seen; nomen nudum); *Mycena lineata* var. *olivascens* Quél. ex Bigeard & Guillem., Flore Champ. sup. Fr. 2: 97. 1913. – *Mycena vitilis* var. *olivascens* (Quél. ex Bigeard & Guillem.) Kühn., Genre *Mycena*: 305. 1938 [sensu Oort]. – *Mycena olivascens* (Quél. ex Bigeard & Guillem.) Kühn. & Romagn., Flore anal. Champ. sup.: 103. 1953 (sensu Oort). – *Mycena iodiolens* var. *olivascens* (Quél. ex Bigeard & Guillem.) Malençon & Bert., Flore Champ. sup. Maroc 2: 269. 1975 (without reference to basionym, not val. publ.). – Type locality: France.

The varietal epithet *olivascens* appeared for the first time in Lucand's work which consists of 17 fascicles and contains coloured illustrations of fungi without descriptions (see also Stafleu & Cowan, 1981: 179). According to Article 44.1 of the Code (Stafleu & al., 1978: 38), "The name of a species... published before 1 Jan. 1908 is validly published if it is accompanied only by an illustration with analysis showing essential characters." It can be safely assumed that the illustration of var. *olivascens* in Lucand's work lacked such an analysis. It is not entirely impossible that Quélet, as he was wont to do in his own papers of later years, had two or three spores added to the drawing of

the general appearance of the fungus, but on no account could these tiny figures be said to have any analytical value. Thus, var. *olivascens* in Lucand's work is a nomen nudum, the first valid publication having been effectuated by Bigeard & Guillemin who referred to Lucand's iconography. These authors also referred to their own illustration (pl. 5 fig. 4) which has the caption: "*Mycena olivacens* Q." This I take simply to be an error, not a recombination. Their description is brief and is apt to leave one with a sense of doubt; the interpretation of their fungus may well remain inconclusive. This may be the reason that Kühner (1938) and Kühner & Romagnesi (1953) used the epithet *olivascens* in the sense of Oort (1928: 236). The description of this author differs markedly from that by Bigeard & Guillemin as far as the lamellae are concerned. Oort stated [translated] the lamellae to be crowded... adnate, almost white, whereas the French authors said: "espacées... uncinées adnées... grisonnant dans la variété olive." Unfortunately, there is no material extant in the "Rijksherbarium" that could establish the identity of Oort's concept of var. *olivascens*. He declared that his description corresponded fully with [J.E.] Lange's account of *Mycena lineata*, but I am not entirely satisfied and rather prefer to pass over this piece of information in silence, concentrating instead on a detail of Oort's description that might otherwise go unnoticed. He described the stipe (20–60 mm long) as having a root of some 35 mm long. The only reasonable explanation of the extraordinary size of the root is that the fungus must have developed subterraneously from a buried piece of wood. There can be no doubt in my mind that a wood-inhabiting fungus with features as described by Oort (pileus grey-green or brownish green; lamellae crowded, narrow, adnate; cheilocystidia obpyriform, covered with cylindrical excrescences about 2 μ m long) is no other than *Mycena arcangeliana* Bres. apud Barsali, so common in the Netherlands. Oort's description of the lamellae as being almost white and of the stipe as white above but dark grey to grey-brown farther below clearly indicates that he had found specimens well advanced in their development which have lost the characteristic bluish or violaceous shades of the stipe (compare Maas Geesteranus & Weholt, 1983: 217). Such aged specimens may lack their telltale odour but, of course, there may be other reasons as well for Oort to have missed the smell of iodoform.

To summarize, *Mycena lineata* var. *olivascens* Quél. in Lucand's work is a nomen nudum; the description by Bigeard & Guillemin is doubtful; and *olivascens* taken in the sense of Kühner and Kühner & Romagnesi (based on Oort's interpretation) is nothing else than *M. arcangeliana*.

154. MYCENA LONGIPES (Murrill) Murrill – Figs. 6–10.

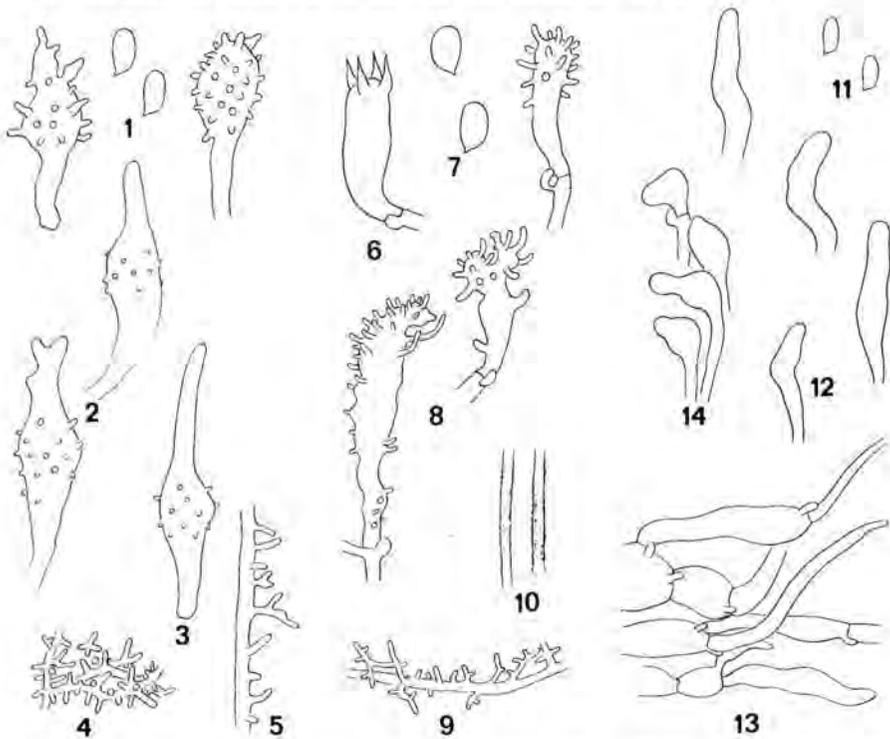
Prunulus longipes Murrill in N. Am. Flora 9: 338. 1916. – *Mycena longipes* (Murrill) Murrill in Mycologia 8: 220. 1916. – Holotype: "*Prunulus longipes* sp. nov. / Fungi of Muir Woods, California / Dense virgin forest of redwoods with scattered oaks and maples / W.A. Murrill 1132, November 22, 1911" (NY).

Basidiomata growing singly. Pileus 25 mm across, convex, umbonate, translucent-striate at the margin, dry to the touch, smooth, glabrous, very pale avellaneous, the umbo isabelline, margin

pallid. Flesh tough. Odour and taste not recorded. Lamellae elastic-tough, deeply sinuate with a decurrent tooth, white, with the edge convex, concolorous. Stipe $150 \times 2-3$ mm, hollow, equal, smooth, glabrous for the greater part, snow white above, very pale avellaneous below, densely white-tomentose toward the base, from which the rooting part is lacking.

Basidia $30-36 \times 8-10 \mu\text{m}$ (not quite mature), clavate, 4-spored, clamped, with sterigmata ca. $6.5 \mu\text{m}$ long. Spores $8.5-10.3 \times 5.5-7.2 \mu\text{m}$ (presumably not quite mature), pip-shaped, smooth, amyloid. Cheilocystidia $22-40 \times 7-11.5 \mu\text{m}$, clavate, more rarely subcylindrical or somewhat irregularly shaped, clamped, covered with unevenly spaced, fairly coarse, usually curved, cylindrical excrescences $2.5-8 \times 0.9-2 \mu\text{m}$. Pleurocystidia not observed. Lamellar trama pale brownish vivescent in Melzer's reagent. Hyphae of the pileipellis $1.5-2.5 \mu\text{m}$ wide, covered with simple to branched excrescences $0.9-1.8 \mu\text{m}$ wide which may develop into dense masses. Hyphae of the cortical layer of the stipe (that is, near the apex of the stipe), more or less densely covered with minute warts (somewhat difficult to observe owing to adhering masses of gelatinous matter).

The macroscopic part of the description of the species is adapted from Murrill's and complemented by my own observations on the dried material. The microscopic details are based on reexamination of the type.



Figs. 1-5. *Agaricus clavicularis* var. *cinereus* (original material). - 1. Spores. - 2. Cheilocystidia. - 3. Pleurocystidium. - 4. Part of a hypha of the pileipellis. - 5. Hypha of the cortical layer of the stipe.

Figs. 6-10. *Prunulus longipes* (holotype). - 6. Basidium. - 7. Spores. - 8. Cheilocystidia. - 9. Hypha of the pileipellis. - 10. Hyphae of the cortical layer of the stipe.

Figs. 11-14. *Agaricus luteopallens* (holotype). - 11. Spores. - 12. Cheilocystidia. - 13. Hyphae of the pileipellis. - 14. Caulocystidia.

All figs., $\times 700$.

In its essential characteristics *Mycena longipes* differs in no way from *M. galericulata* (Scop.: Fr.) S.F. Gray. The very pale colours identify Murrill's collection as var. *albida* Gillet.

Smith (1947: 294) was not well acquainted with Murrill's *longipes* and, instead of giving his own description, borrowed the one given by Murrill. Out of the few collections enumerated by Smith, I selected nos. 9391 and 16578 for investigation. In no. 9391 (collected under red woods in California), the lamellae are tender (not elastic-tough as they should have been), the stipe gives the impression of having been fragile in fresh condition, the cheilocystidia with their slender, flexuous stems and very long excrescences look rather different from those in *M. longipes*, as do also the diverticulate hyphae of the cortical layer of the stipe. The conclusion to be drawn from these differences is that collection Smith 9391 is not the same as Murrill's *longipes*.

Smith no. 16578 (Washington, Mt. Baker, Timberline Camp, collected on *Sphagnum*) is strikingly different from the type of *M. longipes* on account of its very dark sepia brown stipe. Considering its microscopic features, however, it seems to be ordinary *Mycena galericulata*.

155. AGARICUS LUTEOPALLENS Peck — Figs. 11–14.

Agaricus luteopallens Peck in Rep. N.Y. St. Mus. nat. Hist. 32: 27. 1880. — *Mycena luteopallens* (Peck) Sacc., Syll. Fung. 9: 37. 1891. — *Prunulus luteopallens* (Peck) Murrill in N. Am. Flora 9: 325. 1916. — Holotype: "Agaricus luteopallens Pk / Adirondack Mountains / C.H. Peck Aug. 1878 / *Mycena*" (NYS).

Pileus finely puberulous. Lamellae arcuate to subhorizontal, broadly adnate, decurrent with a tooth. Stipe pruinose to minutely puberulous, toward the base covered with long, coarse, flexuous, yellowish fibrils.

Basidia (immature) c. $27 \times 4.5 \mu\text{m}$, narrowly clavate, some seen with 4 incipient sterigmata, presumably clamped (basidia too much agglutinated for clamps to be distinguishable). Spores (immature) $6.7\text{--}7.2 \times 3.6\text{--}4.0 \mu\text{m}$, pip-shaped, smooth, non-amyloid. Cheilocystidia $23\text{--}35 \times 3.5\text{--}6.5 \mu\text{m}$, forming a sterile band (lamellar edge homogeneous), somewhat irregularly cylindrical, straight to curved or flexuous, presumably clamped. Pleurocystidia scattered, similarly shaped, usually somewhat narrower. Lamellar trama remaining unstained in Melzer's reagent. Hyphae of the pileitrama much compacted, radiately aligned, $9\text{--}12 \mu\text{m}$ wide, tortuous, branched, clamped. Hyphae of the pileipellis (constituting a cutis hardly differentiated from the underlying trama) $3.5\text{--}9 \mu\text{m}$ wide, clamped, smooth, terminated by much narrower, assurgent cells $1.8\text{--}3.5 \mu\text{m}$ wide which form the pubescence of the pileus. Hyphae of the cortical layer of the stipe $1.5\text{--}2.7 \mu\text{m}$ wide, clamped, smooth, terminated by outward-curving cells which are inflated up to $9 \mu\text{m}$, representing the caulocystidia.

The description is based on reexamination of the type material. This is a member of *Hygrophorus* subgen. *Hygrocybe* (Fr.) Fr., a genus with which I am not acquainted.

Smith (1947: 169) gave a description of what he considered to be *Mycena luteopallens* but turns out to be something quite different. He described the surface of the pileus as "canescent but soon naked and glabrous," while he said that the "pileus trama" was covered by a "distinct pellicle." Peck's material showed the pileus to be puberulous and the pileipellis (the "pellicle") hardly differentiated from the underlying tramal hyphae. Peck stated the lamellae to

be subarcuate, whereas Smith described them as "depressed-adnate to adnexed." Peck said of the stipe "yellow, with yellow hairs and fibrils at the base." In Smith's description the stipe is "concolorous with the pileus toward the apex, base paler." No mention is made of yellow fibrils. The cheilocystidia in Peck's material are irregularly cylindrical and frequently curved to flexuous, up to 6.5 μm broad, while the similarly shaped pleurocystidia are scattered and inconspicuous. Smith's illustration (fig. 16) shows regularly shaped, fusiform to lageniform cheilocystidia, and the pleurocystidia are said to be abundant. Clearly, *Mycena luteopallens* sensu Smith is a different species which must be reexamined.

156. MYCENA MAGNA (Murrill) Murrill — Figs. 15–19.

Prunulus magnus Murrill in N. Am. Flora 9: 338. 1916. — *Mycena magna* (Murrill) Murrill in Mycologia 8: 220. 1916. — Holotype: "Prunulus magnus / Fungi of Seattle, Washington / Mostly in moist virgin forests of *Pseudotsuga*, *Thuja*, *Abies*, *Tsuga*, *Acer*, *Alnus*, etc. / W.A. Murrill 463, October 20 – November 1, 1911" (NY).

Basidiomata gregarious to subcespitate. Pileus up to 50 mm across, convex, translucent-striate, dry to the touch, glabrous, avellaneous. Odour and taste not recorded. Lamellae elastic-tough, adnate, decurrent with a tooth, broad, whitish, with concolorous edge. Stipe 50–80 \times 2–4 mm, hollow, equal, compressed, smooth, glabrous for the greater part, densely pruinose at the apex, tomentose below, avellaneous, base lacking.

Basidia 35–45 \times 9 μm (none seen mature), slender-clavate, 4-spored, clamped. Spores 9.0–9.8 \times 6.7–7.0 μm (immature), broadly pip-shaped, smooth, amyloid. Cheilocystidia 27–70 \times 9–18 μm , usually clavate but also subfusiform or more irregularly shaped, clamped, covered with unevenly spaced, fairly coarse, usually curved, simple to more or less branched, cylindrical excrescences 2–18 \times 0.9–2 μm . Pleurocystidia not observed with certainty. Lamellar trama somewhat brownish vinous in Melzer's reagent. Hyphae of the pileipellis 1.8–4.5 μm wide, covered with simple to branched, cylindrical excrescences 0.9–1.8 μm wide which develop into densely coralloid masses. Hyphae of the cortical layer of the stipe 1.5–3.5 μm wide, diverticulate.

The macroscopic part of the description is adapted from Murrill's and complemented by my own observations on the dried material (which is nearly destroyed by insects). The microscopic details are based on reexamination of the type.

Smith (1947: 294) remarked on the similarity of Murrill's *Mycena longipes* and *M. magna*. His observation is correct. The former represents *Mycena galericulata* var. *albida*, the latter is the common and ubiquitous form, var. *galericulata*.

157. AGARICUS MARGINELLUS Fr.

Cooke & Quélet (1878: 39) described a new species *Agaricus mirabilis*, in the synonymy of which they placed *Agaricus marginellus* Fr., adding (by way of explaining their choice) the words "non Pers., non Quél." The species of Cooke & Quélet turns out to be a synonym of *Mycena amicta* (Fr.) Quél., but the reason that I (Maas Geesteranus, 1984a: 135) omitted any reference to Fries' binomial is the following.

Fries (1821: 113) in describing *A. marginellus* adopted the name from Persoon (1801) and indicated that the pileus was "albido-umbrino" and the lamellae white with a dark brown edge. This is the species considered by Singer to belong to the genus *Hydropus*.

Later, Fries (1838: 100 and 1874: 131) described an altogether different *Agaricus marginellus*, characterized by the pileus (the darker umbo excepted) and the stipe being "subcoeruleo-floccoso-pubescentibus," and the lamellae "albae vel cinereae, flocculis vulgo coeruleis rubrisve appendiculatae." This is the species Cooke & Quélet had in mind, but the binomial (based on a different type) is later homonym and illegitimate.

158. *HYDROPS MARGINELLUS* (Pers.: Fr.) Sing.

In the preceding chapter Singer was incidentally mentioned as the author to have transferred *Agaricus marginellus* to *Hydropus*, but no reference was made to the date of the recombination. This was done on purpose. Although Singer (1943: 159) formally proposed the new combination *Hydropus marginellus* ("*marginella*"), it may not be readily realized that this publication is not valid. A brief explanation follows.

Kühner (1938: 531) introduced the infrageneric name (of no stated rank) *Hydropus* but omitted a description. This made it a nomen nudum. Singer (1942: 129) took up the name and raised it to generic rank but, lacking a description, *Hydropus* remained a nomen nudum. Some years later, Singer (1946: 118) again had occasion to mention the genus *Hydropus* and here he named it a "stat. nov." with a reference to "*Mycena* sect. *Hydropus* Kühn., *Mycen.*, p. 531. 1938," but without a description. The genus continued to be not validly published. In a subsequent paper, Singer (1948: 127) finally provided a Latin diagnosis, thereby validating the generic name. Although he indicated *H. fuliginarius* (Batsch: Fr.) Sing. as the type of the genus, no other European species (*H. marginellus* among them) were mentioned. Validation was effected three years later (Singer, 1951: 350).

159. *MYCENA MINUTISSIMA* (Murrill) Murrill – Fig. 20.

Prunulus minutissimus Murrill in *N. Am. Flora* 9: 326. 1916. – *Mycena minutissima* (Murrill) Murrill in *Mycologia* 8: 221. 1916. – Holotype: "*Prunulus minutissimus* / Tenn[essee], Unaka Springs / August 18–24, 1904 / W.A. Murrill 909 / Among leaves" (NY).

The only macroscopic description known is by the author of the species, while Smith (1947: 109) provided data on microscopical details of the type he had examined and an illustration of the spores and cheilocystidia. Smith placed *M. minutissima* in his subsection *Fuscae* which is a synonym of section *Polyadelphia* Sing. ex Maas G. (Maas Geesteranus, 1980: 103). Considering the size of the fungus described by Murrill, Smith's choice is understandable but several characters of the type specimen do not correspond to those of the section. (i) The cheilocystidia figured by Smith show comparatively few but fairly long, somewhat flexuous to kinked, and sometimes branched excrescences, as

opposed to the cheilocystidia in the members of section *Polyadelphina* which possess numerous, short, straight, cylindrical excrescences. (ii) The stipe of the type specimen is broken off above the base but enough of it remains to show that the entire base must have been covered with long and coarse fibrils. It may be pointed out that the stipe in section *Polyadelphina* is insititious or fastened to the substratum by mycelial filaments radiating from the base. (iii) The hyphae of the cortical layer of the stipe in *M. minutissima* are diverticulate, with the excrescences rather scattered and occasionally furcate. In section *Polyadelphina*, these excrescences are much more crowded and unbranched. (iv) Near the apex of the stipe in the type material, the cortical hyphae prove to be devoid of enlarged terminal cells (caulocystidia), whereas these are highly conspicuous in all four members of section *Polyadelphina* thus far investigated, including the type species. Unfortunately, the stipe is all that remains of the type (the type box contains a slip of paper which reads: "Stipe only present; no pilei. Annotated 9 November 1983 by R.E. Halling"), but even so it is perfectly clear that *Mycena minutissima* does not belong to section *Polyadelphina*.

To judge from the descriptions given by Murrill and Smith, the place best suited to accommodate a species with the characters of *M. minutissima* is section *Filipedes* (Fr.) Quél. In fact, *Mycena constans* (Peck) Sacc., which is a member of this section, and *M. minutissima* have so much in common that there can be no doubt in my mind about the identity of the latter. (i) Both appear to be rare; (ii) they have a small pileus and a very narrow stipe, both of which are grey; (iii) the lamellae are said to be white; (iv) according to Smith (1947: 109 and 265), the spores are almost equally large (although I suspect that in both cases he measured somewhat immature spores, as the spores of the type of *M. constans* investigated by me turned out to be $7.2\text{--}8.1 \times 4.3\text{--}4.5 \mu\text{m}$); (v) considering the scantiness of the material investigated, the cheilocystidia of *M. minutissima* (Smith, 1947: fig. 7 [9]) satisfactorily resemble those of *M. constans* (Maas Geesteranus, 1984b: fig. 57); (vi) pleurocystidia are absent; (vii) the hyphae of the pileipellis "give off numerous rodlike projections" (Smith, l.c.).

Mycena minutissima is herewith reduced to the synonymy of *M. constans*.

160. AGARICUS MISER Fr.

Agaricus (Collybia) miser Fr. in Öfvers. K. Vet-Akad. Förh. **18**: 21. 1861; Monogr. Hym. Suec. **2**: 290. 1863; Icon. sel. Hym. **1**: 71, pl. 70 fig. 4 [not fig. 2 as stated in Fries' text]. 1867. – *Collybia misera* (Fr.) Gillet, Hym.: 309. 1874. – *Mycena misera* (Fr.) A.H. Smith, N. Am. Spec. *Mycena*: 369, pl. 87C, textfig. 43 (7, 8). 1947 (misapplied). – Type locality: Sweden, around Upsala.

Smith referred to Fries' description of 1863, not to the original account of 1861 but, fortunately, the two are practically identical; I prefer to adhere to the latter.

In order to demonstrate the differences between the descriptions by Fries and Smith, special attention is given to the more salient features.

	Fries 1861	Smith 1947.
Pileus	glabrous; not a word about the pileus becoming lubricous; ash grey when moist, drying white-grey	"conspicuously pruinose at first, becoming naked and lubricous, evenly fuscous over all...fading to sordid cinereous..."
Flesh	not separately mentioned, but the pileus was described as "carnoso-membraneus."	"fairly cartilaginous."
Lamellae	crowded, ash grey or even "cinereo-lividis," indicating a leaden shade.	"distant to subdistant...drab but with pallid sheen" (drab, it may be remembered, being a yellowish grey colour).
Stipe	white-pruinose at the apex, fuscous (and, thus, differently coloured from the pileus).	"pruinose over all at first, apex somewhat furfuraceous...concolorous with the pileus."

Although the differences indicated above may not be considered fully decisive, there are too many of them; it would be definitely unwarranted to continue to regard Smith's species as identical with *Agaricus miser*. The interpretation of Fries' species may well prove impossible.

161. MYCENA NEGLECTA Kummer.

Mycena neglecta Kummer, Führ. Pilzk., 2. Aufl.: 55. 1882. – Type locality: Germany.

"Hut 1-2 cm br[eit] und h[och], glockig-kegelförmig, braun, bald bräunlichgelb, gestreift. St[iel] etwa 4 cm h[och], 1-2 mm dick, glatt, zähe, etwas breitgedrückt, olivenbräunlich, glänzend. L[amellen] weissgrau, mit carminroter Schneide, angewachsen, 2-3 mm b[reit]. Geruch alkalisch. Auf Grasplätzen, im S[ommer] und H[erbst]."

The above is Kummer's description which suggests that *M. neglecta* could be a member of the closely knit group of *M. olivaceomarginata* (Massee apud Cooke) Masee, "*M. roseofusca*" (Kühn.) Bon, and "*M. thymicola*" Vel. Since I have to rely in part on Kühner's descriptions, it is convenient also to indicate the names by which Kühner knew these taxa: *Mycena avenacea* (p. 413), *M. avenacea* var. *roseofusca* (p. 418), and *M. avenacea* var. *thymicola* (p. 416). Of these three taxa, *M. thymicola* seems to resemble *M. neglecta* least. Velenovský's description (translated by Pilát, 1948: 94) states the pileus to be of a dingy saturated brown and the base of the stipe dark coffee brown. These colours do not match those described by Kummer.

In Kühner's description of *M. roseofusca*, the pileus is said to be "entièrement brun briqueté, ou gris-brun... à melon rose-brun" (when moist) and "sale ± lavé de rosé ou de carné" (on drying out), "mais toujours dépourvu de teintes jaunes." The stipe is described as "gris-hyalin clair et sale, à reflet rosé ou lilacé chez les exemplaires imbus." These colours differ from those in *M. neglecta*, and make it clear that this species and *M. roseofusca* are two separate taxa.

Mycena olivaceomarginata has a number of features in common with *M.*

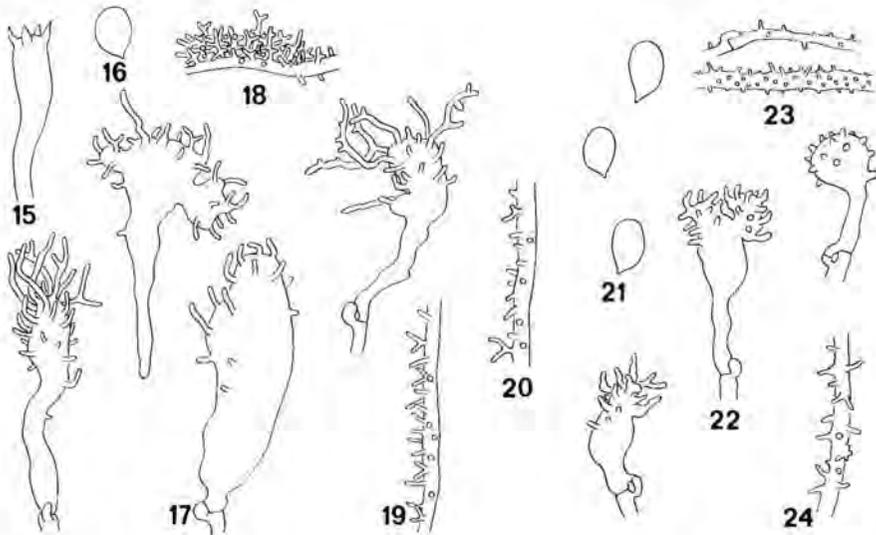
neglecta, such as the yellowish colours of the pileus, the greyish lamellae, the olivaceous shades of the stipe, the chemical odour (alkaline according to Kummer; somewhat nitrous according to Maire [Kühner, p. 416] and also recorded for one or two Dutch collections). A serious obstacle, however, is that Kummer described the stipe as tenacious. It is both Kühner's and my own experience that the stipe of *M. olivaceomarginata* is soft and fragile. This difference does not allow *M. neglecta* to be identified with *M. olivaceomarginata*. *Mycena neglecta* must remain a nomen dubium.

162. AGARICUS NUCIDAE Brig. jun.

Agaricus nucidae Brig. jun., Hist. Fung. Regni neapol.: 91, pl. 14 figs. 4-7. 1848. - *Mycena nucidae* (Brig. jun.) Sacc., Syll. Fung. 5: 261. 1887. - Type: represented by pl. 14 figs. 4-7.

The salient features of this species are (i) gregarious growth of the basidiomata, (ii) intensely ferruginous colour of the pileus, (iii) pubescent pileal margin, (iv) whitish flesh-coloured free lamellae, (v) concolorous stipe, with (vi) a dense and very white villosity at its base, (vii) lack of odour and taste, and (viii) occurrence on decayed almond kernels. Briganti said that in his garden the species was not infrequent and apparently always grew on fallen almond kernels.

Although some of the characters are suggestive of the species being a member of the genus *Mycena*, others (notably the intensely ferruginous pileus and its



Figs. 15-19. *Prunulus magnus* (holotype). - 15. Basidium. - 16. Spore. - 17. Cheilocystidia. - 18. Hypha of the pileipellis. - 19. Hypha of the cortical layer of the stipe.
 Fig. 20. *Prunulus minutissimus* (holotype). - Hypha of the cortical layer of the stipe.
 Figs. 21-24. *Prunulus subinclinatus* (holotype). - 21. Spores. - 22. Cheilocystidia. - 23. Hyphae of the pileipellis. - 24. Hypha of the cortical layer of the stipe.

All figs., $\times 700$.

pubescent margin) make me doubt. Even if it should turn out to be a *Mycena*, it is not possible to tell to what section it might be assigned.

163. AGARICUS PHOENICEUS Brig. jun.

Agaricus phoeniceus Brig. jun., Hist. Fung. Regni neapol.: 38, pl. 15 figs. 1, 2. 1848 [not *A. phoeniceus* Fr. 1838]. – *Agaricus puniceus* Fr., Hym. eur.: 133. 1874 (name change). – *Mycena punicea* (Fr.) Sacc., Syll. Fung. 5: 257. 1887. – *Mycena phoenicea* (Brig. jun.) Sacc. in Flora ital. cryptog. I (Hym. 1): 258. 1915. – Type: represented by Briganti's pl. 15 figs. 1, 2.

Some of the striking characters of *A. phoeniceus* are the following. Pileus 3 lines broad (6.3 mm), somewhat viscous, crimson, with the margin inconspicuously striate, yellow. Lamellae ascending, free, pallid. Stipe narrow, rooting, at first orange above, then becoming yellow, at the base always blackish green.

On account of the colours of the pileus and stipe one's thoughts tend to be directed to *Mycena acicula* (Schaeff.: Fr.) Kummer, and the slight viscosity of the pileus (overlooked in more recent descriptions of that species) is entirely consistent with this interpretation. So is also the "rooting" stipe, compare Bresadola's illustration (1928: pl. 255). A difficulty, however, is the description of the base of the stipe which was said to be "semper atro-viridi." In this connection two facts should be taken into account. First, no other *acicula*-like *Mycena* with a blackish green base of the stipe has ever since been reported; second, Briganti stated that his *A. phoeniceus* was found "Post pluvias autumnales." Copious rains after a dry summer may cause the explosive growth of terrestrial Cyanophyceae. Until proof has been given of the contrary, I am inclined to regard (i) the blackish green smudge at the base of the stipe as the result of the accidental invasion of blue-green algae, and (ii) *A. phoeniceus* as identical with *Mycena acicula*.

164. AGARICUS PUBESCENS Rabenh.

Agaricus pubescens Rabenh., Deutschl. Kryptog.-Flora 1: 527. 1844. – *Mycena pubescens* (Rabenh.) Kummer, Führ. Pilzk.: 111. 1871 [not *Mycena pubescens* (Murrill) Murrill; = *Pseudohiatula irrorata* (Pat.) Sing.; see Pegler, 1983: 275]. – Type locality: Germany.

Rabenhorst described the pileus as fairly fleshy, pubescent, becoming almost plane with age and umbilicate. The stipe was said to be "rauhhaarig" and rooting from a bulbous base. These features suffice to exclude the species from *Mycena*. Could it be *Collybia fuscopurpurea* (Pers.: Fr.) Kummer?

165. MYCENA ROSEA (Bull.) Gramberg

In a paper dealing with the "Formenkreis" of *Mycena pura* (Pers.: Fr.) Kummer, Krieglsteiner & Schwöbel (1982: 27) directed the attention towards a taxon which they knew well and claimed to be appreciably larger [than *M. pura*], rather differently coloured, and restricted to beech woods on calcareous soil. This taxon was subsequently included in a key (p. 33), thus facilitating iden-

tification. Krieglsteiner & Schwöbel, although at first mentioning the subspecific epithet *f. rosea* Schum., finally decided in favour of the name *Mycena rosea* adopted from Kubička & Veselský (1978). The author citation used by these Czech mycologists reads “(Bull.) ex Sacc. et Dalla Costa,” and here is where confusion begins, which to sort out requires the following commentary.

Agaricus roseus Bull., Herb. France: pl. 162. 1783/84 and pl. 507. 1790/91; Hist. Champ.: 473. 1792/93. – *Mycena rosea* (Bull.) Gramberg, Pilze Heimat 1: 36, pl. 36 fig. 2. 1912. – Lectotype: represented by Bulliard’s pl. 162.

Misapplied names: *Mycena pura* *f. rosea* [Flora dan.] sensu J.E. Lange, Flora agar. dan. 2: 40, pl. 53 fig. H. 1936. – *Mycena pura* *var. rosea* [Flora dan.] sensu J.E. Lange in Dansk bot. Ark. 9(6): 75. 1938.

Mycena rosea [(Bull.) ex Sacc. et Dalla Costa] sensu Kubička & Veselský in Česka Mykol. 32: 167. 1978.

Fries (1821: 151) did not accept Bulliard’s *Agaricus roseus* and reduced it to the synonymy of *A. purus* Pers.: Fr., but his description appears to be too inclusive. Quite possibly he was not acquainted with live specimens of true *Agaricus roseus*, a species which seems to frequent more southern regions of Europe. The result of Fries’ opinion was that the epithet *roseus* practically disappeared from subsequent literature, although there are good reasons to reinstate the name. As far as I have been able to ascertain Gramberg was the first to take up the epithet in the recombination *Mycena rosea*. It is clear that Gramberg misapplied this name (as is apparent from his description as well as his reference to *Mycena pura* Pers. in parentheses) but since he cited the name of the original author – Bulliard – the resulting combination must be retained for *Agaricus roseus* Bull. (Article 55.2 of the International Code of Botanical Nomenclature, 1983).

J.E. Lange was well aware of the difference between *M. rosea* and *M. pura*, as is attested by his indubitable illustration. At first (1914: 24) he indicated *M. rosea* with the words “the pink variety,” later changing to the denominations *f. rosea* and *var. rosea*, each time referring to Fl. D. (currently known as the Flora Danica). In this work (edited by Hornemann, 1823: 10), the binomial *Agaricus roseus* obviously refers to Schumacher’s book (1803/04: 292). Some parts of this author’s description are here quoted: “pileo... obsolete striato... stipite breviusculo, tenue fibroso... superne albino inferne fusco” and “Stipes... 3/4 lin. [= 1.5 mm!] crassus” and also “Inter folia dejecta Pini Abietis.” There can be not the slightest doubt: *Agaricus roseus* Schum. is a species in its own right, with Denmark its type locality; it has nothing to do with *A. roseus* Bull. and is widely different from that species. Lange’s use of the name *Mycena pura* *f.* (or *var.*) *rosea*, therefore, is a misapplication.

Concerning the author citation used by Kubička & Veselský, it is necessary to turn to Persoon’s *Agaricus roseus*.

Agaricus roseus Pers., Syn. meth. Fung.: 393, pl. 5 fig. 3. 1801. – *Mycena rosea* (Pers.) Sacc. in Flora ital. cryptog. 1 (Hym. 1): 256. 1915 (later homonym). – Type: represented by Persoon’s pl. 5 fig. 3.

Fries (1821: 151) did not accept Persoon's binomial either and placed it in the synonymy of his *Agaricus rosellus*, now correctly named *Mycena rosella* (Fr.) Kummer. Saccardo, giving little heed to Fries' view, transferred *Agaricus roseus* to *Mycena*, but did not fail to refer to Persoon. Kubička & Veselský apparently missed the nomenclatural importance of this detail, hence their erroneous author citation. Rather than Saccardo [not Sacc. et Dalla Costa], it was Kubička & Veselský who transferred *A. roseus* Bull. to *Mycena*, but the recombination had already been made and must be credited to Gramberg.

166. *AGARICUS STIPULARIS* Fr.

Agaricus stipularis Fr., Syst. mycol. 1: 160. 1821. – *Mycena stipularis* (Fr.) Quéf. in Mém. Soc. Emul. Montbél. II 5: 110. 1872. – Type locality: Sweden.

Kühner (1938: 679) placed *M. stipularis* among the "Espèces insuffisamment connues," but it should be noted that he referred only to Fries' *Hymenomyces europaei* (1874). As is so often the case with Fries, this author's later descriptions differ from those made in his earlier years, sometimes even to the extent that a later description can no longer be trusted to refer to the same species. In the case of *Agaricus stipularis*, I prefer to adhere strictly to the 1821 description. In this description Fries characterized the stipe by the use of the words "flavescente" and "subflaccidus." The latter adjective suggests that Fries' specimens had begun to lose their freshness, which could explain the tendency of their stipes to "become yellow." The lamellae were described as pink, with not a word of their edge being more deeply coloured. This is in keeping with the suggestion that Fries' material must have been past its prime, for in ageing material the lamellar edge fades to a shade of the same colour of the lamellar sides.

There are not many small *Mycenas* in Europe with pink or red heads. Enumerated alphabetically, these are *Mycena adonis* (Bull.: Fr.) S.F. Gray and its varieties, *M. flavoalba* var. *floridula* (Fr.), *M. pterigena* (Fr.: Fr.) Kummer, and *M. rosella* (Fr.) Kummer. Except for *M. pterigena*, all these species have in excess of 12 lamellae, some even 20 or more. The lamellae in *M. pterigena* repeatedly number eight or nine, sometimes also as few as five. It is significant that in *A. stipularis* the number of lamellae were said to be mostly six. In my eyes there is sufficient evidence already to claim that *Agaricus stipularis* and *Mycena pterigena* are fully identical, but one more difficulty must be explained away. *Mycena pterigena* is known to grow exclusively on the decaying rachis of fern fronds, but Fries said: "In nemoribus humidis ad stipulas &c." His stipulae, rather than taken in their strict sense of straws, dead gramineous culms, should be seen more generally as bits of vegetable debris Fries did not care to specify. His expression "&c." points in the same direction. Very likely a considerable proportion of the debris consisted of fragments of dead ferns.

167. *MYCENA SUBINCLINATA* (Murrill) Murrill – Figs. 21–24.

Prunulus subinclinatus Murrill in *Mycologia* 30: 367. 1938. – *Mycena subinclinata* (Murrill) Murrill in *Mycologia* 30: 371. 1938. – Holotype: “*Mycena subinclinata* sp. nov. / Gainesville, Fla. / West & Murrill 8845, 11–9–32 / d[ea]d oak log in woods” (FLAS 15708).

Basidiomata scattered to gregarious or subcespitose. Pileus 30–50 mm across, umbonate, sulcate, glabrous, fawn to watery brown, darker at the centre. Flesh white. Taste farinaceous. Lamellae c. 22 reaching the stipe, ascending, broad, ventricose, sinuate-adsnate, decurrent with a tooth, white. Stipe 60–100 mm long, hollow, cartilaginous-brittle, equal, smooth, pruinose above, glabrous for the greater part, white, covered below with long, fairly coarse, flexuous, whitish fibrils, with rooting base.

Basidia (immature) $31\text{--}35 \times 8\text{--}9 \mu\text{m}$, clavate, 4-spored, clamped. Spores (taken from a spore deposit on the surface of the stipe near its apex) $8.5\text{--}9.8 \times 6.3\text{--}7.2 \mu\text{m}$, pip-shaped, smooth, amyloid. Cheilocystidia $22.5\text{--}31 \times 7\text{--}15 \mu\text{m}$, forming a sterile band (lamellar edge homogeneous), clavate, clamped, covered with comparatively few, usually unevenly spaced, fairly coarse, simple to somewhat branched, curved excrescences $2.5\text{--}7 \times 0.9\text{--}1.8 \mu\text{m}$. Lamellar trama vivescent in Melzer's reagent. Hyphae of the pileipellis $2\text{--}3.5 \mu\text{m}$ wide, clamped, more or less densely covered with cylindrical excrescences $\text{--}2.7 \times 0.9 \mu\text{m}$. Hyphae of the cortical layer of the stipe $1.8\text{--}4.5 \mu\text{m}$ wide, rather sparsely covered with excrescences $\text{--}5.5 \times 0.9\text{--}1.8 \mu\text{m}$.

The macroscopic part of the description is adapted from Murrill's and complemented by my own observations on the dried material. The microscopic details are based on reexamination of the type.

Murrill described the lamellae as almost free, but this is an incorrect observation. In some species of *Mycena*, the expanding pileus may tear the lamellae away from the stipe, and this is exactly what happened in at least a number of the specimens of *M. subinclinata*, as is attested by one of the specimens of the holotype received for investigation.

Murrill made no mention of the fact that the stipe of *M. subinclinata* must have had a rooting base, as can be inferred from the lacerated lower end of the stipes in the dried material.

These two inaccuracies lead me to doubt the correctness of Murrill's description of the lamellae and the stipe as white. *Mycena subinclinata* obviously belongs to section *Mycena*, none of whose species (albinistic forms excluded) have entirely white stipes.

Smith (1947: 341) reexamined not the type but material collected at a much later date, and from this he reported the size of the spores as $5\text{--}7 \times 4.5\text{--}5.5 \mu\text{m}$.

It is no use speculating what species had been sent to Smith, but from my own observations it is clear that *M. subinclinata* is identical with *M. galericulata* (Scop.: Fr.) S.F. Gray.

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Type material of some, mainly North American, *Mycena* species has been reinvestigated, while interpretations are given of a few old names.

Special thanks are due to the Staff of the Farlow Herbarium, Harvard University, Cambridge (FH) for sending a Xerox copy of the description of a species contained in J.G. Otto's book. The full title of this publication reads "Versuch einer auf die Ordnung und den Stand der Lamellen gegründeten Anordnung und Beschreibung der Agaricorum," Leipzig (1816). This seems to be a generally forgotten work which, however, one cannot afford to leave unconsulted because of the change of the starting-point date to 1753. Grateful acknowledgment is made to the authorities of the herbaria at Albany (NYS), Ann Arbor (MICH), and Leningrad (LE) for the loan of various valuable collections. Thanks are also due to the Director of the 'Rijksherbarium' for providing working facilities.

168. AGARICUS AMMONIACUS Fr.

Agaricus ammoniacus Fr., Epicr. Syst. mycol.: 109. 1838. – *Mycena ammoniaca* (Fr.) Quél. in Mém. Soc. Emul. Montbél. II 5: 106. 1872 ("ammoniacus"). – Type locality: Sweden.

Fries referred to an earlier publication (Obs. 2. p. 155), in the conviction that the taxon described in 1818 was the same as the one of 1838. There is reason to believe that he erred. The characters of *Agaricus alcalinus* var. *ammoniacus*

(1818) and *A. ammoniacus* (1838) are tabulated below to show that they are different.

	<i>A. alcalinus</i> var. <i>ammoniacus</i>	<i>A. ammoniacus</i>
pileus	convex; ash grey	at first conical, then spreading, umbonate; normally blackish brown ("fuscus") or of a grey colour that turns black with age ("nigricans"), but also varying to grey
lamellae	adnate, decurrent with a tooth	adnate
stipe	one inch long ("uncialis"), with strigose base	about two inches long ("2 unc."), rooting

In my opinion, these differences are serious enough to maintain that here two separate species are involved. With regard to *A. alcalinus* var. *ammoniacus*, it seems advisable to leave this name out of consideration altogether.

In his description of *A. ammoniacus*, Fries indicated the habitat as "Ad terram ipsam, in agrorum versuris [On the (naked) soil, at places where the farmer turns his plough]." These are most unusual places for a member of the genus *Mycena*. Fries further said that in its outward appearance *Agaricus ammoniacus* was completely different from the foregoing species [*A. alcalinus*] but had the same odour: "Habitu a priori utique [differt; compare Fries, 1874: 142], sed odor idem." It is true that Fries subsequently, in his Monographia (1857: 215), changed his mind in considering *A. ammoniacus* to be "Praecedenti [= *A. alcalinus*] valde affinis," but this is just another example which serves to confirm my contention that Fries' original and later species concepts need not necessarily be the same. Considering its habitat and habitus, it seems therefore fair to say that there is no hard evidence of *A. ammoniacus* being a true *Mycena*.

Smith (1947: 241) placed *Mycena ammoniaca* (Fr.) Quél. in the synonymy of *M. leptcephala* (Pers.: Fr.) Gillet, and this may be the source of the current confusion as to which binomial should be used. However, Smith was in error. Quélet's description of *M. ammoniaca* is an almost literal translation of Fries' description into French, so that even though Quélet may have found a genuine *Mycena* his *M. ammoniaca* is technically no less dubious than the original *Agaricus ammoniacus*.

169. MYCENA CALOCHROA Nezd. – Figs. 1–5.

Mycena calochroa Nezd. in Mikol. Fitopatol. 4: 475, figs. a–c. 1970. – Holotype: "Mycena calochroa Nezd. / [Cyrillic writing] / Pinus pumila / 1969, 29 VIII" (LE).

Pileus pale yellowish or streaked with orange, margin bright orange. Lamellae tender, ascending, whitish or yellowish, edge somewhat convex, bright orange. Stipe hollow, equal, terete, delicately pruinose above, glabrous

for the greater part, pale dingy orange above, darker orange below, towards the base densely covered with fairly coarse, woolly, orange-yellow fibrils.

Basidia 26–29 × 7 μm, clavate, 4-spored, clamped, with sterigmata up to 6.5 μm long. Spores 8.1–9.2 × 5.2–5.4 μm, pip-shaped, smooth, amyloid. Cheilocystidia 25–55 × 6.5–14.5 μm, occurring mixed with basidia (lamellar edge heterogeneous), clavate, subcylindrical, subfusiform, with orange contents, clamped, covered with comparatively few, evenly to unevenly spaced, cylindrical excrescences 1.8–4.5 × 0.9–1.8 μm. Pleurocystidia similar. Lamellar trama brownish virescent in Melzer's reagent. Hyphae of the pileipellis 1.5–4 μm wide, clamped, developing long and much branched excrescences 0.9–1.8 μm wide which form dense masses. Hyphae of the cortical layer of the stipe 2.5–3.5 μm wide, diverticulate, with the excrescences – 7 × 0.9 – 1.3 μm, simple to branched.

The description is based on reexamination of the holotype. Nezdajminogo who had found his material among fallen needles of *Pinus pumila* was well aware of its similarity to *Mycena strobilinoidea* Peck, but decided that it merited specific status on account of its smaller size and the fact that pileus and cheilocystidia were of the same colour. Neither feature appears to have much taxonomic weight; the binomials *Mycena calochroa* and *M. strobilinoidea* refer to the same species.

170. *AGARICUS GRISEUS* Batsch and *A. GRISEUS* Fr.

Kühner (1938: 371) tried to unravel the identity of what he called *Omphalia grisea* of Fries, but never delved into its history beyond Fries' illustration (Fries, 1873: pl. 78 fig. 1).

The original publication of the binomial *Agaricus griseus* is by Batsch (1786: 87, pl. 17 fig. 80). Both from this author's description and illustration it is clear that (i) the species belongs to the genus *Mycena* and (ii) has steeply ascending lamellae, while the interesting piece of information is that Batsch described the latter as narrowly adnate ("... stipitem attingunt, eique leviter tantum adhaerent").

Fries (1815: 47) who redescribed the species from a single Swedish gathering at first duly referred to Batsch's publication, but changed his mind in later years (Fries, 1821: 158), this change being reflected in the suppression of the reference to Batsch, as well as in a different description. Although he still assigned *A. griseus* to the 'tribus' *Mycena* (as he did in 1815), the description "lamellis decurrentibus" presaged what was to come. In the *Epicrisis* (Fries, 1838: 127), *A. griseus* was transferred to the 'tribus' *Omphalia*, while the addition of "S M 158 non Alior[um]" definitely proves that *Agaricus griseus* Batsch and *A. griseus* Fries 1821 represent two separate species, each based on a different type.

It is hazardous to venture an opinion on the identity of either binomial, and both are therefore best dismissed.

Agaricus griseus as depicted by Batsch could represent *Mycena filopes* (Bull.: Fr.) Kummer, but *M. metata* (Fr.) Kummer and *M. aetites* (Fr.) Quélet seem equally possible. The identity of *A. griseus* Fr. 1821 is even more questionable, while examination of the illustration in the Icones (Fries, 1873: pl. 78 fig. 1) – an expedient often relied upon by later authors – is of no help at all, since the 1821- and 1873-descriptions differ from each other on several points. Moreover, it would seem that Fries (1873: 81) mixed up two similar-looking but actually different species when he stated “uterque variat pileo umbilicato et papillato.”

A final remark. Kühner (1938: 371) said: “L’icone [of *A. griseus*] de Fries fait penser à *M. aetites* . . .” Actually, Fries (1873: 81) described the lamellae as “leviter decurrentibus, arcuatis” and the stipe as tenacious, “vere cartilagineus.” Kühner’s description has the lamellae “± adnées, mais souvent faiblement” and the stipe fragile.

171. *AGARICUS INCARNATOVIOLOACEUS* J.G. Otto

Agaricus incarnatoviolaceus J.G. Otto, Versuch Agar.: 57. 1816. – *Mycena incarnatoviolacea* (J.G. Otto) Kummer, Führ. Pilzk., 2. Aufl.: 57. 1882. – Type locality: Germany.

Kummer assigned the species to the genus *Mycena*, but there is reason to doubt the correctness of this view.

Otto’s description, although very brief, shows a species, of which all parts are incarnate-violaceous. This would at first sight suggest some form of *Mycena pura* (Pers.: Fr.) Kummer, but considering the following facts this interpretation appears unacceptable. (i) Otto repeatedly indicated that he was acquainted with Persoon’s Synopsis, and it is a reasonable inference to assume that he was familiar with Persoon’s *Agaricus purus*; (ii) Otto moreover described the lamellae of his species as free, which does not apply to *M. pura*. The species which does seem to correspond to Otto’s description is *Entoloma euchroum* (Pers.: Fr.) Donk.

172. *MYCENA PELIANTHINA* var. *CRENULATA* (Schum.: Fr.) Quélet.

Mycena pelianthina var. *crenulata* (Schum.: Fr.) Quélet., Ench. Fung.: 34. 1886.

As pointed out in an earlier paper (Maas Geesteranus, 1984: 65), the original *Agaricus crenulatus* Schum. possesses characters which exclude it from the genus *Mycena*. It is perfectly possible that the specimens found by Quélet were some form of *M. pelianthina* with the lamellar edge more crenulate than is usual in this species, but his recombination is a misapplication.

173. *MYCENA PSEUDOCLOVICULARIS* A.H. Smith

Mycena pseudoclavicularis A.H. Smith, North Am. Spec. *Mycena*: 374, textfig. 44(7, 9). 1947. – Type: represented by textfig. 44(7, 9).

Smith described this species with "smooth, subfusoid" pleurocystidia and similar cheilocystidia. He indicated his collection 8925 as the type. On my request, part of the holotype (MICH) was sent on loan, but investigation showed the material (consisting of two specimens) to belong to true *Mycena clavicularis* (Fr.) Gillet, with the cheilocystidia clavate and fairly densely covered with excrescences. Assuming that this part had found its way inadvertently into the type packet, the remaining part of the type was requested for examination. This second part equally turned out to be *M. clavicularis*. It is impossible to imagine that Smith should have described and illustrated a fungus which was completely different from the actual specimen(s) he had studied, so it seems quite plausible to assume that (i) *Mycena pseudoclavicularis* is a really existing species, (ii) the type specimen of which was exhausted after the microscopic investigation had been finished, while (iii) the remaining specimens (which were taken to be the same species) were labelled and stored up unchecked. The consequence is that *M. pseudoclavicularis*, which going by its description seems to be a member of section *Caespitosae* (A.H. Smith ex Sing.) Maas G., must be typified by Smith's textfigure 44 (7,9), not by A.H. Smith 8925. Neither the macroscopic description must be used for typification purposes (for it may contain elements of true *clavicularis*), nor plate 88 (which may illustrate a mixture of the two species).

Confusion by no means ends here. Collections A.H. Smith 18113 and 18131 represent an altogether different species which belongs to a section yet to be described.

174. MYCENA RADICATELLA (Peck) Sacc. – Figs. 6–19.

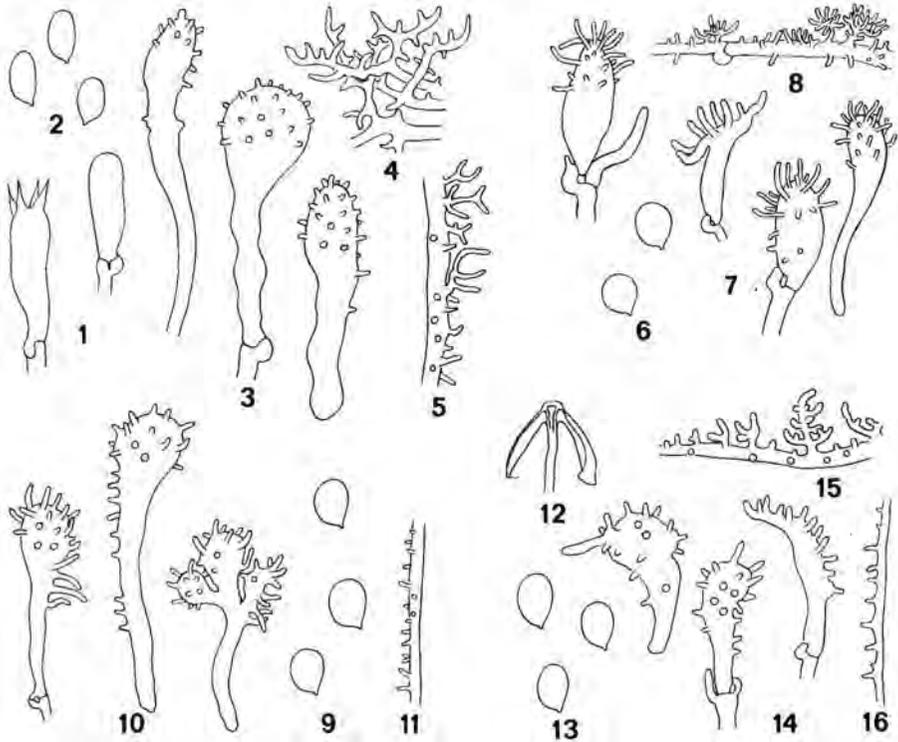
Agaricus radicatellus Peck in Rep. N.Y. St. Mus. nat. Hist. 31: 32. 1879. – *Mycena radicatella* (Peck) Sacc., Syll. Fung. 5: 275. 1887. – *Prunulus radicatellus* (Peck) Murrill in N. Am. Flora 9: 323. 1916. – Holotype: "Agaricus (*Mycena*) *radicatellus* Peck / C.H. Peck / Sept. 1877 / Griffins" (NYS).

Mycena subviscida Kauff. & Smith in Pap. Mich. Acad. Sci. 17: 184. 1933. – Holotype: "Mycena *subviscida* Kauff. & A.H. Sm. / 18 Sep. 1929 / Rock River, Alger Co., Mich. / On a poplar stump / C.H. Kauffman & A.H. Smith 169" (MICH).

Basidiomata scattered or gregarious to subfasciculate. Pileus 10–20 (–30) mm across, obtusely conical to campanulate, with small or large and broad umbo, flattening with age, somewhat sulcate, translucent-striate, slightly viscid when wet, glabrous, shiny, pale dingy greenish grey, pale greyish to whitish, darker at the centre, margin incurved at first, becoming straight, whitish. Flesh thin, pliant-tough, white. Odour none. Taste mild to disagreeable. Lamellae 22–24 reaching the stipe, elastic-tough, ascending, narrow, about 1.5 mm broad, little ventricose, adnate, decurrent with a short tooth, sometimes seceding and forming a pseudocollarium, smooth or with scattered ribs, becoming dorsally intervenose, white to whitish or tinged pale pinkish in age, the edge straight to somewhat convex, concolorous or pallid. Stipe 20–100 × 2–3 mm, hollow, cartilaginous-tough, equal or somewhat broadened below, terete, straight, smooth, pruinose to finely puberulous above, glabrous for the greater part, somewhat viscid when wet, whitish to pallid above, dingy whitish with a

slight greenish grey shade below, the base densely white-tomentose, often penetrating the substratum with a shorter or longer root.

Basidia 26–35 × 8–9 μm, clavate, 4-spored, clamped, with sterigmata 6.5–7 μm long. Spores (7.2–) 7.6–9.6 × (5.8–) 6.2–6.7 μm, broadly pip-shaped to subglobose, smooth, amyloid. Cheilocystidia 20–48(–60) × 4.5–15 μm, forming a sterile band (lamellar edge homogeneous), clavate, subfusiform, subcylindrical or more or less irregularly shaped, clamped, covered with comparatively few, unevenly spaced, fairly coarse, cylindrical, simple, generally curved excrescences 2–9 × 0.8–2 μm. Pleurocystidia absent. Lamellar trama vivescent in Melzer's reagent, reaction remarkably strong. Hyphae of the pileipellis 1.8–5.5 μm wide, clamped, sparsely to densely covered with warts or cylindrical excrescences which may grow out to much branched structures up to 10 μm high.



Figs. 1–5. *Mycena calochroa* (holotype). – 1. Basidia. – 2. Spores. – 3. Cheilocystidia. – 4. Hyphae of the pileipellis. – 5. Hypha of the cortical layer of the stipe.

Figs. 6–8. *Agaricus radicatellus* (holotype). – 6. Spores. – 7. Cheilocystidia. – 8. Hypha of the pileipellis.

Figs. 9–11. *Mycena radicatella* (A.H. Smith 485; MICH). – 9. Spores. – 10. Cheilocystidia. – 11. Hypha of the cortical layer of the stipe.

Figs. 12–16. *Mycena radicatella* (A.H. Smith 6383; MICH). – 12. Section of pileus. – 13. Spores. – 14. Cheilocystidia. – 15. Hypha of the pileipellis. – 16. Hypha of the cortical layer of the stipe.

Fig. 12. ×1; all others, ×700.

Hyphae of the cortical layer of the stipe 2.2–4.5 μm wide, diverticulate, excrescences cylindrical, simple, 0.9–3.5 \times 0.9–1.3 μm .

On decayed wood and debris of mainly deciduous trees, but also found on coniferous logs.

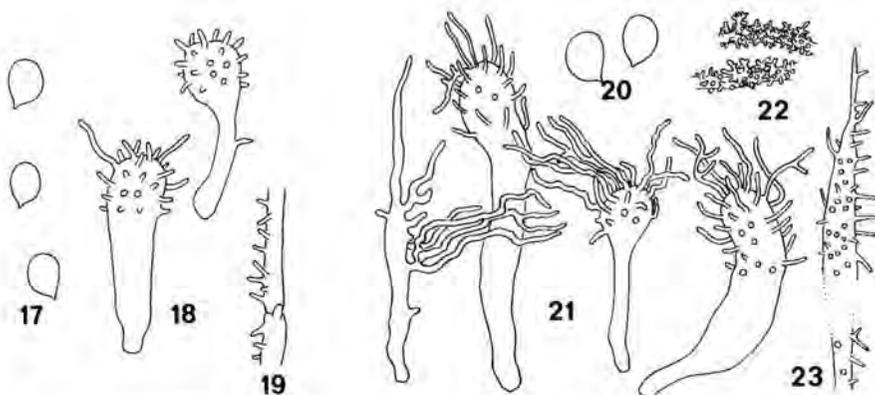
The macroscopic part of the description is adapted from Kauffman & Smith's (*Mycena subviscida*) and Smith's (1947: 354) accounts and complemented by my own observations on the dried material. The microscopic details are based on reexamination of the holotype material of *Agaricus radicatellus* and *Mycena subviscida*, as well as the collections A.H. Smith 485 and 6383 (MICH).

Smith described the spores of *M. radicatella* as "broadly ellipsoid to subglobose," which is in keeping with what is seen in the type of the species. However, these probably only represent immature spores.

There is not the slightest doubt in my mind that North American *Mycena radicatella* and European *M. galericulata* are two names for the same species, but *radicatella* appears to be a paler form than is usual in var. *galericulata*; it is close to var. *albida* Gillet.

175. MYCENA RUGULOSICEPS (Kauff.) A.H. Smith – Figs. 20–23.

Collybia rugulosiceps Kauff. in Pap. Mich. Acad. Sci. 5: 126, pl. 6. 1926. – *Mycena rugulosiceps* (Kauff.) A.H. Smith in Mycologia 29: 342. 1937; N. Am. Spec. Mycena: 352, pl. 84, textfig. 43 (2, 4). 1947. – Holotype: "Collybia rugulosiceps Kauff. / 3 Oct. 1922 / Ore[gon] Mt. Hood, Clackamas Co. / In forest of cedar, hemlock, and vine maple" (MICH).



Figs. 17–19. *Mycena subviscida* (holotype). – 17. Spores. – 18. Cheilocystidia. – 19. Hypha of the cortical layer of the stipe.

Figs. 20–23. *Collybia rugulosiceps* (holotype). – 20. Spores. – 21. Cheilocystidia. – 22. Fragments of hyphae of the pileipellis. – 23. Terminal cell of a hypha of the cortical layer of the stipe.

All figs., $\times 700$.

Basidiomata subfasciculate to fasciculate. Pileus 30–50 mm across, convex, becoming plane, distinctly obtusely umbonate, finally depressed around the umbo, shallowly sulcate, translucent-striate, moist, hygrophanous, appearing glabrous, fairly pale dingy grey-brown with distinctly pinkish shades (“cinnamon drab” to “avellaneous”, Ridgway), the umbo somewhat more dingy reddish brown (“sayal brown”), pallescent on drying out, margin splitting in age. Flesh thin, concolorous with the pileus. Odour and taste absent. Lamellae c. 27 reaching the stipe, elastic-tough, ascending, becoming subhorizontal, 3–6 mm broad, ventricose, adnate, decurrent with a tooth, whitish, slightly greyed, the edge convex, concolorous. Stipe 40–80 (–100) × 3–5 mm, hollow, pliant-tough, almost horny, equal, terete or somewhat compressed, straight or curved below, smooth, glabrous for the greater part, finely pruinose above, paler or darker grey-brown and slightly tinged pinkish (“wood-brown” to “avellaneous”), paler above, the base densely white-tomentose.

Basidia 28–33 × 8–9 μm, slender-clavate, 4-spored, clamped. Spores 8.5–9.1 × 6.7 μm, broadly pip-shaped, smooth, amyloid. Cheilocystidia 20–65 × 4.5–16 μm, forming a sterile band (lamellar edge homogeneous), clavate, more rarely subcylindrical or ovoid, clamped, covered with comparatively few to fairly numerous, unevenly spaced, rather coarse, simple, more rarely branched, curved to flexuous excrescences 2.5–35 × 1.5–2.5 μm. Pleurocystidia absent. Lamellar trama brownish virescent in Melzer’s reagent. Hyphae of the pileipellis 2.5–3.5 μm wide, very densely covered with wart-like or somewhat longer and branched excrescences which tend to become somewhat gelatinized. Hyphae of the cortical layer of the stipe 1.8–4.5 μm wide, sparsely covered with warts or slightly elongated excrescences, terminally widened up to 6 μm and more densely covered with cylindrical excrescences 1.5–9 × 0.9–1.3 μm.

On decayed wood of conifers.

The macroscopic description of the species is adapted from Kauffman’s and complemented by my own observations on the dried material, as well as the study of Kauffman’s illustration. The microscopic details are based on reexamination of a part of the holotype (one specimen).

This is *Mycena galericulata* (Scop.: Fr.) S.F. Gray, and Smith (1947: 353) already suspected the identity: “The two [*M. rugulosiceps* and *M. galericulata*] are very closely related, however, and may not be distinct.”

A number of slight differences in Kauffman’s original description and, more especially, his illustration at first made me incline to the belief that *Mycena rugulosiceps* and *M. galericulata* represented two separate species. Later studies of numerous European collections of the latter convinced me that the two names actually refer to the same species.

Mycena rugulosiceps as described by Romagnesi (1978: 103) is quite a different species to be dealt with in a forthcoming paper.

176. AGARICUS SUBINCARNATUS Peck

Agaricus subincarnatus Peck in Rep. N.Y. St. Cab. nat. Hist. 23: 83. 1873. – Syntype: “*Agaricus subincarnatus* Pk. / Sandlake / Oct. 1869 / C.H. Peck” (NYS).

Based on his study of material sent on loan by A.H. Smith (Smith 1107), Kühner (1938: 562) concluded that *Mycena subincarnata* (Peck) sensu Smith belonged to the *Adonideae*. Smith (1947: 182) followed Kühner but felt ill at ease with this disposition (p. 184: "... I believe that the fungus is more closely related to *M. rosella* than to any other *Mycena*").

The difference of opinion appears to have been caused by Smith's material, of which I have examined the numbers A.H. Smith 710, 1107, and 4250 (all MICH), which comprise two separate species, neither of which agrees with Peck's Sandlake material of *A. subincarnatus*. Mycologists interested in the matter are referred to my notes and microscopic drawings deposited in the herbarium at Ann Arbor. Suffice to state for the moment that the true *Mycena subincarnata* is a member of the *Fragilipedes* (Fr.) Quél., a section which will be dealt with in a future paper.

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AGARICA

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A PORTRAIT OF MYCENA MACULATA.

R.A. MAAS GEESTERANUS, OEGSTGEEST, the NETHERLANDS.

Mycena maculata P. Karst. is widely distributed in Europe and known to occur in North Africa (Malençon & Bertault, 1975: 274) and the United States (Smith, 1947: 341). It does not seem to be an easy species to identify and maybe its specific epithet is to blame. The epithet 'maculata' may induce people to think that to find this species all one has to do is to look for blotched specimens but red-brown stains have comparatively little specific value in the genus Mycena. The result is that identifications based solely on the presence of reddish spots are liable to be erroneous. Recognition becomes even more uncertain if the specimens are not old enough to have developed any spots. The question therefore is how to make sure an unspotted specimen actually belongs to Mycena maculata?

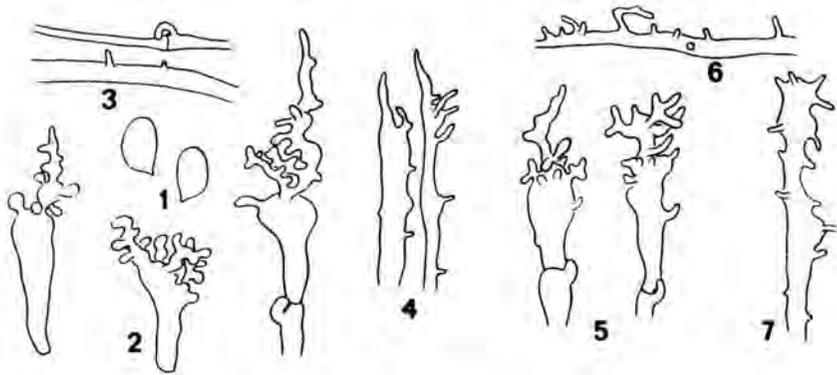
Karsten (1890: 89) said that his species was related to M. gale-riculata (Scop.: Fr.) S.F. Gray, and this may have prompted Kühner (1938: 334) to introduce the following chemical test which entails: "Plonger le champignon pendant quelques jours au moins dans la solution aqueuse saturée d'acide picrique ..."

This would result in turning the lamellae of M. maculata a bright orange or orange-red, whereas those of M. galericulata would remain unstained (p. 326: "ne devenant pas orangées par l'acide picrique"). Although skilfully contrived, the method appears somewhat cumbersome, and any other way to facilitate the identification would be welcome. My personal impression is that Kühner did not seem to be particularly troubled by the difficulty of identifying M. maculata since in his key (p. 320) he simply took for granted that there would always be lamellae of the right age to show red-brown spots.

In much the same way M. maculata in Smith's work (1947: 231) keys out by duly following the couplet: "57. Gills soon stained with sordid-reddish stains . . .," and dismissing the difficulty of judgment of the word "soon". To show that identification along these lines is by no means that easy, I may point out that whereas collection A.H. Smith 3366 (MICH) represents true M. maculata, A.H. Smith 17540 (MICH) does not. (I am not at all sure that Smith's description of M. maculata is free from alien elements.)

With the staining of various parts of the basidiome left out as a key character, the following enumeration of features is offered for the recognition of M. maculata.

(1) Basidiomata fasciculate and (2) growing on decaying wood. (3) Colour of the pileus dark to very dark. (4) Flesh firm to tough. (5) Odour absent or faintly spermatic (unknown in any other species of section Mycena). (6) Lamellae pliant-tough, like bacon rind. (7) Stipe cartilaginous. (8) Basidia 4-spored and clamped. (9) Spores amyloid. (10) Cheilocystidia not forming a continuous, sterile band (an exception in section Mycena) but instead occurring in intermittent groups; (11) covered with



Figs. 1-4. Mycena maculata (Weholt M61/82; L). — 1. Spores. — 2. Cheilocystidia. — 3. Hyphae of the pileipellis. — 4. Terminal cells of hyphae of the cortical layer of the stipe.

Figs. 5-7. Mycena maculata (Østmo, 9 Nov. 1975; O). — 5. Cheilocystidia. — 6. Hypha of the pileipellis. — 7. Terminal cell.

few, coarse excrescences, a conspicuous feature of which is that (12) usually one or two are much inflated or elongated, tortuous to even somewhat torulose, and branched. (13) Narrower hyphae of the pileipellis smooth (but not infrequently uneven to rugulose) or very sparsely diverticulate, while the excrescences sprouting from the wider hyphae are only slightly more numerous. (14) Hyphae of the cortical layer of the stipe smooth to sparsely diverticulate, (15) their terminal cells (to be found near the apex of the stipe) more or less inflated, variously shaped and diverticulate.

Mycena galericulata which may be equally dark differs from M. maculata in that even the smaller spores (of the 4-spored forms) are bigger than those of M. maculata, the cheilocystidia have differently shaped excrescences, the hyphae of the pileipellis are more densely diverticulate, and the terminal cells of the hyphae of the cortical layer of the stipe are either absent or very difficult to find.

Mycena hemisphaerica Peck, also a very dark species and sharing with M. maculata the smooth narrower hyphae of the pileipellis, differs in the perfectly sterile lamellar edge, the differently shaped excrescences of the cheilocystidia, and the lack of terminal cells in the cortical layer of the stipe.

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Eine neue *Mycena*-Art aus der Sektion *Basipedes*

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Maas Geesteranus, R. A. & W. Winterhoff (1985) – A new *Mycena*-species of section *Basipedes*.
 Z. Mykol. 51(2): 247–249.

Key Words: *Mycena* sect. *Basipedes*, *M. rhenana*.

Abstract: *Mycena rhenana* is proposed as a new species. It is member of section *Basipedes*. Till now two sites are known near Karlsruhe (SW Germany), where the fungus grows exclusively on debris of *Alnus glutinosa*.

Zusammenfassung: *Mycena rhenana* wird als neue Art beschrieben. Sie gehört in die Sektion *Basipedes*. Bisher sind zwei Fundorte bei Karlsruhe bekannt, an denen der Pilz ausschließlich auf Abfällen von *Alnus glutinosa* wächst.

***Mycena rhenana* Maas G. & Winterhoff, spec. nov.**

Basidiomata singularia. Pileus usque ad 6 mm latus, e campanulato fere applanatus, subumbonatus, aetate centro depressus vel umbilicatus, eximie sulcatus, pellicula gelatinosa separabili obtectus, desiccatus puberulus vel subfurfuraceus, griseus, marginem versus pallidior, margine crenatus. Caro pertenuis, albidus, odore nitroso. Lamellae 14–18 stipitem attingentes, molles, adscendentes, anguste adnatae denique secedentes et pseudocollarium formantes, angustae (desiccatae vix 0,5 mm latae), subtenuis, laeves, parum ventricosae, albae, margine concolores. Stipes 10–27 x 0,3–0,4 mm, fragilis, aequalis, basi tamen bulboso-incrassatus, minute puberulus, albus, e disco basali albopubescenti natus.

Basidia 15–20 x 6,5–7 µm, clavata, 4sporigera, fibulata. Sporae 6,7–8,0 x 3,8–4,3 µm, inaequilateraliter ellipsoideae, laeves, in cumulo albae, amyloideae. Cheilocystidia non visa. Trama lamellarum iodi ope vinosa. Hyphae pileipellis 1,8–5,5 µm latae, fibulatae, laeves vel parce diverticulatae, in materiam gelatinosam immersae; surculi 1,8–13,5 x 0,9 µm, simplices, cylindracei, cellulas hypharum terminales versus breviori; cellulae terminales 30–60 x 13,5–21,5 µm, versiformes, dense verrucosae. Hyphae stipitis corticales laeves, in caulocystidia 48–56 (–90) x 12–15 µm, conica vel lageniformia, fibulata vergentes.

Ad ramenta *Alni glutinosae* invenitur.

Typus: Winterhoff 84365 (L).

Fruchtkörper einzeln. Hut bis 6 mm breit, zuerst glockig, später fast flach werdend, mit wenig ausgeprägtem Buckel, im Alter in der Mitte niedergedrückt bis genabelt, stark gefaltet-gefurcht (fast wie bei *Coprinus*), mit einer abziehbaren schleimigen Haut überzogen, getrocknet aber fein behaart oder etwas kleiig, grau (in trockenem Zustand eher graubraun), auswärts blasser, mit gekerbttem Rand. Fleisch sehr dünn, weißlich. Geruch nitrös. Lamellen 14–18 den Stiel erreichend, zart, aufsteigend, schmal angewach-

sen, sich darauf vom Stiel lösend und mehr oder weniger deutlich ein Pseudocollarium bildend, schmal (getrocknet kaum 0,5 mm breit), nicht sehr dünn, glatt, wenig bauchig, weiß, die Schneide ohne elastisch-zähen Streifen, gleichfarbig. Stiel 10–27 x 0,3–0,4 mm, gebrechlich, gleichdünn, unten knollig verdickt, äußerst fein behaart, an der Basis etwas stärker behaart, weiß, mit weißflaumiger Basalscheibe.

B a s i d i e n 15–20 x 6,5–7 μm (möglich nicht völlig reif), keulig, viersporig, mit Schnalle und mit ca. 2,7 μm langen Sterigmen. Sporen 6,7–8,0 x 3,8–4,3 μm , apfelkernförmig, glatt, farblos, amyloid. Cheilozystiden nicht gesehen. Lamellentrama sich weinrötlich färbend in Melzers Reagenz. Hyphen der Pileipellis 1,8–5,5 μm breit, mit Schnallen, glatt oder spärlich divertikulat, in einer gelatinösen Masse eingebettet; Auswüchse 1,8–13,5 x 0,9 μm , einfach, zylindrisch, mehr oder weniger gekrümmt, nach vorne kürzer werdend und in Warzen übergehend; Endzellen der Hyphen 30–60 x 13,5–21,5 μm , ellipsoid, keulig, subzylindrisch oder ungefähr spindelförmig, dicht mit kurz-zylindrischen Warzen 0,9–1,8 x 0,9 μm besetzt, apikal breit abgerundet, am Hutrand dagegen mit einem glatten Schnabel. Hyphen der Stieloberfläche glatt, apikal durch Kaulozystiden abgeschlossen, welche 48–56 (–90) x 12–15 μm messen und konisch oder etwas flaschenförmig gestaltet sind.

Auf abgefallenen Blättern und Fruchständen von *Alnus glutinosa*.

Typus: „Fungi germanici *Mycena rhenana* Maas G. & Winterhoff 20. September 1984 Baden-Württemberg, Oberrheinebene nordöstlich Karlsruhe, Weingartener Moor, W. Winterhoff 84365“ (L).

Der Arname bezieht sich auf den Rhein, in dessen Nähe die Art entdeckt wurde.

Außer dem Typus wurde noch eine zweite Aufsammlung untersucht (Winterhoff 84253; L und Herb. Winterhoff), zum Teil zur Unterstützung der Beschreibung, aber auch wegen einiger Details, welche sich bei diesem Material illustrativ besser zum Ausdruck bringen ließen.

In allen Merkmalen ist *M. rhenana* eindeutig eine Art aus der Sektion *Basipedes*, ist jedoch insofern abweichend, indem ihr ein wichtiges Merkmal fehlt. Trotz gezielter Suche, wobei noch zwei weitere Aufsammlungen (Winterhoff 84255 und ohne Nummer; Herb. Winterhoff) einbezogen wurden, konnten keine Cheilozystiden gefunden werden. Ob das bedeuten soll, daß auch anderenorts bei *M. rhenana* die Cheilozystiden fehlen werden, muß vorläufig dahingestellt bleiben. Interessant in dieser Hinsicht ist aber, daß hin und wieder bei *Mycena clavularis* (Batsch: Fr.) Sacc. (Sektion *Clavulares*) keine Cheilozystiden nachgewiesen werden können.

Unter der Lupe betrachtet sehen *Mycena rhenana* und *M. mucor* (Batsch: Fr.) Gillet sehr ähnlich aus, aber während die letzte Art geruchlos ist, hat die erste einen nitrosen Geruch. Mikroskopisch lassen sich beide Arten unschwer und einwandfrei unterscheiden. Bei *M. mucor* sind z. B. die Endzellen der Hyphen in der Huthaut (Pileipellis), sowie die Kaulozystiden schmal und verästelt, bei *M. rhenana* sind beide breit und einfach. Außerdem sind die Sporen bei *M. mucor* länger und mehr zylindrisch.

Mycena rhenana wurde bisher nur an zwei Orten nordöstlich von Karlsruhe in der Oberrheinebene gefunden: im Weingartener Moor und nördlich von Untergrombach (beide auf MTB Nr. 6917). *Mycena rhenana* wurde dort vom 31.8. bis zum 29.10.1984 im Pruno-Fraxinetum beobachtet, einem Mischwald aus *Alnus glutinosa*, *Fraxinus excelsior*, *Prunus padus*, *Quercus robur*, *Ulmus effusa*, *Acer campestre*, *Populus canadensis* u. a.; dessen Boden meist feucht oder naß war aber niemals unter Wasser stand. Im angrenzenden nasse-

ren, oft überfluteten Carici-Alnetum fehlte der Pilz jedoch. Als Substrat wurden an beiden Fundorten ausschließlich vorjähriges Laub und alte Fruchtstände von *Alnus glutinosa* festgestellt, obgleich auch reichlich Streu anderer Gehölze zur Verfügung stand. Es scheint demnach, daß *Mycena rhenana* auf Abfälle von *Alnus* spezialisiert ist, aber im Gegensatz zu anderen Besiedlern von *Alnus*-Fruchtständen Überschwemmungen nicht verträgt.

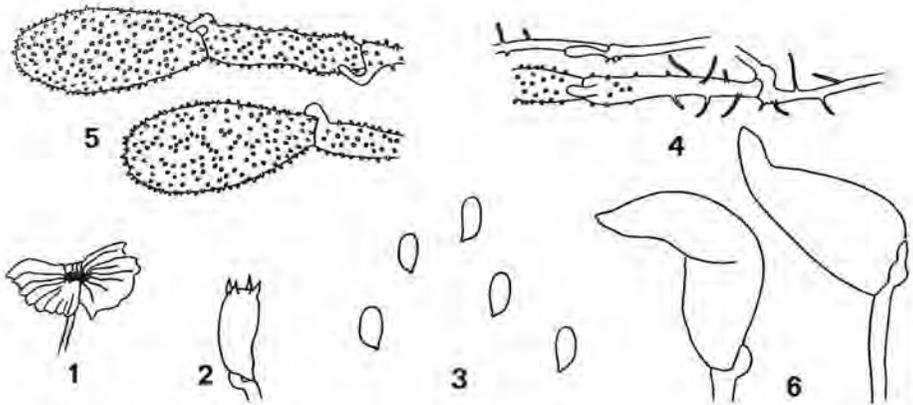


Abb. 1–6: *Mycena rhenana* (Typus). 1. Habitus eines alten genabelten Hutcs. 2. Basidie. 3. Sporen. 4. Hyphen der Huthaut. 5. Endzellen dieser Hyphen. 6. Caulocystiden. Abb. 1 (x 5) vergrößert, Abb. 2–6 (x 700).

Figs. 1–6: *Mycena rhenana* (type). 1. Habit of an adult umbilicate pileus. 2. Basidium. 3. Spores. 4. Hyphae of the pileipellis. 5. Terminal cells of these hyphae. 6. Kaulozystiden. Fig. 1 (x 5), Figs. 2–6 (x 700).

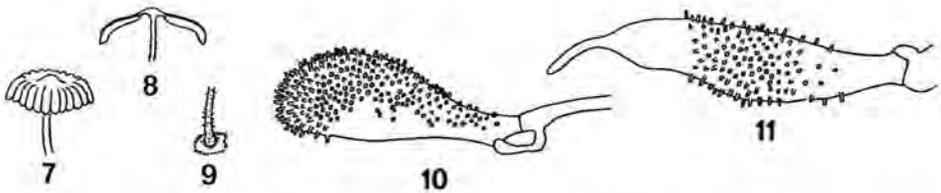


Abb. 7–11: *Mycena rhenana* (Winterhoff 84253). 7. Habitus eines Fruchtkörpers (getrocknet). 8. Fruchtkörper-Längsschnitt. 9. Unterer Teil eines Stieles mit Basalscheibe. 10. Endzelle einer Hyphe aus der Huthaut. 11. Endzelle einer Hyphe aus der Huthaut vom Hutrand. Abb. 7–9 (x 5) vergrößert; Abb. 10 und 11 (x 700).

Figs. 7–11: *Mycena rhenana* (Winterhoff 84253). 7. Habit of a carpophore (exsiccatus). 8. Carpophore longitudinal section. 9. Lower part of a stipe with basal disc. 10. Terminal cell of a hypha of the pileipellis. 11. Terminal cell of a hypha of the pileipellis from cap margin. Figs. 7–9 (x 5); Figs. 10 and 11 (x 700).

Studies in Mycenas 177Section *Radiatae* remodelled

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Section *Radiatae* is redefined and considered to be monotypic. The microscopic features of its type species, *Mycena radiata*, are redescribed. The binomial *Mycena radiata* is validated, *Mycena aosma*, *M. chlorinosma* (partly redescribed), and *M. indica*, thus far taken to be members of section *Radiatae*, are excluded from this section.

Section *Radiatae* as conceived by Singer is a group of Mycenas comprising tropical and subtropical species. I would have left this section severely alone if it were not for *Mycena indica* Sarwal & Rawla, a species recently described from the Himalayan region and, thus, an inhabitant of the Northern Hemisphere. The authors considered their species to be a member of section *Radiatae* [sensu Singer], although some characters of *M. indica* do not seem to be in concordance with those of the section. Since the description of the latter was based on an inadequately described type species - *Corrugaria radiata* Dennis - and Singer later included in his section at least two species - *Mycena aosma* and *M. chlorinosma* - with altogether different features, the correct course seems to be (i) to redefine section *Radiatae*, based on (ii) a redescribed type species, (iii) and to restrict its scope by the removal of such species as can be shown to be alien elements. It must be left to future mycologists to assess *M. dennisii* Sing., *M. squamulosa* Sing., and *M. multicaudata* Sing. which were thought equally to belong to Singer's section *Radiatae*. Finally, at the end of the paper, *Mycena indica* is discussed and shown to have characters ill fitting not only in section *Radiatae* as defined in the present paper but also in the *Radiatae* sensu Singer.

Grateful acknowledgement is made to the authorities of the herbaria at Kew (K) and Leningrad (LE) for the loan of type material. Thanks are also due to the Director of the "Rijksherbarium" for providing working facilities.

MYCENA sect. RADIATAE Sing. emend. Maas G.

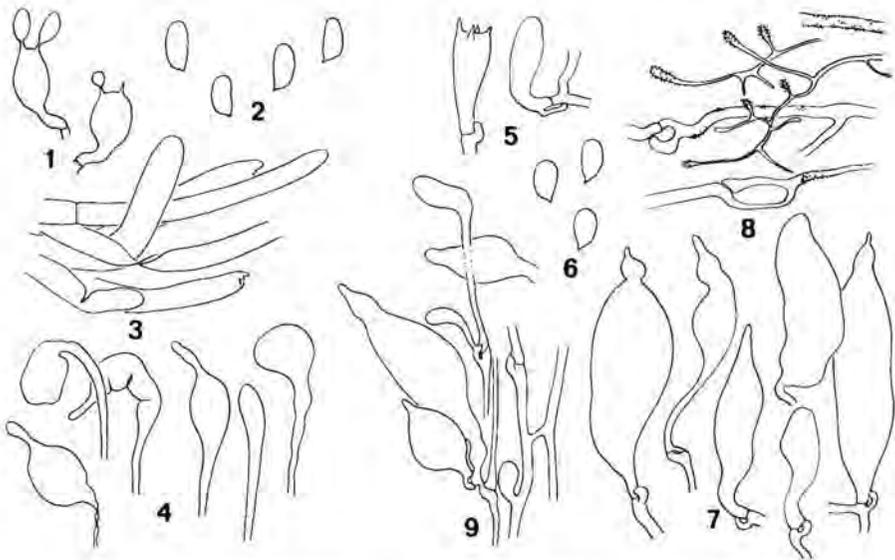
Mycena sect. *Radiatae* Sing. in *Sydowia* 15: 65. 1962 (pr.p.); Agar. mod. Taxon. 3rd ed.: 389. 1975 (pr.p.) – Monotype: *Mycena radiata* (Dennis) Sing. ex Maas G.

Basidiomata medium-sized, without blue pigment. Pileus dry, plicate, centrally squamulose. Flesh thin. Lamellae tender, ascending, free, ventricose, white, with convex, concolorous edge. Stipe hollow, pruinose, white, somewhat enlarged at the base but without basal disc, insititious.

Basidia clavate to subglobose. Spores pip-shaped, smooth, amyloid. Cheilocystidia absent. Lamellar trama not vinescent in Melzer's reagent. Hyphae of the pileipellis smooth, decumbent (forming the 'hairs' on the surface of the pileus). Hyphae of the cortical layer of the stipe smooth, with inflated terminal cells (caulocystidia, forming the pruinosity of the stipe).

On decayed wood.

No mention has been made of clamp connections in this description, as this piece of information may depend on possible other members of the section.



Figs. 1-4. *Corrugaria radiata* (holotype). – 1. Basidia. – 2. Spores. – 3. Decumbent hyphae of the pileipellis. – 4. Terminal cells of hyphae of the cortical layer of the stipe (caulocystidia). All figs., $\times 700$.

Figs. 5-9. *Mycena chlorinosma* (holotype). – 5. Basidia. – 6. Spores. – 7. Cheilocystidia. – 8. Hyphae of the pileipellis embedded in gelatinous matter. – 9. Hyphae of the cortical layer of the stipe and their terminal cells (caulocystidia). All figs., $\times 700$.

***Mycena radiata* (Dennis) Sing. ex Maas G., comb. nov. – Figs. 1–4.**

Corrugaria radiata Dennis in Kew Bull. 1952: 497, fig. 41 [captions to figs. 40 and 41 interchanged!]. 1953 (basonym). – *Mycena radiata* (Dennis) Sing. [in Sydowia 9: 395, 1955; not definitely accepted] in Sydowia 15: 65. 1962 (not val. publ., see Art. 33.2) – Holotype: “*Corrugaria radiata* Dennis / 18 Nov. 1949 / Venezuela: Rio Chacaito / R.W.G. Dennis 395” (K).

Pileus up to 40 mm across, at first cylindrical, then conical, apparently flattening when expanding, plicate, translucent-striate, minutely squamulose at the centre, clay-coloured to brown. Flesh thin, white. Odour not recorded. Lamellae subdistant, tender, ascending, free, broad, ventricose, white, with convex, concolorous edge. Stipe 2–4 mm wide, hollow, equal, terete, straight, pruinose, white, the base somewhat enlarged, apparently insititious.

Basidia 13.5–16 × 7–8 μm, clavate to subglobose, usually stalked, 2-spored, without clamp, with sterigmata up to 2.7 μm long. Spores 8.1–9.8 × 3.6–4.5 μm, elongated pip-shaped, almost cylindrical, smooth, very strongly amyloid. Cheilocystidia and pleurocystidia absent. Lamellar trama not vinescent in Melzer's reagent. Hyphae of the pileipellis 4.5–7 μm wide, clampless, smooth, decumbent (forming the ‘hairs’ on the surface of the pileus). Hyphae of the cortical layer of the stipe 1.3–1.8 μm wide, clampless, smooth, the terminal cells apically inflated (caulocystidia), 5.5–9 μm wide, ellipsoid to globose, sometimes rostrate (forming the pruinosity of the stipe).

On decayed trunks.

The macroscopic description of the species is adapted from Dennis' and complemented by my own observations on the dried material. The microscopic details are based on reexamination of the holotype.

I incline to the view that section *Radiatae* should be retained as monotypic until the other species enumerated by Singer have been reinvestigated.

In the following lines, *Mycena aosma* Sing. is discussed, while the microscopic features of *M. chlorinosma* are redescribed.

MYCENA AOSMA Sing.

Mycena aosma Sing. in Beih. Sydowia 7: 37. 1973. – Holotype: B 4265, not seen (BAFC).

The stipe of *M. aosma* was described as “basi discoideo-dilatata radianter fibrillosa” and “substrato affixo hyphis discum fere formantibus,” whereas Singer (1975) in describing his sect. *Radiatae* stated the “Stipe [to be] not broadened into a disc at the base which is insititious, or subinsititious [with no mention of radiating fibrils].” The tramal hyphae of *M. aosma* were said to be “fibulatis” with no further comment; in the description of sect. *Radiatae*, the tramal hyphae are “with irregular and inconstant clamp connections.” The cheilocystidia in *M. aosma* appear to be well-developed; those in sect. *Radiatae* often absent. The elements which make up the epicutis of the pileus in *M. aosma* were claimed to be “acanthophysoide diverticulatis,” whereas those of sect. *Radiatae* were described as non-diverticulate. The hypoderm in *M. aosma* was said to be gelatinous with “laxe dispositis” hyphae; no such description was given in sect. *Radiatae*.

From the foregoing it is impossible to maintain *Mycena aosma* as a member of section *Radiatae*.

MYCENA CHLORINOSMA Sing. – Figs. 5–9.

Mycena chlorinosma Sing. in Revue Mycol. 2: 232. 1937. – Holotype: “*Mycena chlorinosma* Sing. / 5. 1937 / Leningrad Ad ollas plantarum in calidario Cycadinearum in Horto / R. Singer” (LE).

Pileus 25 mm across, hemispherical to convex, deeply sulcate up to the smooth disc, viscid, glabrous, faintly grey-brown. Flesh very thin. Odour strongly of chlorine. Lamellae c. 40 reaching the stipe, tender, ascending, almost free but each lamella corresponding with a line decurrent on the stipe, 2 mm broad, not furcate, white or whitish, the edge concolorous. Stipe 35 × 2–3 mm, hollow, dry, puberulous above, glabrescent farther below, shiny, white, reddish brown to dark red-brown towards the base, the base apparently without fibrils, broken away, presumably rooting.

Basidia 20–24 × 5.5–7 μm, clavate, 4-spored, clamped, the sterigmata not seen fully grown. Spores (possibly not quite mature) 6.7–7.4 × 4.3–4.5 μm, pip-shaped, smooth, amyloid. Cheilocystidia 23–52 × 5.5–15 μm, forming a sterile band (lamellar edge homogeneous), clavate, subfusiform, subcylindrical, clamped, smooth, with obtuse, acute, or acuminate apex. Pleurocystidia absent. Lamellar trama brownish vinescent in Melzer's reagent. Hyphae of the pileipellis 0.9–2.7 μm wide, clamped, radiately aligned, branched, smooth, in places covered with grains of pigment, the narrower side-branches apically somewhat enlarged, covered with pigment grains, the whole embedded in a thick gelatinous layer up to c. 200 μm. Hyphae of the cortical layer of the stipe 1.5–2.7 μm wide, clamped, branched, smooth, not embedded in a gelatinous layer, laterally and terminally producing inflated cells (the caulocystidia), clavate to fusiform, 18–70 × 7–11.5 μm.

On vegetable debris in a hothouse.

The macroscopic description of the species is adapted from Singer's and complemented by my own observations on the dried material. The microscopic details are based on reexamination of the holotype.

As in the case of the preceding species, there can be no doubt that *M. chlorinosma* must be excluded from section *Radiatae*.

MYCENA INDICA Sarwal & Rawla.

Mycena indica Sarwal & Rawla in Current Sci. 52: 564, fig. 1. 1983. – Holotype: no. 100405, not seen (PAN).

This species was said to have “subdecurrent or decurrent, ochraceous” lamellae. Although Singer in his diagnosis of section *Radiatae* made no mention of the lamellae, these are without exception free and white in *Mycena radiata*, *M. dennisii* Sing. (*Corrugaria alba* Dennis, 1953: 497), *M. aosma* Sing. (l.c.), *M. chlorinosma* Sing. (l.c.), *M. multicaudata* Sing. (1973: 44), and *M. squamulosa* Sing. (1962: 63). All hyphae of *M. indica* were described as being devoid of clamps, but those of section *Radiatae* were stated to be “saepe fibulis inconstantibus praeditis.” Sarwal & Rawla described the hairs of the pileus in their species with “thick-walled apex,” a character not mentioned by Singer and definitely not applicable to the type species, *M. radiata*.

These differences permit of only one conclusion: *Mycena indica* does not belong to section *Radiatae*. I am not now prepared to suggest another disposition, however.

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Wie sieht *Mycena leptocephala* aus?

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Key Words: *Basidiomycetes, Tricholomataceae, Mycena; M. leptocephala.*

Abstract: The original description of *Agaricus leptocephalus* is tested for possible conformity with such species like *Mycena abramsii*, *M. algeriensis*, *M. jacobi*, *M. strobilicola*, *M. viridimarginata*, and *M. renati*, but is shown to differ. *Mycena chlorinella* is demonstrated to be synonymous with *M. leptocephala*. A redescription of *Mycena leptocephala* is given.

Zusammenfassung: Die Originalbeschreibung von *Agaricus leptocephalus* wird mit den Beschreibungen von *Mycena abramsii*, *M. algeriensis*, *M. jacobi*, *M. strobilicola*, *M. viridimarginata* und *M. renati* verglichen, aber zeigt sich verschieden. Es wird nachgewiesen, daß *Mycena chlorinella* und *M. leptocephala* Synonyme sind. Eine Neubeschreibung von *M. leptocephala* wird gegeben.

Der Name *Mycena leptocephala* dürfte manchen Mykologen weniger geläufig sein als *Mycena chlorinella*, doch beziehen sich beide auf die gleiche Art. Über das Epithet *chlorinella* werde ich mich im Laufe dieser Arbeit kurz äußern.

Die Art wurde erstmals von Persoon (1800: 48) als *Agaricus leptocephalus* beschrieben und abgebildet. Fries (1815: 31) fand sie auch in Schweden und gab eine weitgehend übereinstimmende Beschreibung. Eine viel kürzere veröffentlichte Fries später in seinem „Startingpoint“-Buch (1821: 143) und legalisierte somit das Epithet *leptocephalus*, auch wenn er damals dieses Taxon nicht als eine selbständige Art anerkannte, sondern als Unterart. (Statt „legalisiert“ heißt es heutzutage „sanktioniert“, und man schreibt auch nicht mehr Pers. ex Fr., sondern Pers.: Fr.). 1876 schließlich wurde die Art von Gilliet (1876: 267) in die Gattung *Mycena* versetzt und heißt seitdem *Mycena leptocephala* (Pers.: Fr.) Gilliet. Weil der Urbeschreibung so großen Wert beigemessen werden muß, wird sie hier wörtlich wiedergegeben.

„*A[garicus]* totus cinereus, pileo membranaceo tenuissimo subumbonato sulcato, margine repando, lamellis crassiusculis distinctis emarginato-adnexis, stipite cavo glabro.

Crescit rarissime ad truncos, in sylvis quercinis.

Stipes unc. 1 et ultra longus, 1 1/2–2 lin. crassus, nullas radículas emittit.

Lamellae duas fere lineas latae, nitidae, obscure cinerae, margine albicantes.

Pileus unc. 1 latus, expansus, plano-convexus, subflexuosus, sulcis latis distinctus, opacus, substantia tenuissimus, fragilis pellucidus, e longinquo subtomentosus apparet sed glaber est.

Sapor ingratus. Odor fere spiritus nitrí“.

Auch das ursprüngliche Habitusbild wird hier reproduziert (Abb. 1); es wird sich zeigen, daß der Abbildung noch eine wichtige Einzelheit entnommen werden kann.

Zwischendurch muß ich hier auf eine meiner früheren Arbeiten zurückgreifen (Maas Geesteranus 1980: 172), in der ich behauptete, Fries habe den Persoon'schen Satz „crescit rarissime ad truncos“ falsch verstanden. Ich muß diese Auffassung zurücknehmen, aber wichtige Folgen hat diese Änderung nicht.

Drei Tatsachen können aus der Urbeschreibung hervorgehoben werden:

1. *Agaricus leptocephalus* wuchs auf Laubholz; 2. der ganze Pilz war aschgrau („totus cinereus“); 3. und hatte einen nitrösen Geruch („Odor fere spiritus nitri“).

Da erhebt sich als erste Frage: wie muß man sich die Farbe des jungen Fruchtkörpers von *leptocephalus* vorstellen? Zwar sagte P e r s o o n „cinereus“, also ein helles Grau, aber wie sowohl aus der Beschreibung („Pileus . . . expansus, plano-convexus“) als der Abb. hervorgeht, war der von P e r s o o n gesammelte Pilz schon reichlich alt. Junge Fruchtkörper sind bei *Mycena* aber bekanntlich meist viel dunkler als die ausgewachsenen und hellen erst allmählich auf, sind dazu oft auch mehr oder weniger anders gefärbt, bei den grauen Arten z. B. vielfach mit einem Stich ins Braun. Es dürfte daher nicht allzu dreist sein anzunehmen, daß der junge *leptocephalus* (dessen Altersform P e r s o o n beschrieb) nicht nur dunkler war, sondern auch bräunliche Töne aufwies.

Die Hauptfrage lautet nun: gibt es in Europa noch weitere graubraune *Mycena*-Arten, die auf (Laub)holz wachsen und nitrös riechen? Es muß dabei angenommen werden, daß P e r s o o n in den beiden Teilen seiner Icones wirklich nur europäische Pilze berücksichtigt hat und zwar aus der Umgebung seines damaligen Wohnortes Göttingen. Es ist dies allerdings eine Vermutung, welche aber auf der Hand liegt und auch nirgends widersprochen wird.

Tatsächlich gibt es mehrere solche Arten, und eine Untersuchung nach einer möglichen Verwechslung ist deshalb nicht überflüssig. Untenstehend werden sie der Reihenfolge nach diskutiert; sie gehören fast alle der Sektion *Fragilipedes* (Fr.) Qué. an.

1. *Mycena abramsii* (Murrill) Murrill (= *M. praecox* Vel.). — P e r s o o n hatte den Eindruck, daß aus einiger Entfernung betrachtet der Hut seiner Art feinhaarig war („e longinquo subtomentosus apparet“), und damit zielte er wahrscheinlich auf die Bereifung der Hutoberfläche hin. Mit dieser Annahme steht im Einklang, daß der Hut als matt, glanzlos („opacus“) beschrieben wurde. Auch *Mycena abramsii* hat einen (am Anfang) bereiften Hut, der aber nachher etwas glänzend wird („d'abord faiblement pruineux-mat, puis ± luisant“; K ü h n e r (1938:482). Auch S m i t h (1947: 239) beschrieb den Hut von *M. abramsii* mit einer anfänglich bereiften Oberfläche, welche aber „soon naked“ wird. Des weiteren beschrieben sowohl K ü h n e r („à saveur douce“) als S m i t h („taste not distinctive“) den Geschmack als mild (oder unbedeutend), jedenfalls nicht wie P e r s o o n als unangenehm („ingratus“). Auf Grund dieser Unterschiede glaube ich zur Annahme berechtigt zu sein, daß P e r s o o n 's Beschreibung sich nicht auf *Mycena abramsii* bezieht.

2. *Mycena algeriensis* Maire apud Kühn. — Der Hut dieser Art ist frisch dunkel bis sehr dunkel, ändert sich aber mit der Zeit in „isabelle ou gris jaunâtre“ (M a i r e); also in gelbliche Töne, die nicht mit P e r s o o n 's Beschreibung übereinstimmen. Das Fleisch ist nicht „fragilis“ wie bei *A. leptocephalus*, sondern „± élastique, peu fragile“ (M a i r e). Der Stiel von *M. algeriensis* wurde sogar als „fibro-cartilagineux élastique“ beschrieben, eine Konsistenz, welche P e r s o o n bei seinem Material doch sicher aufgefallen sein müßte. Schließlich wurde der Geschmack bei *M. algeriensis* mild genannt. Eine Gleichstellung von *M. algeriensis* mit *A. leptocephalus* ist daher nicht anzunehmen.

3. *Mycena jacobi* Maire (= *M. pseudo-galericulata* J. E. Lange). — Meine Studien über die Frage der eventuellen Identität von *M. jacobi* und *M. niveipes* (Murrill) Murrill (ursprünglich aus Nord-Amerika beschrieben) waren beim Schreiben dieser Zeilen nicht abgeschlossen, weshalb ich vorläufig den Artnamen *jacobi* verwende, auch schon darum, weil wir uns hier ja mit europäischen Arten befassen. Laut der Beschreibung von L a n g e (1914: 22) sind die Lamellen seiner *M. pseudo-galericulata* (später von M a i r e in *M. jacobi* geändert) weißlich, also nicht „obscure cinereae, margine albicantes“ wie bei *A. leptocephalus*. Obwohl L a n g e eine genaue Beschreibung des Hutes von *M. pseudo-galericulata* gab, erwähnte er mit keinem Wort ein Merkmal, das von P e r s o o n bei *A. leptocephalus* nachdrücklich betont wurde: „Pileus . . . sulcis latis distinctus“. Nach obigen Erwägungen scheint es kaum zweifelhaft, daß auch *Mycena jacobi* nichts mit *A. leptocephalus* zu tun hat.

4. *Mycena strobilicola* Favre & Kühn. apud Kühn. — Es ist ohne weiteres klar, daß P e r s o o n mit seiner Beschreibung nie einen Pilz gemeint haben kann, der durch seinen Wuchs auf (meist vergrabenen) Fichtenzapfen ausgezeichnet ist. Außerdem schrieb K ü h n e r (1938: 462) von *M. strobilicola*, daß der Hut nie „striè-pellucide“ sei.

5. *Mycena viridimarginata* P. Karst. — Hin und wieder kommen bei dieser Art Fruchtkörper vor, deren Lamellenschneide ungefärbt ist (S c h w ö b e l, 1981). In solchen Fällen wäre eine Verwechslung mit *A. leptocephalus* durchaus möglich, aber es gibt einige Unterschiede. K a r s t e n fand seine Exemplare auf Kiefernholz, nicht wie *A. leptocephalus* in Eichenwäldern („in sylvis quercinis“). Sowohl Hut als Stiel bei *M. viridimarginata* wurden mit gelblichen Farbtönen beschrieben, nicht mit den grauen (oder eventuell bräunlichgrauen) Farben von *A. leptocephalus*. Die Lamellen sind bei *M. viridimarginata* angeheftet („adnatae“), während dieselben bei *A. leptocephalus* als „emarginato-adnatis“ bezeichnet wurden. Auch die Farbe der Lamellenflächen sieht bei *A. viridimarginata* („alboglaucescentes“) wesentlich anders aus als bei *A. leptocephalus* („obscura cinerea“). *Agaricus leptocephalus* und *Mycena viridimarginata* sind folglich zwei deutlich verschiedene Arten.

6. Zum Schluß sei noch kurz *Mycena renati* (Sektion *Rubromarginatae*) erwähnt, eine Art mit einem gelegentlich nitrosen Geruch und mit Lamellen, bei denen unter Umständen die rote Farbe der Schneide fehlen kann. Es ist aber ausgeschlossen, daß P e r s o o n diese Art gemeint haben sollte, weil doch der Stiel bei *M. renati* satt gelb ist. Nachdem nun oberstehende Arten ausgeschaltet worden sind (bisweilen, das muß ich gelten lassen, aus ziemlich schwachen Gründen), bleibt das unsichere Gefühl, daß vielleicht *A. leptocephalus* makroskopisch doch nicht immer wiederzuerkennen ist. Ein Hinweis dafür, daß eine Verwirrung durchaus möglich war, ist die von J. E. L a n g e (1914: 21, Taf. 1 Fig. 6) veröffentlichte Aufstellung einer neuen Varietät, *Mycena alcalina* var. *chlorinella*. Nach den in L a n g e's Schlüssel und Beschreibung angeführten Merkmalen wären seine var. *chlorinella* und *M. leptocephala* so zu unterscheiden, in dem die erstere nitros riecht und in tiefem Moos gefunden wurde, während die zweite einen angeblich sehr schwachen nitrosen Geruch hat, einen „grooved, not pellucido-striate“ Hut besitzt, und auf „rotten sticks, mould, etc.“ wächst; kaum verlässliche Unterschiede. S i n g e r (1936: 430) erhob die Varietät zu einer höheren Stufe und nannte die Art *Mycena chlorinella* (J. E. Lange) Sing. Er fügte hinzu, daß *Mycena leptocephala* sensu Ricken die gleiche Art sei. Offenbar war es ihm aber entgangen, daß sich die R i c k e n'sche Beschreibung wesentlich mit der von P e r s o o n deckt, mit anderen Worten, daß *M. chlorinella* und *M. leptocephala* (in der ursprünglichen Deutung) die gleiche Art sind. Die S i n g e r'sche Neukombination ist somit überflüssig (M a a s G e e s t e r a n u s, 1980: 172).

Aus obigen Zeilen läßt sich schon einigermaßen schließen, daß zur Charakteristik einer *Mycena*-Art die Anwendung mikroskopischer Merkmale mindestens erwünscht ist. Diese Feststellung ist nicht neu, aber es wird noch vielfach verkannt, daß nicht mehr Sporen und Cystiden die Hauptsache sind. Vielmehr muß die Aufmerksamkeit auf die Hyphen der Stielrinde gelenkt werden, und zwar auf ihre Terminalzellen, welche sich meist am oberen Stielende vorfinden und dort auch am besten entwickelt sind. Bei *M. leptocephala* kann man diese Zellen ohne Übertreibung sogar als das Hauptmerkmal betrachten. Es würde aber zu weit führen, in diesem Aufsatz einen Schlüssel zu geben, womit *M. leptocephala* sich mit leidlicher Sicherheit herauschälen ließe. Eine kurze Beschreibung sollte genügen.

Fruchtkörper einzeln bis gesellig, mittelgroß. Hut parabolisch bis glockig, meist gebuckelt, gefurcht, durchscheinend gerieft, jung etwas bereift, später kahlend, graubraun, in der Mitte dunkler, bis dunkel sepia braun, am Rand blaß, im Alter ausblassend. Fleisch wässriggraubraun. Geruch nitros (aber nicht selten kaum wahrnehmbar). Lamellen 15–19 den Stiel erreichend, zart, aufsteigend, etwas bauchig, angewachsen, ± dunkel grau, mit einem Sepiastich, Schneide konvex, grauweißlich. Stiel hohl, gebrechlich, bereift oder feinsthaarig, vor allem an der Spitze, sonst kahlend, unten graubraun, oben weißlich, an der Basis weißstrielig.

Basidien vier-sporig, mit Schnallen. Sporen etwa 8–11 x 4,5–6,5 µm, amyloid. Cheilocystiden 36–80 x 8–17 µm, ± spindelförmig, mit kürzerem oder längerem Fortsatz, mit Schnal-

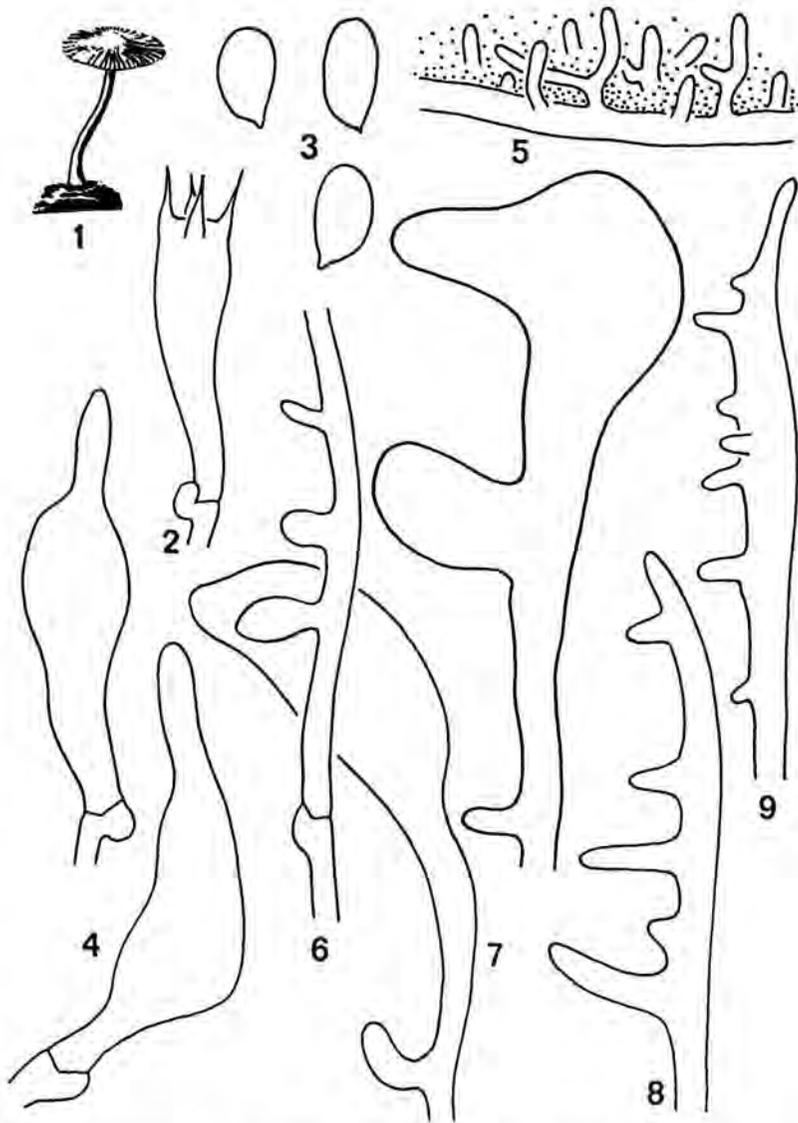


Fig. 1 *Agaricus leptocephalus* Pers. (Icon. Descr. Fung. minus cogn. 2: Taf. 12 fig. 4) – Habitusbild.
 Fig. 2–7. *Mycena leptocephala* (Niederlande: Frau G. J. M. G. Tjallingii, 16.IX.1985; Herb. Leiden). 2 = Basidie. 3 = Sporen. 4 = Cheilozystiden. 5 = Hyphe der Pileipellis. 6 = Hyphe der Stielrinde. 7 = Terminalzellen von Hyphen der Stielrinde.
 Fig. 8, 9 *Mycena aetites*, Terminalzellen von Hyphen der Stielrinde. 8 (Bundesrepublik Deutschland: Frl. I. Wendland, 10.X.1986; Herb. Leiden). 9 (Schweden: S. Rymann 3086; Herb. Uppsala).
 Fig. 2–9: x 1370.

len. Pleurocystiden ähnlich, wenn vorhanden. Lamellentrama sich in Melzers Lösung weinrötlich färbend. Hut haut ein Geflecht aus radiären, fädigen Hyphen, die oberen divertikulat (mit Auswüchsen besetzt). Hyphen der Oberfläche der Stielrinne mit Schnallen, glatt oder mit sehr spärlichen Auswüchsen (ein zu beachtendes Merkmal!) und fädig, die Terminalzellen dagegen ± stark aufgeblasen, vielgestaltig und auswärts abgebogen.

An Baumstümpfen, auf modrigem und oft moosüberzogenem Holz von Laub- sowie Nadelbäumen, auf abgefallenen Ästchen, zwischen Gras und Moos.

Kühner (1938: 468), der die Art als *Mycena metata* sensu Schroeter aufführte, notierte ebenfalls eine weite Skala von Standorten. Kühner's Bestimmungsschlüssel führt nur zu *M. metata* (S. 455), wenn man den Geruch als nitros annimmt. Das trifft aber gar nicht immer zu, wie auch Kühner zugestehen mußte (S. 468): „Chair . . . à odeur nitreuse fugace et pas toujours très prononcée“. Der Geruch ist unter Umständen sogar überhaupt nicht wahrnehmbar und ist deswegen als Trennmerkmal kaum geeignet.

Zum Schluß sei noch daran erinnert, daß Kühner offensichtlich Mühe hatte, bestimmte Formen von *Mycena aetites* (Fr.) Quél. von *M. leptcephala* zu unterscheiden. Wie aus dem Vergleich der Figuren 7, 8 und 9 hervorgeht, ist deutlich, daß die Terminalzellen gute und schnelle Aushilfe bieten können.

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Über zwei auf Koniferenholz wachsende, nitrös riechende Helmlingsarten

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Maas Geesteranus, R. A. & H. Schwöbel (1987): On two nitrous-smelling *Mycenas* inhabiting coniferous wood. Beiträge zur Kenntnis der Pilze Mitteleuropas. III: 145–152.

Key Words: *Basidiomycetes, Tricholomataceae, Mycena; M. stipata, M. silvae-nigrae.*

Abstract: *Agaricus alcalinus* Fr. (1818) cannot be interpreted and is rejected; *A. alcalinus* Fr. (1821) was discussed and rejected by Kubičková & Klán (1981). *Agaricus alcalinus* subsequently described and depicted by Fries in 1867 is a different species, but not valid as it is a later homonym. *Mycena alcalina* sensu Kühner (1938) is a misapplied name, for which *Mycena stipata* Maas G. & Schwöbel is proposed. *Mycena silvae-nigrae*, for many years known only from the type locality, is proposed as a new species.

Zusammenfassung: *Agaricus alcalinus* Fr. (1818) ist nicht zu deuten und wird zurückgewiesen; *A. alcalinus* Fr. (1821) wurde von Kubičková & Klán (1981) besprochen und verworfen. Der später von Fries (1867) beschriebene und abgebildete *Agaricus alcalinus* ist eine andere Art, aber nicht gültig, weil der Name ein späteres Homonym ist. *Mycena alcalina* sensu Kühner (1938) ist ein falsch angewendeter Name und wird ersetzt durch *Mycena stipata* Maas G. & Schwöbel. *Mycena silvae-nigrae* ist eine neue Art, welche bis vor kurzem nur aus dem Schwarzwald und dem Allgäu bekannt war.

Von den zwei hier vorgeführten Arten ist die erste in Europa seit Jahrzehnten bekannt. Zumindest kennt man sie aus Kühner's meisterhafter Monographie (1938), in der diese Art unter dem Namen *Mycena alcalina* präzise beschrieben ist. Weshalb sollten ihr deshalb noch weitere Seiten gewidmet werden? Im Folgenden wird versucht darzulegen, daß mit dem Epitheton *alcalina* mehr als nur eine Kleinigkeit nicht in Ordnung ist.

Die Autorennamen von *Mycena alcalina* sind in der Literatur verschiedenartig notiert worden. So findet man Fr.; (Fr.) Quél.; (Fr.) Kummer; (Fr.: Fr.) Kummer; (Fr.?) sensu Schroeter (wie z. B. bei Kühner, S. 464), während manche Mykologen neuerdings zu der Meinung hinneigen, (Fr.) sensu Kühner wäre die bessere Schreibweise. Diese Meinung ist an sich richtig, hat doch Kühner eine viel genauere Beschreibung gegeben als dies Schroeter in seiner Arbeit (1889: 635) der damaligen Zeit entsprechend tun konnte. Außerdem ist es nicht ohne weiteres sicher, ob die von Schroeter und Kühner verfaßten Beschreibungen sich auf die gleiche Art beziehen. Nach Schroeter wäre die Lamellenschneide „mit pfriemlichen, zugespitzten Cystiden besetzt“, was nicht auf die Kühner'sche Beschreibung zutrifft. Weiter läßt der Satz: „an alten Stämmen usw. Mai–Oktober“ (ohne genaue Andeutung ob Nadelholz oder Laubholz) eigentlich vermuten, daß in der Beschreibung zum Teil auch *Mycena abramsii* (Murrill) Murrill inbegriffen sein könnte. So läßt es sich verstehen, daß die Bezeichnung „sensu Kühner“ vorzuziehen

ist . . . falls man sich nicht weiter um das Problem kümmern möchte. Und dieses sieht folgendermaßen aus:

F r i e s (1818: 153) beschrieb zum ersten Mal *Agaricus alcalinus* als etwas büschelig („subcaespitosus“) auf alten Stämmen wachsend („ad truncos vetustos“), mit einem starken, nitrosen Geruch („graveolens, odore forti nitroso“) und mit einem gelben Stiel („stipite flavo“). Wenige Zeilen weiter heißt es, der Stiel sei [nicht gelb, sondern] gelblich („Stipes flavescens“). Eine weitere Beschreibung (F r i e s , 1821: 142) führte bei späteren Autoren zu großer Verwirrung, weil angegeben wurde, daß erstens die Art einzeln, herdenweise oder büschelig vorkommen kann („solitarius, gregarius, caespitosus“), zweitens auf der Erde und an Stämmen wachsend („Ad terram & truncos“) und drittens einen leuchtend gelben [aber auch] grauen Stiel haben soll („[colore] stipitis luteo!, cinereo“). Es ist klar, daß F r i e s 1821 keine gute Vorstellung seiner eigenen, 1818 beschriebenen Art mehr hatte, eine solche vielleicht auch kaum mehr haben konnte. Dies ist keineswegs ein Vorwurf: Arten der Sektion *Fragilipedes* gehören zu den schwierigsten der Gattung *Mycena* und brauchen zu ihrer Unterscheidung eben mehr als eine zu kurze und dazu nur makroskopische Beschreibung.

K u b i ě k o v á & K l á n (1981: 34) erkannten die Verwirrung und versuchten die Schwierigkeit so zu lösen, daß sie den 1821 publizierten Namen *Agaricus alcalinus* unbedingt ablehnten (dem wir völlig beistimmen), und den gelbstieligen „1818-A. *alcalinus*“ als Synonym der *Mycena viridimarginata* P. Karst. unterordneten. Das ist aber, unter den heutigen Nomenklaturregeln, regelwidrig. Es ist auch deshalb nicht richtig, weil der ursprüngliche *Agaricus alcalinus* und die *Mycena viridimarginata* als zwei spezifisch verschiedene Arten angenommen werden müssen. Die letztere hat nicht wie *A. alcalinus* einen aschgrauen („cinereus“) Hut, höchstens einen bräunlichgrauen, und ihr Stiel ist bestimmt nicht, wie bei *A. alcalinus*, zäh („tenax“). Überdies würde ein Satz wie: Fleisch des ganzen Pilzes immer trocken („Substantia totius fungi semper sicca“) für eine Art wie *Mycena viridimarginata* höchst befremdend anmuten. Was F r i e s mit seinem „1818-*alcalinus*“ gemeint hat, ist wirklich schwer zu sagen, oder gar unmöglich. Das Epitheton wird immer zweifelhaft bleiben und ist somit zu streichen. Nicht selten hat man versucht, schwierig zu deutende Arten von F r i e s so zu interpretieren, daß man auch (oder sogar: nur) seine späteren Arbeiten zu Rate zog. Die Frage drängt sich natürlich auf, warum nicht auch hier der gleichen Richtschnur gefolgt wird, um damit doch noch einen von altersher bekannten Namen zu retten. Schon K ü h n e r (1938: 467) schrieb: „... la figure des Icones nous rappelle suffisamment notre espèce“. Er zielte auf Tafel 81 Abb. 3 von F r i e s (1867: 88) hin. Tatsächlich ähnelt genannte Abbildung jener Art, welche man in Europa für *Mycena alcalina* hält. Von vornherein sei hier bemerkt, daß F r i e s (l. c.) davor warnt, die Figur sei nicht der echte *A. alcalinus* (1821: 142), sondern eine bisher unbeschriebene (und weiterhin unbenannt gebliebene!) Abart mit dunkel grauen Lamellen und Stiel („Hoc loco datur forma inedita, lamellis stipiteque obscure cinereis“). Ob Abart oder Typus-Art ist in diesem Fall ganz und gar unwichtig, weil mit keinem Wort etwas darüber gesagt wird, ob auch der Hut anders gefärbt ist als 1818 und 1821 beschrieben wurde (nämlich aschgrau). Die Hutfarbe in der Abbildung ist nämlich dunkel sepia-braun! Weiter wird 1867 der ganze Pilz als steif-brüchig („rigido-fragilis“) und der Stiel als etwas schmierig („stipite . . . sublubrico“) beschrieben. Zum Vergleich sei hier die 1821-Beschreibung zitiert: Stiel fest („firmus“), aber kein Wort über eine schmierige Oberfläche. Man kann hier nicht dem Eindruck entkommen, daß es sich um zwei verschiedene Arten handelt, beide mit dem gleichen Epitheton *alcalinus*. Nach den Nomenklaturregeln ist aber der „1867-*Agaricus alcalinus*“ ein späteres Homonym und damit ungültig. Mit dieser Auseinandersetzung wird gezeigt, daß man nicht unbedingt eine eventuelle Deutung bzw. „Rettung“ von späteren Arbeiten des schwedischen Autors erwarten darf. Zu oft wird vergessen, daß F r i e s im Laufe der Zeit sein Spezies-Konzept geändert haben konnte.

Nach den vorangehenden Erörterungen ist jetzt der Weg frei, die Aufmerksamkeit auf die von K ü h n e r beschriebene *Mycena alcalina* zu lenken. In Europa ist diese unterschied-

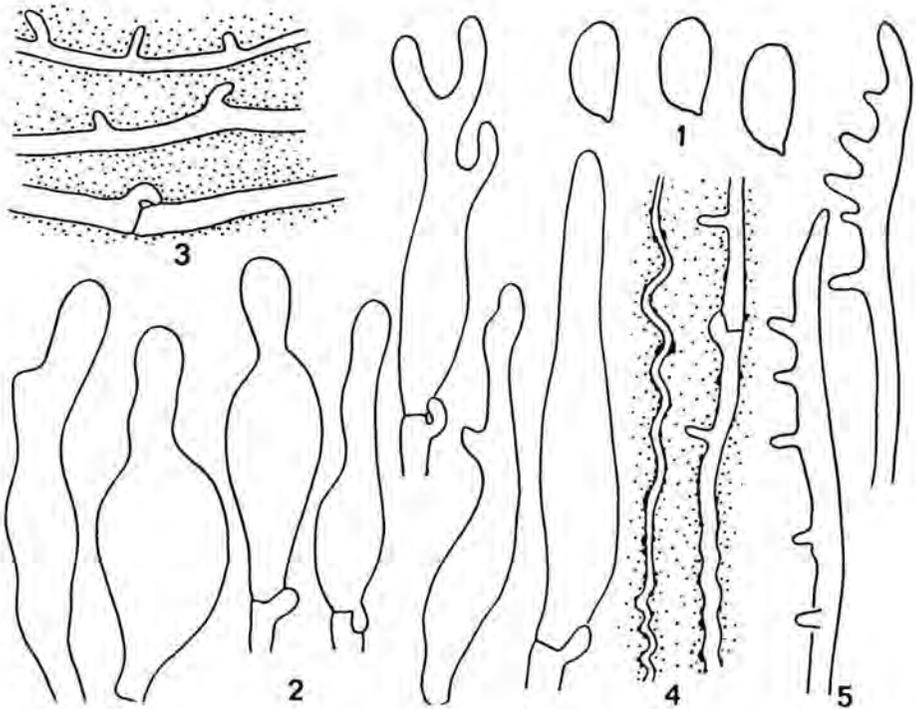


Fig. 1-5. *Mycena stipata* (Holotypus; Herb. Uppsala). 1 = Sporen. 2 = Cheilozystiden. 3 = Hyphen der Pileipellis. 4 = Hyphen der Stielrinde. 5 = Endzellen der Stielrindehyphen.
Fig. 1-5: x 1370.

lich gut bekannt. Ohne Frage schlecht bekannt ist sie bis heute im deutschen Sprachgebiet, weil es hier keine ausführliche und zutreffende Beschreibung und auch keine Abbildung gibt, auf die verwiesen werden könnte.

Eine etwas ausführlichere Beschreibung ist deshalb angebracht, zumal mit dieser einige weniger beachtete Merkmale eingeführt werden. Außerdem hat der Name *Mycena alcalina* sensu Kühner nomenklatorisch keinen Status, weshalb wir den folgenden vorstellen.

***Mycena stipata* Maas G. & Schwöbel¹, n. sp.**

Falsch angewendeter Name: *Mycena alcalina* sensu Kühner, Genre *Mycena*: 464, fig. 154. 1938 („sensu Schroeter“).

B a s i d i o m a t a fasciculata, nonnumquam aggregata. **P i l e u s** usque ad 30 mm latus, conicus vel parabolicus vel campanulatus, plus minusve sulcatus, translucente striatus, leviter pruinosis, glabrescens, humidus, per pluviam lubricus, hygrophanus, obscure sepiaecus, sordide melleus, dein cinerascens, margine pallidus. **C a r o** tenuis, pileo subconcolor, odore nitroso. **L a m e l l a e** 14-19 stipitem attingentes, molles, adscendentes, usque ad 2 mm latae, subventricosae, adnatae, dente brevi decurrentes, leves vel venosae, ex albido cinereae, margine pallidae vel albae. **S t i p e s** 40-70 x 1-2 mm, cavus, fragilis, maxima parte aequalis, cylindraceus, basi curvatus, levis, superne pruinosis, deorsum glaber, tempore pluvioso lubricus, pileo subconcolor, apice pallidior, basi fibrillis crassis albisque praeditus.

B a s i d i a 25-30 x 8-9 μm , clavata, 4-spora, fibulata sterigmatibus, 6,5 μm longis instructa. **S p o r a e** 9,2-11,6 x 5,4-6,3 μm , inaequilateraliter ellipsoideae, leves, amyloideae. **C h e i l o-**

¹ Etymologie: stipatus, dicht gedrängt.

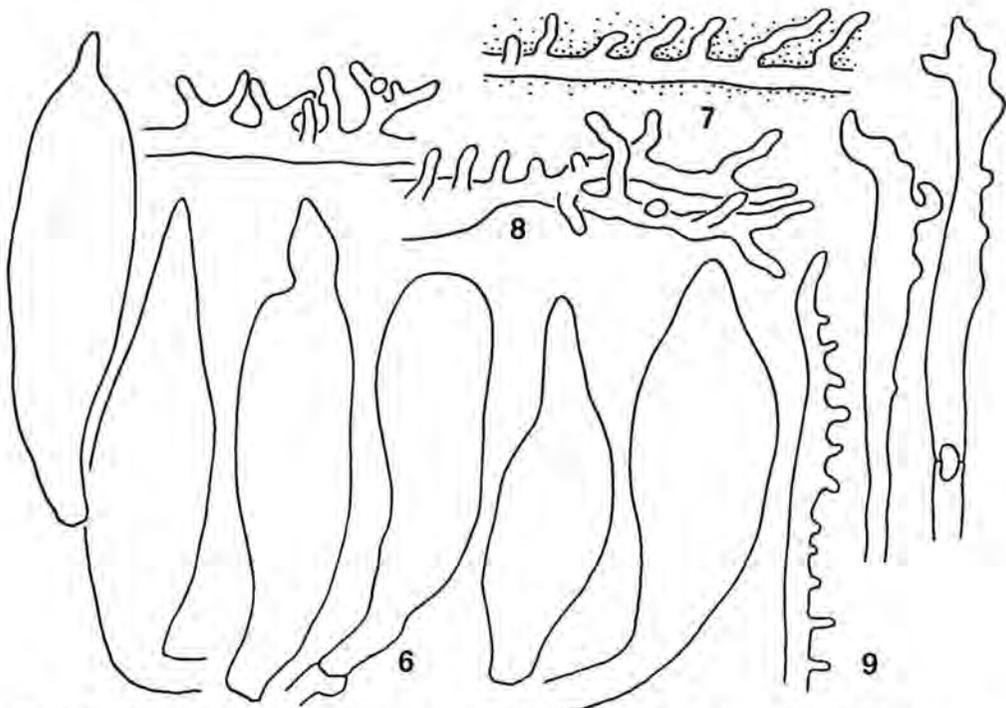


Fig. 6–9. *Mycena stipata* (Tschechoslowakei: C. Bas 2150; Herb. Leiden). 6 = Cheilocystiden. 7 = Hyphen der Pileipellis-Oberfläche. 8 = Tieferliegende Hyphen der Pileipellis. 9 = Endzellen der Stielrindehyphen. Fig. 6–9: x 1370.

cystidia 35–60 x 6–18 x 0–8 μm , fusiformia, subcylindracea, conica, lageniformia, utriformia, etiam clavata, fibulata, apice mucronata vel vulgo in collum attenuata. Pleurocystidia nulla (an perrara?). Trama lamellarum iodi ope brunneovinescens. Hyphae pileipellis 1,8–4,5 μm latae, fibulatae, in materia gelatinosa immersae, leves vel surculis simplicibus vel ramosis munitae. Hyphae stipitis corticales 1,3–3,5 μm latae, fibulatae, in materia gelatinosa immersae, leves vel sparse diverticulatae, cellulae terminales 1,8–5,5 μm latae.

Ad lignum coniferarum.

Holotypus: Lundell & Nannfeldt, Fungi exs. suec., praes. upsal. 1742 („*Mycena alcalina*“, UPS).

Deutsche Beschreibung:

Fruchtkörper büschelig, nicht selten die Büschel dicht gedrängt. Hut bis 30 mm breit, wenigstens anfangs höher als breit, kegelig bis parabolisch oder glockig, \pm deutlich gefurcht, durchscheinend gestreift, leicht bereift, kahlend, feucht, bei Regenwetter \pm schmierig, hygrophan, jung schwärzlich braun, dunkel sepiabraun, dann in der Farbe aufgehellend, braun-beige, lehmfarben, schmutzig honigfarbig, gelblich grau, schließlich graulich, mit blassem Rand. Fleisch dünn, dem Hut ungefähr gleichfarbig. Geruch nitrös (auch empfunden als alkalisch oder nach Chlor), kräftiger im Schnitt. Lamellen 14–19 den Stiel erreichend, zart, aufsteigend, bis 2 mm breit, etwas bauchig, am Stiel angewachsen, mit einem kurzen Zahn herablaufend, glatt, später aderig und am Grund aderig verbunden, zuerst weißlich, später grau, mit blasser oder weißlicher Schneide. Stiel 40–70 x 1–2 mm, hohl zerbrechlich, zum größten Teil gleichdick, zylindrisch, unten gekrümmt, glatt, oben bereift, weiter nach unten kahl, bei feuchtem Wetter schwach klebrig oder etwas schlüpfrig, dem Hut ungefähr gleichfarbig, die Spitze blasser, blaß gelblich grau oder etwas mehr ockergelb, das Stielende weißzottig. Basidien 25–30 x 8–9 μm , keulig, 4sporig, mit Schnalle und mit etwa 6,5 μm langen Sterigmen. Sporen 9,2–11,6 x 5,4–6,3 μm , apfelkernförmig, bisweilen etwas länglich, glatt, farblos, amyloid. Cheilocystiden 35–60 x 6–18 x 0–8 μm , einen sterilen Streifen bildend (Lamellenschneide homogen), spindelförmig, subzylindrisch, kegelig, flaschenförmig oder nicht selten keulig, mit Schnalle, apikal mit kurzer Spitze oder in einen einfachen bis gegabelten Schnabel verlängert, nicht selten aber

breit abgerundet. Pleurozystiden fehlend (oder äußerst selten?). Lamellentrama in Melzer-Reagens bräunlich weinrot. Hyphen der Pileipellis 1,8–4,5 µm breit, mit Schnallen, in einer gelatinösen Masse eingebettet, die oberflächlichen, sehr dünn und glatt oder mit vereinzelt, einfachen oder schwach verästelten, zylindrischen Auswüchsen etwa 2,7 x 1–1,8 µm, die tieferen Hyphen nicht selten mit dichter gedrängten und/oder stärker verästelten Auswüchsen. Hyphen der Stielerinde 1,3–3,5 µm breit, mit Schnallen, in einer gelatinösen Masse eingebettet, glatt oder mit vereinzelt bis wenigen, einfachen oder etwas verästelten, zylindrischen Auswüchsen –9 x 0,9–1,8 µm, die Endzellen der Hyphen 1,8–5,5 µm breit, mit ± kräftigen Auswüchsen, 3,5–15,5 x 1,8–2,5 µm.

Sehr zerstreut und allgemein nicht häufig, an totem Koniferenholz (*Pinus*, *Picea*, wahrscheinlich auch *Abies*), von Ende August bis Anfang November.

Die Art war Kühner (als *M. alcalina*) aus verschiedenen Gegenden Frankreichs bekannt. Sicherlich hat sie in Europa eine weite Verbreitung. Außer Schweden (Holotypus) gibt es im Leidener Herbarium kontrollierte Funde aus der Bundesrepublik, den Niederlanden, Österreich und der Tschechoslowakei.

Die zweite Art ist ebenfalls eine nov. spec., für die bisher kein passender Name gefunden werden konnte. Wir stellen vor:

Mycena silvae-nigrae Maas G. & Schwöbel², n. sp.

Basidiomata solitaria vel fasciculata. **Pileus** (5–)10–35(–45) mm latus, initio anguste parabolicus campanulatusve et plerumque acuto-umbonatus, deinde obtuso-umbonatus vel obtusus, plus minusve sulcatus et translucente striatus, albido-pruinosis, glabrescens, subhygrophanus, primo fere atrobrunneus, deinde obscure sepiaceus, sensim clarius, postremo saepe ferrugineomaculatus, margine concolor. **Caro** tenuis, supra pileo concolor, odore nitroso. **Lamellae** (15–)17–30 stipitem attingentes, molles, adscendentes, 1,5–2,5 mm latae, subventricosae, adnatae, leves vel postea venosae, ex albido albocinereae, griseolo-brunneolae, postremo ferrugineomaculatae, margine pallidae. **Stipes** 30–120(–140) x 1–3(–4) mm, cavus, moderate fragilis, maxima parte aequalis, cylindraceus, strictus vel plus minusve curvatus, levis, pruinosis, glabrescens, supra primo atrocaeruleus postea albidus, infra pileo subconcolor, basi fibrillis crassis albisque praeditus, nonnumquam radicans.

Basidia 28–35 x (8–)9–11,5 µm, clavata, 2 (rarius 3–) spora, efibulata, sterigmatibus 9–13,5 µm longis instructa. **Sporae** 10,3–15(–17,5) x 7–10(–11) µm, inaequilateraliter ellipsoideae, leves, amyloideae. **Cheliosystidia** 24–65 x 8–19 x 0–7 µm, clavata, fusiformia, lageniformia, obpyriformia vel subirregularia, efibulata, apice obtusa vel in collum attenuata vel surculis crassis praedita. **Pleurocystidia** sparsa. **Trama** lammellarum iodi ope brunneovinescens. **Hyphae** pileipellis 1,8–5,5 µm latae, efibulatae, parietibus subgelatinosis, surculis numerosis, simplicibus vel ramosis, 1,8–20 x 1,8–2,5 µm munitae. **Hyphae** stipitis corticales 1,8–3,5 µm latae, efibulatae, parietibus subgelatinosis, surculis simplicibus vel ramosis 1,8–14,5 x 1,8–2,7 µm instructae, cellulae terminales infrequentes, usque ad 4,5 µm latae, divarticulatae.

Ad lignum praecipue *Piceae* putrefactum.

Holotypus: „Fungi germanici / *Mycena silvae-nigrae* Maas G. & Schwöbel / Baden-Württemberg: nördlicher Hochschwarzwald, Randzone des Naturschutzgebietes Wildseehochmoor bei Kaltenbronn, 13. VI. 1986, H. Schwöbel, an Fichtenstümpfen“ (L).

Deutsche Beschreibung:

Fruchtkörper einzeln, in kleinen Gruppen oder büschelig, im Büschel nicht mehr als 10 Exemplare. **Hut** (5–)10–35(–45) mm breit, am Anfang höher als breit, ziemlich schmalparabolisch oder schmalglockig und häufig spitzwärtig gebuckelt, bisweilen selbst zipfelmützenartig, später ein wenig ausgebreitet, mit rundlichem Buckel oder stumpf abgerundet und mit flach werdendem Rand, ± deutlich gefurcht, wenig bis auffallend durchscheinend gerieft, jung fein weißlich bereift, bald kahl, durchwässert etwas fettig glänzend (aber nicht schmierig), sonst ± matt, unter der Lupe mitunter sehr fein eingewachsen radialfaserig, wenig hygrophan, jung bis fast schwarzbraun, dann dunkel sepiabraun, allmählig auffhellend bis wässrig sepiabraun, seltener etwas graustichig, bei alten Exemplaren oft mit rostigen Flecken und Striemen; der Rand kaum heller, manchmal wellig geschweift. **Fleisch** dünn, dunkelbraun unter der Huthaut, wässrig weißlichgrau weiter unten. **Geruch** entschieden nitros (aber auch als alkalisch beurteilt), kräftiger beim Quetschen des Fruchtkörpers. **Geschmack** ebenso, nach längerem Kauen eigenartig „metallisch“-unangenehm, ± adstringierend. **Lamellen** (15–)17–30 den Stiel erreichend, zart, aufsteigend, 1,5–2,5 mm breit, etwas bauchig, am Stiel angewachsen, glatt, später aderig und am Grund ± queradrig, zunächst weiß

² Etymologie: silvae-nigrae, des Schwarzwaldes.

bis weißlich, gegen die dunkelbraune Hutfarbe scharf abstechend, nach und nach hellgrau bis grau-bräunlich werdend, zuletzt unter Umständen rostbraun- bis braunfleckig, mit hellerer Schneide. Stiel 30–120(–140) x 1–3(–4) mm, zwischen großen Moosen stark verlängert, hohl, mäßig zerbrechlich, zum größten Teil gleichdick, zylindrisch oder auch kanalig abgeflacht, gerade bis ± gekrümmt, glatt, anfangs gänzlich fein bereift, später nur oben bereift, weiter nach unten verkahlend, etwas glänzend (nicht schmierig oder schlüpfrig), bei sehr jungen Fruchtkörpern zur Spitze dunkel stahlblau, allmählich aufgehellend, der obere Teil weißlich, der untere dem Hut etwas heller gleichfarbig, das Stielende weiß-zottig, im modrigen Holz nicht selten tiefwurzeln.

Basidien 28–35 x (8–)9–11,5 µm, schlank-keulig, 2sporig (selten 1- oder 3sporig), ohne Schnalle, mit dicken, 9–13,5 µm langen Sterigmen. Sporen 10,3–15(–17,5) x 7–10(–11) µm, apfelkernförmig, glatt, farblos, ziemlich schwach bis normal amyloid. Cheilozysten 24–65 x 8–19 x 0,7 µm, einen sterilen Streifen bildend (Lamellenschnelle homogen), keulig, spindelförmig, flaschenförmig, umgekehrt birnenförmig bis ± unregelmäßig, ohne Schnalle, apikal abgerundet oder in einen einfachen bis gegabelten Schnabel verlängert oder mit mehreren groben Fortsätzen. Pleurozysten zerstreut, den spindelförmigen Cheilozysten ähnlich. Lamellenrama in Melzer-Reagens bräunlich-weinrot. Hyphen der Pileipellis 1,8–5,5 µm breit, ohne Schnallen, schwach gelatinisiert (feuchte Hutoberfläche daher etwas glänzend), mit zahlreichen bis massenhaft vorkommenden, einfachen bis ± verästelten, ziemlich groben Auswüchsen 1,8–20 x 1,8–2,5 µm. Hyphen der Stielrinde 1,8–3,5 µm breit, ohne Schnallen, schwach gelatinisiert, mit einfachen bis stark verästelten Auswüchsen 1,8–14,5 x 1,8–2,7 µm, die Endzellen nicht allgemein oder schwer zu finden, bis 4,5 µm breit, divertikulat.

An totem Nadelholz, vor allem an stark modrigen *Piceastümpfen*, auch an Reisig, an sehr nassen Stellen im Koniferenwald auch zwischen großen Moosen (*Polytrichum commune*).

Mycena silvae-nigrae ist schon Ende April zu finden, aber das Hauptvorkommen ist in den Monaten Mai und Juni, wenigstens im Schwarzwald vor allem in Höhenlagen ab 500 m. Im Juli wird die Art seltener und kommt im August nur noch vereinzelt vor. Sie wurde im Schwarzwald noch nie an Fichten- oder Kiefernzapfen beobachtet. Die ersten Funde lassen sich im Schwarzwald bis in das Jahr 1952 zurückverfolgen. Eine Bestimmung war u. a. wegen der zweisporigen Basidien nicht möglich. Seit dieser Zeit konnte *Mycena silvae-nigrae* regelmäßig beobachtet werden. In Jahren mit hohen Niederschlagsmengen im Frühjahr und Frühsommer ist sie in manchen Wäldern zu Tausenden zu finden. Im nördlichen Schwarzwald kommen als Verbreitungsschwerpunkte die weiten Wälder um den Wild- und Hohlohsee bei Kaltenbronn in Betracht, sowie die Wälder beiderseits der Schwarzwaldhochstraße. Aus dem Südschwarzwald liegen Funde aus dem Titisee- und Feldbergegebiet vor. Ein einziger gesicherter Fund liegt weitab im Allgäu (Balderschwang bei Oberstdorf, Juli 1968, leg. Schwöbel). Doch ist *Mycena silvae-nigrae* fraglos viel weiter verbreitet. Funde aus dem süddeutschen Raum, etwas aus Bayern, als *Mycena alcalina* bestimmt, legen den Verdacht nahe, daß den Bestimmern wenigstens zum Teil *Mycena silvae-nigrae* vorgelegen hat. Neuerdings kommen Funde aus Südnorwegen hinzu, wie z. B. die schon aus 1982 und 1983 stammenden, aber erst 1986 bestimmten Sammlungen des Herrn O. Weholt (Herb. Weholt und L). Es ist beachtenswert, daß die Art in Norwegen nicht nur auf Fichtenholzabfällen, sondern auch auf Fichtenzapfen gefunden worden ist.

Eventuell könnte *Mycena silva-nigrae* mit *M. viridimarginata* P. Karst. verwechselt werden, die zur gleichen Zeit vorkommt und ähnliche Standortansprüche hat. Beide Arten kommen gelegentlich am gleichen Sumpf vor und können bisweilen ziemlich gleich aussehen. Bei *M. viridimarginata* besitzen aber alle Hyphen und Hymenialelemente Schnallen, die Basidien sind 4sporig, und die Auswüchse an den Hyphen der Stielrinde sehen völlig anders aus. Beachtet man die zweisporigen Basidien und die großen Sporen von *M. silvae-nigrae*, so müßte eine Verwechslung mit anderen nitros riechenden Arten, etwa *Mycena leptocephala* oder *Mycena stipitata*, unmöglich sein. (Vergleiche auch den Aufsatz über *M. leptocephala* in diesem Heft). Kühner (1938: 464) hat eine zwei-sporige Form von *M. strobilicola* Favre & Kühn. beschrieben, welche mehrere Merkmale mit *M. silvae-nigrae* gemeinsam hat. Die Unterschiede sind jedoch unverkennbar, wie aus der folgenden Tabelle hervorgeht.

Es sei hier nebenbei bemerkt, daß Kühner's Form ohne die erforderliche lateinische Diagnose nomenklatorisch nicht gültig beschrieben wurde.

	Hut	Lamellen	Cheilo- zystiden	Pleuro- zystiden	Auswüchse der Pilei- pellis- hyphen
<i>M. strobili- cola</i> „forme bisporique“	weder ge- furcht, noch durchschei- nend gerieft	sehr schmal, weiß	glatt	fehlend	nicht häufig
<i>M. silvae- nigrae</i>	± deutlich gefurcht, wenig bis auffallend durchscheinend gerieft	etwas bauchig, im Alter bisweilen braunfleckig	apikal meist ver- ästelt oder mit groben Auswüchsen	vorhanden	zahlreich bis massen- haft

Gleichwie K ü h n e r eine zweisporige Form einer sonst allgemein viersporigen Art gefunden hat, ist es nicht auszuschließen, daß man sich fragt, ob nicht auch *M. silvae-nigrae* engere Beziehungen mit irgendeiner viersporigen, schon längst bekannten und weitverbreiteten Art haben könnte. Eine solche Art wäre z. B. *Mycena abramsii* (Murrill) Murrill, und

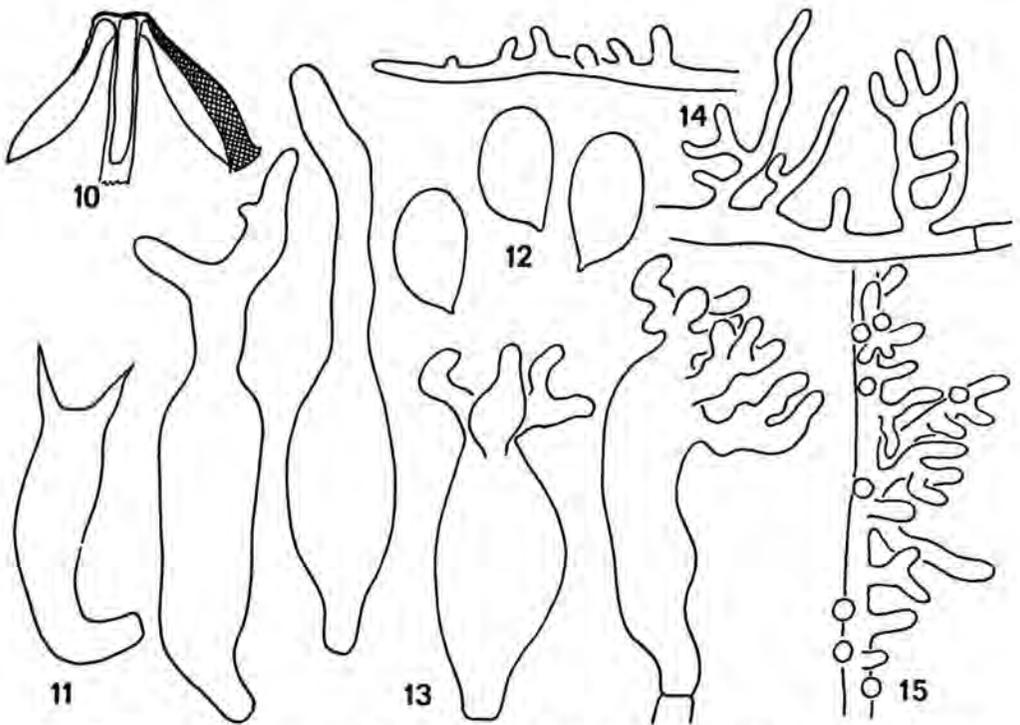


Fig. 10–15. *Mycena silvae-nigrae* (Holotypus; Herb. Leiden). 10 = Längsschnitt. 11 = Basidie. 12 = Sporen. 13 = Cheilozystiden. 14 = Hyphen der Pileipellis. 15 = Hyphe der Stielrinde. Fig. 10: x 2; Fig. 11–15: x 1370.

es ist erstaunlich zu erfahren, wie groß die Übereinstimmung ist. Die unten angeführten Unterschiede beweisen jedoch die Selbständigkeit der beiden Arten. Bei *Mycena abramsii* ist der feuchte Hut schlüpfrig, und trocken ist die Hutfarbe nicht selten gelblich oder oliv getönt; die Lamellen werden bis 4,5 mm breit und im Alter ziemlich stark bauchig, aber nicht braunfleckig; auch der Stiel ist feucht etwas schlüpfrig; die Cheilozystiden verengern sich oberwärts manchmal und dann meist jäh in eine kurze, schmale Spitze (man nennt sie rostrat oder mukronat), während gegabelte oder verästelte Fortsätze eher seltener vorkommen; ölführende Hyphen kommen im Stielinnern in großer Menge vor und fallen sofort auf. Bei *Mycena silvae-nigrae* ist der feuchte Hut nicht schlüpfrig, die Hutfarbe trocken nicht gelblich oder oliv getönt; die Lamellen werden bis 2,5 mm breit, im Alter nur mäßig bauchig, und bisweilen braunfleckig; der Stiel ist feucht nicht schlüpfrig; soweit die Cheilozystiden sich nach oben verengern, ist der Hals nicht stark verschmälert, während gegabelte und/oder verästelte Fortsätze häufig vorkommen; ölführende Hyphen im Stielinnern sind spärlich vorhanden und wenig auffällig. Beide Arten sind durchgehend auch im Geruch verschieden: *Mycena abramsii* riecht rettichartig, zumindest wenn man das Fleisch bzw. die Lamellen kräftig quetscht. Ein nitröser Geruch fehlt meistens oder ist als schwache und flüchtige Beikomponente wahrnehmbar. *Mycena silvae-nigrae* fehlt dagegen der Rettichgeruch, Verschieden sind die Biotope, in denen die beiden Arten vorkommen, weshalb man sie nur ausnahmsweise im gleichen Waldstück antreffen wird.

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MYCENA TRISTIS, A NEW EUROPEAN SPECIES OF SECTION FRAGILIPEDES

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Mycena tristis, collected in Finland and belonging to section *Fragilipedes*, is described as a new species.

The purpose of this note is to draw the attention to a species of the genus *Mycena* kindly sent to me for identification by Mr. U. Söderholm, Tampere, Finland.

The parcel contained, apart from a few brief macroscopic notes and an excellent colour slide, some well-dried specimens which, however, were badly broken in transport. Fortunately this proved in no way an impediment for microscopic investigation, in the course of which the conviction grew that Mr. Söderholm's find represents an as yet undescribed species. Its features identify this species as a member of section *Fragilipedes* (Fr.) Quél.

Mycena tristis Maas. G., *spec. nov.*¹ — Figs. 1–8

Basidiomata sparsa. Pileus usque ad 45 mm latus, conicus, hygrophanus, e atro griseobrunnescens. Caro tenuis, odore indistincta. Lamellae c. 30 stipitem attingentes, obscure griseae, margine albidae. Stipes $-80 \times 3-4$ mm, fragilis, e atro griseobrunnescens vel brunneus, basi fibrillis albis munitus.

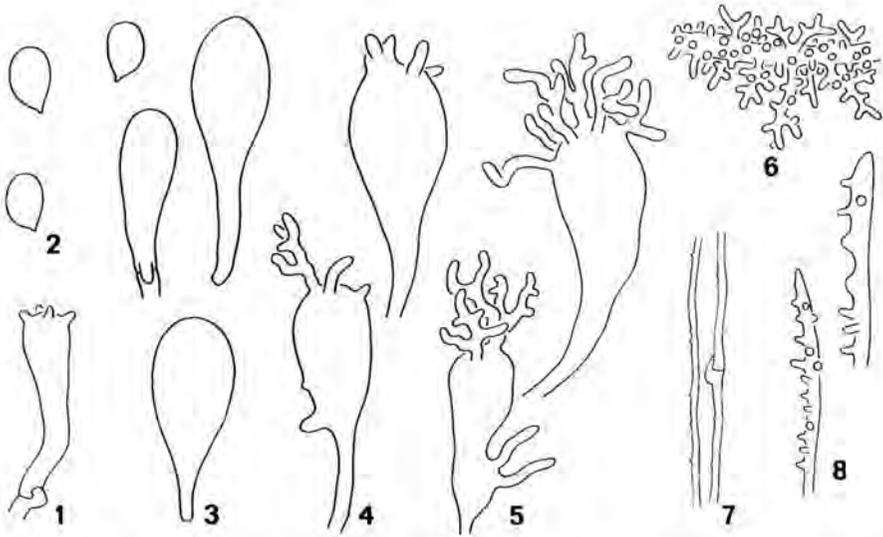
Basidia $35-45 \times 9 \mu\text{m}$, clavata, 4-sporea, fibulata. Sporae $9.1-10.3 \times 6.5-7.2 \mu\text{m}$, amyloideae. Cheilocystidia $35-70 \times 11-22.5 \mu\text{m}$, clavata, fibulata, levia (lamellarum media parte) vel sulcibus versiformibus instructa (pilei marginem versus). Pleurocystidia non visa. Trama lamellarum iodi ope vivescens.

Holotypus: 'Fungi fennici / *Mycena tristis* Maas G. / U. Söderholm 1466 / 4 Oct. 1987 / (province) Etelä-Häme, Kangasala, Vihtinen' (L, no 987.340-241).

Basidiomata scattered. Pileus up to 45 mm across, conical, flattening with age and becoming very shallowly conical with broad, low umbo, shallowly sulcate, translucent-striate, moist, hygrophanous, very dark grey to almost blackish, drying with a more brownish tint. Flesh thin, dark greyish. Odour indistinct, taste not recorded. Lamellae c. 30 reaching the stipe, tender, ascending, up to c. 3.5 mm broad, ventricose, narrowly adnate, smooth, dark grey, more particularly towards the base, the edge convex, whitish. Stipe $-80 \times 3-4$ mm, hollow, fragile, splitting lengthwise, gradually widening towards the base, terete or somewhat compressed, straight to slightly curved, smooth, delicately pruinose above, glabrous farther down, blackish grey when young, then more date brown to grey-brown, paler than the drying pileus, the base densely covered with long, coarse, somewhat woolly, white fibrils.

Basidia $35-45 \times 9 \mu\text{m}$, slender-clavate, 4-spored, clamped, with sterigmata $7-8 \mu\text{m}$ long. Spores $9.1-10.3 \times 6.5-7.2 \mu\text{m}$, fairly broadly pip-shaped, smooth, amyloid. Cheilo-

¹ Etymology: *tristis*, sad; also used to denote a very dark colour.



Figs. 1–8. *Mycena tristis* (holotype). — 1. Immature basidium. — 2. Spores. — 3. Cheilocystidia, taken from about the middle of a lamella. — 4. Cheilocystidia nearer the pileus margin. — 5. Cheilocystidia close to the pileus margin. — 6. Part of a hypha of the pileipellis. — 7. Hyphae of the cortical layer of the stipe. — 8. Terminal cells. (All figs., $\times 700$.)

cystidia $35\text{--}70 \times 11\text{--}22.5 \mu\text{m}$, occurring mixed with basidia, sometimes more crowded but not really forming a sterile band, clavate, clamped, smooth (in the middle part of the lamella) or covered with few (farther towards the pileus margin) to several (close to the pileus margin) unevenly spaced, coarse, simple to furcate or branched, cylindrical, variously curved excrescences $\text{--}20 \times 2\text{--}3.5 \mu\text{m}$ with obtuse tips. Pleurocystidia not observed. Lamellar trama vivescent in Melzer's reagent. Hyphae of the pileipellis $1.5\text{--}3.5 \mu\text{m}$ wide, clamped, covered with scattered to more crowded, simple to branched excrescences $2.5\text{--}15 \times 1\text{--}2 \mu\text{m}$ which may form very dense masses. Hyphae of the cortical layer of the stipe $1\text{--}2 \mu\text{m}$ wide, clamped, smooth or sparsely covered with small warts or more cylindrical excrescences less than $1 \mu\text{m}$ high, the terminal cells (causing the pruinosity at the top of the stipe) $2\text{--}6.5 \mu\text{m}$, covered with simple, cylindrical excrescences $2\text{--}5 \times 2 \mu\text{m}$.

Growing on vegetable debris (containing decayed *Picea* needles) among grass and herbs under *Betula*.

Collection examined. — FINLAND, prov. Etelä-Häme: Kangasala, Vihtinen, 4 Oct. 1987, U. Söderholm 1466 (holotype: L, no 987.340-241).

The macroscopic description of the species is adapted from the collector's notes, complemented by my own observations on the colour slide and the dried material. The microscopic details are based on examination of the type.

The dark colours of the pileus and the lamellae remind one of those in fresh, young specimens of *Mycena leptcephala* (Pers.: Fr.) Gillet, but the latter differs among other

features in the slightly lubricous surface of the wet pileus, the fewer lamellae, and the smooth hyphae of the cortical layer of the stipe with their strikingly inflated terminal cells.

Another dark species with which *M. tristis* conceivably could be confused is *Mycena aetites* (Fr.) Quéf., but the salient characters of this species are the lubricous pileus surface when moist, much fewer lamellae reaching the stipe, and the more pronounced ornamentation of the hyphae of the cortical layer of the stipe.

At the time Mr. Söderholm's material was received, I had finished the revision of section *Fragilipedes* of the Northern Hemisphere (to be published elsewhere) and awaited the galley-proofs. Changes in the manuscript, however desirable, were no longer possible, but the discovery of yet another member of the *Fragilipedes* once again demonstrates that this section (by far the largest and most difficult of the genus) still has surprises in store.

MYCENA USTALIS, A NEW SPECIES FROM SOUTHERN NORWAY

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Mycena ustalis, a member of section *Fragilipedes* and collected in southern Norway, is proposed as a new species. It is compared with some other members of the section.

Searching for agarics in unusual or little frequented types of habitat in southern Norway appears to have its rewards. One such terrain is a tract of land near the sea in the province of Vestfold which is covered with scrub of *Juniperus communis*, *Prunus spinosa*, and *Rosa* sp. In an area of limited extent, the junipers had been cut down and it was among the needles covering the ground that one of us (A. A.) found a very dark *Mycena* which turns out to belong to section *Fragilipedes* (Fr.) Quél. The species does not match any of those thus far described in this section and is here proposed as follows.

Mycena ustalis Aronsen & Maas G., spec. nov.** — Figs. 1-13

Basidiomata gregaria vel caespitosa. Pileus usque ad 28 mm latus, conicus vel campanulatus, haud sulcatus, margine translucente striatus, udus centro niger vel atrobrunneus, margine brunneus. Caro tenuis, odore alcalino. Lamellae 16-22 stipitem attingentes, e albido obscure griseae. Stipes -45 x 4-5 mm, initio ardesiacus, pallescens, basi fibrillis albis munitus.

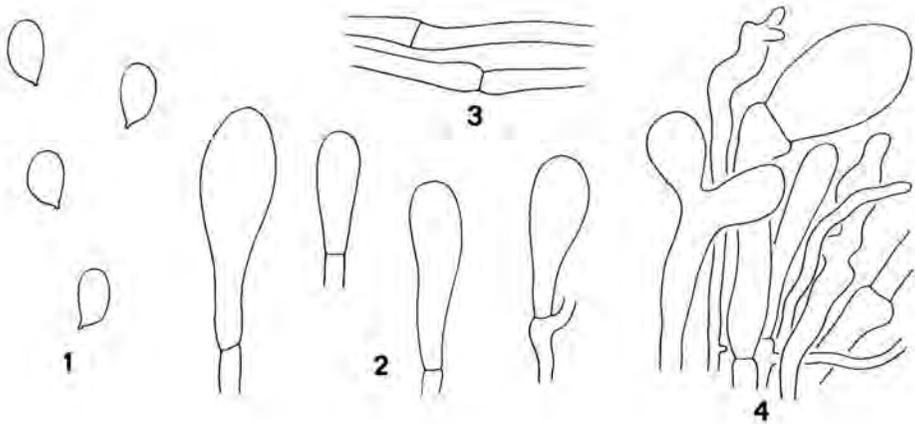
Basidia 25-35 x 6.5-8 µm, anguste clavata, 2-spora efibulataque vel 30-45 x 8-9 µm, 4-spora fibulataque. Sporae (basidiorum 2-sp.) (7.6-)9.0-11.8 x (5.0-)6.0-7.2(-8.1) µm vel (basidiorum 4-sp.) 7.6-9.0 x 5.4-5.6 µm, amyloideae. Cheilocystidia 20-60 x 7-15 µm, clavata vel fusiformia, efibulata vel fibulata, levia. Pleurocystidia similia, haud numerosa. Trama lamellarum iodi ope brunneovinescens.

Holotypus: 'Fungi norvegici / *Mycena ustalis* Aronsen & Maas G. / 2-sp. / A. Aronsen A 73/88 / 8 Oct. 1988 / Vestfold: Tjøme, Moutmarka / On Juniper needles' (L, no. 987.340-225).

Basidiomata gregarious to caespitose, less frequently solitary. Pileus up to 28 mm across, parabolical to conical or campanulate, not sulcated, very finely fibrillose (somewhat reminiscent of the pileus surface of some species of *Inocybe*), especially at the centre, translucent-striate, dry, slightly lubricous when moist (with dirt sticking to the surface), shiny, very dark sepia brown to black or even bluish black at the centre, sepia brown farther outwards, fading to grey-brown with age, margin straight to somewhat flaring with age, at first almost white, turning brownish. Flesh thin, very dark under the upper surface, paler farther below. Odour distinctive, alkaline (also experienced as nitrous), taste not recorded. Lamellae 16-22 reaching the stipe, tender, ascending, c. 2 mm broad, ventricose, narrowly adnate, sometimes un-

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** Etymology: *ustalis*, the colour of half-burnt wood, dark brown, blackish brown.



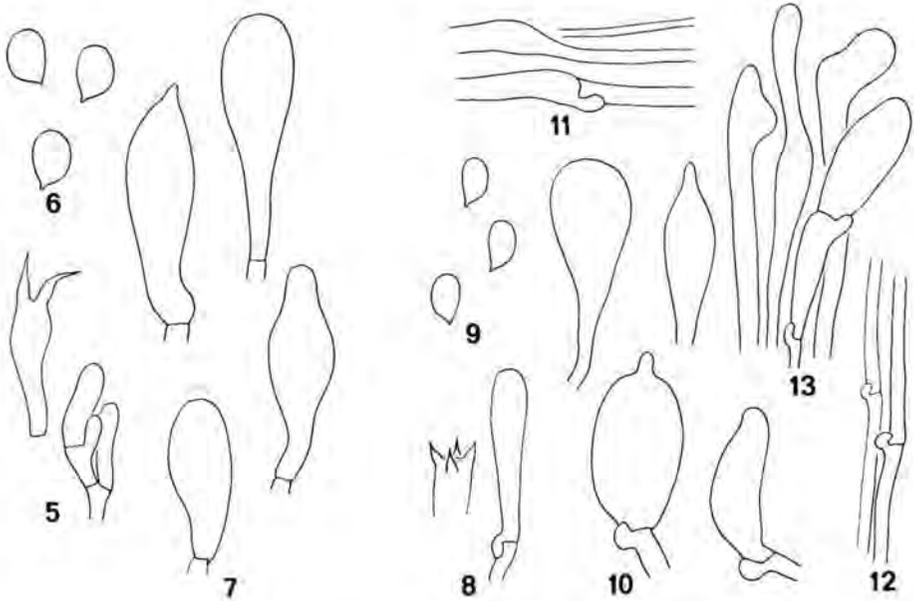
Figs. 1–4. *Mycena ustalis*, 2-spored (holotype). — 1. Spores. — 2. Cheilocystidia. — 3. Hyphae of the pileipellis. — 4. Caulocystidia. (All figs., $\times 700$.)

cinate, thin and smooth when young, much thickened, strongly veined or rugose, and inter-venose with age, at first white, then dark grey; the edge convex, white to pale grey. Stipe up to $45 \times 4-5$ mm, stocky, hollow, terete or somewhat compressed and fissured lengthwise, straight or somewhat curved, smooth, at first conspicuously white-puberulous all over, glabrescent for the greater part (except at the apex), slate-coloured, dark bluish grey, particularly at the apex, gradually becoming paler and turning somewhat more brownish, the base densely covered with long, fairly coarse, somewhat woolly, white fibrils.

Basidia either $25-35 \times 6.5-8 \mu\text{m}$, slender-clavate, 2-spored and clampless with plumy sterigmata up to c. $8 \mu\text{m}$ long, or $30-45 \times 8-9 \mu\text{m}$, 4-spored and clamped. Spores (basidia 2-sp.) $(7.6-9.0-11.8 \times (5.0-6.0-7.2(-8.1) \mu\text{m})$ or (basidia 4-sp.) $7.6-9.0 \times 5.4-5.6 \mu\text{m}$, pip-shaped (those which are shorter and fairly broadly pip-shaped probably being immature), smooth, amyloid. Cheilocystidia $20-60 \times 7-15 \mu\text{m}$, originally forming a sterile band (lamellar edge homogeneous) but soon crowded out by vigorously developing younger generations of basidia, clavate to fusiform, clampless (basidia 2-sp.) or clamped (basidia 4-sp.), smooth, apically broadly rounded or mucronate, more rarely with a longer, slender neck. Pleurocystidia similar, scanty, unobtrusive. Lamellar trama brownish vinescent in Melzer's reagent. Hyphae of the pileipellis $2.5-6.5 \mu\text{m}$ wide, clampless or clamped, smooth. Hyphae of the cortical layer of the stipe $1.5-4.5 \mu\text{m}$ wide, clampless or clamped, smooth, the terminal cells (caulocystidia) $25-90 \times 2-22.5 \mu\text{m}$, cylindrical, narrowly to broadly clavate, ellipsoid to more or less irregularly shaped, simple or, more rarely, furcate, smooth.

HABITAT & DISTRIBUTION. — On needles of *Juniperus* in coastal area with scrub of *J. communis*, *Prunus spinosa*, and *Rosa* sp.; southern Norway.

COLLECTIONS EXAMINED. — NORWAY, Vestfold, Tjøme, Moutmarka; 4 Oct. 1988, Aronsen A 71/88 (2-sp.; L, no. 987.340-229); 8 Oct. 1988, Aronsen A 73/88 (2-sp.; holotype; L, no. 987.340-225); 18 Oct. 1988, Aronsen M 47a/88 + 47b/88 (2-sp. and 4-sp.; L, no. 987.340.245; part of M 47a also in herb. Aronsen).



Figs. 5-7. *Mycena ustalis*; 2-spored (A. Aronsen M 47a/88; L). — 5. Basidia. — 6. Spores. — 7. Cheilocystidia.

Figs. 8-13. *Mycena ustalis*, 4-spored (A. Aronsen M 47b/88; L). — 8. Basidia. — 9. Spores. — 10. Cheilocystidia. — 11. Hyphae of the pileipellis. — 12. Hyphae of the cortical layer of the stipe. — 13. Caulocystidia. (All figs., $\times 700$.)

The macroscopic description of the species is adapted from the collector's notes, complemented by the second author's observations on colour slides (collection Aronsen) as well as the dried material. The microscopic details are based on examination by the second author of the collections cited above.

Collection M 47/88 has been split up into 47a and 47b, as the material of the latter represents the 4-spored form of the species, differing from the 2-spored form, among other characters, in the somewhat smaller spores. It should be noted that the date of collecting of this 4-spored form is 10 and 14 days later than respectively those of the 2-spored forms A 73/88 and A 70/88. This suggests a measure of similarity with a phenomenon published several years ago (Maas Geesteranus, 1977), showing that 2-spored basidiomata of *Mycena gale-riculata* in the Netherlands are predominant in the earlier months of the season, with the 4-spored basidiomata becoming more numerous towards the end of the year.

Since the identification of members of section *Fragilipedes* is hardly a trifle, it may not be out of place here to offer some guidance. The 2-spored form of *M. ustalis* keys out near (equally 2-spored) *Mycena niveipes* (Murrill) Murrill (Maas Geesteranus, 1988: 47), but

some important differences are the following. In *Mycena niveipes*, 25–30 lamellae reach the stipe; the stipe is pale bluish white or greyish white when young, gradually turning white; the spores are 11.6–14.8 μm long; the basidiomata are associated with deciduous, broad-leaved trees. In *Mycena ustalis*, 16–22 lamellae reach the stipe; the stipe is dark bluish grey when young, gradually becoming paler and more brownish; the spores are 9.0–11.8 μm long; the basidiomata grow on fallen *Juniperus* needles.

The 4-spored form of *M. ustalis* keys out near a small group of species consisting of *Mycena niveipes* (4-spored form), *M. semivestipes* (Peck) A.H. Smith, *M. tenuicula* (Murrill) Murrill, and *M. zephirus* (Fr.: Fr.) Kummer (Maas Geesteranus, 1988: 50). The two last named species can be ruled out on account of the different aspect of the hyphae of the cortical layer of the stipe and their diverticulate terminal cells. *Mycena semivestipes* is easily distinct as it has smaller spores (6.3–7.3 \times 3.7–4.0 μm) as well as narrower and (often) more irregularly shaped cheilocystidia. The 4-spored form of *M. niveipes*, finally, can be told apart by its larger spores (8.8–11.2 \times 6.1–6.7 μm).

Looking for a species in North American literature that would match the Norwegian material, *Mycena atrocyanea* as redescribed by Smith (1947: 255) seems to fit the above description. However, *M. atrocyanea* sensu Smith, later recognized to represent the new species *M. coracina* (Maas Geesteranus, 1988: 69), can be readily told from *M. ustalis* by the diverticulate hyphae of both the pileipellis and the cortical layer of the stipe.

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MYCENA TEPHROPHYLLA, EINE NEUE ART AUS
BADEN-WÜRTTEMBERG

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und

H. SCHWÖBEL

Pfintzal-Söllingen*

Mycena tephrophylla wird als neue, in die Sektion *Fragilipedes* gehörende Art beschrieben. Sie wird kurz mit einigen anderen Arten der Sektion verglichen.

Helmlinge, welche schon im zeitigen Frühjahr auftreten, sind nicht gerade häufig und werden deshalb mit besonderem Interesse registriert. Am 20. März 1988 fand der zweite Autor an einem Kiefernstumpf wenige Fruchtkörper einer Art, die physiognomisch vermuten ließ, daß sie in die Sektion *Fragilipedes* (Fr.) Quél. gehören müsse. Eine sofort vorgenommene, flüchtige, mikroskopische Untersuchung bestätigte dies.

Die Pilze erinnerten in Hutfarbe und Haltung an den Gallen-Helmling, *Mycena erubescens* Höhn. Weitere Ähnlichkeiten, insbesondere mikroskopische, bestehen zu *M. erubescens* jedoch nicht.

In der Sektion *Fragilipedes* gab es keine Art mit zutreffender Beschreibung. Auch in den späteren Arbeiten Velenovskýs (1940, 1947) fand sich nichts, auf das der Fund hätte bezogen werden können. Deshalb stellen wir diesen als neue Art vor.

Mycena tephrophylla Maas G. & Schwöbel, spec. nov. **— Fig. 1-5

Basidiomata subfasciculata vel fasciculata. Pileus 5-13 mm latus, parabolicus vel subcampanulatus, in aetate vadose subsulcatus, translucente striatus, epruinosis, subnitens, e atrobrunneo sepiaceus, margine clarior. Caro tenuis, pileo subconcolor, odore raphanoideo. Lamellae c. 20 stipitem attingentes, e griseo-albido fumoso-griseae, margine albidae. Stipes 25-35 × 0.7-1.5 mm, cavus, fragilis, levis, glaber, supra pruinosis, maxima parte pileo subconcolor, basi radicans, fibrillis crassis albidisque munitus.

Basidia 27-30 × 8-9 µm, clavata, 4-spora, fibulata. Sporae 9.0-11.5 × 5.4-6.7 µm, amyloideae. Cheilocystidia 27-60 × 3.5-13.5 µm, clavata, subfusiformia, sublageniformia, fibulata, levia vel apice in collum protracta vel surculis crassis instructa. Pleurocystidia nulla. Trama lamellarum iodi ope brunneovinescens. Hyphae pileipellis leves, fibulatae, haud in materiam gelatinosam immersae.

Holotypus: 'Fungi germanici / *Mycena tephrophylla* Maas G. & Schwöbel / H. Schwöbel (ohne Nummer), 13.IV.1988 / Baden-Württemberg, Pfintzal-Berghausen, Lehrwald / Kiefernstumpf' (L, No. 988.103-056).

* Pfarrgasse 3, Pfintzal-Söllingen, D-7507, B.R.D.

** Etymology: τεφροσ: [asch]grau; φύλλα, Blätter.

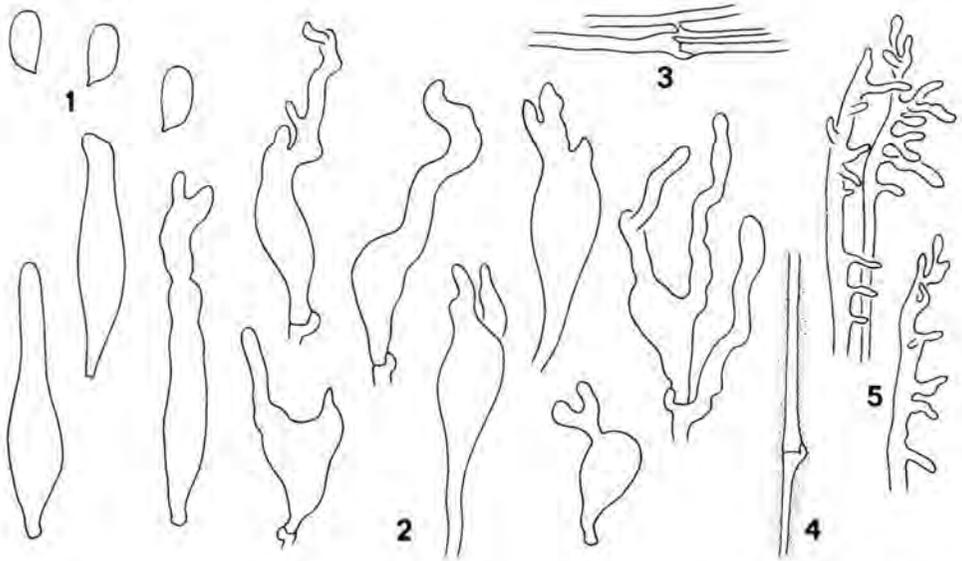


Fig. 1–5. *Mycena tephrophylla* (Holotypus). — 1. Sporen. — 2. Cheilozystiden. — 3. Hyphen der Pileipellis. — 4. Hyphe der Stielrinde, etwas gelatinisiert. — 5. Caulozystiden. (Alle Figuren, $\times 700$.)

Fruchtkörper fast büschelig bis büschelig. Hut 5–13 mm breit, breiteichelförmig bis etwas glockig, nicht ganz flach werdend, mit kleinem stumpflichem bis spitzlichem Buckel, im Alter nur ganz seicht gefurcht, gegen den Rand zunehmend durchscheinend gerieft, nicht bereift, ein wenig fettig glänzend, unter der Lupe fein und \pm erhaben radialstreifig, schwach hygrophan; jung schwärzlichbraun, sepiabraun, dann nach rötlichbraun aufhellend, entwässert glanzlos und noch etwas heller trüb graubraun (wobei die braunen Farbtöne vorherrschend bleiben); der Rand – besonders der etwas größerer Exemplare fein gekerbt-gezähnt (ähnlich dem Hutrand der *Mycena inclinata*). Fleisch sehr dünn, unter der Huthaut dem Hut heller gleichfarbig, entwässert in dem etwas fleischigen Hutbuckel weißlich. Geruch unverletzt etwa säuerlich-alkalisch, gequetscht mehr oder weniger auffallend rettich- bis rübenartig, Geschmack eher dumpfer, mehr rüben- als rettichartig. Lamellen etwa 20 den Stiel erreichend, zart, aufsteigend, 2,5 mm breit, etwas bauchig, am Stiel angewachsen, glatt, später ein wenig adrig, jung weißlichgrau, dann ausgesprochen rauchgrau, mit fast weißer, konvexer Schneide. Stiel 25–35 \times 0,7–1,5 mm, hohl, zerbrechlich, größtenteils gleichdick und zylindrisch, nach unten ein wenig verbreitert, gerade bis mehr oder weniger gekrümmt, glatt, oben bereift, weiter nach unten kahl, feucht etwas schlüpfrig, dem Hut heller gleichfarbig, an der Spitze bisweilen schmutzig-weißlich, am Stielende wurzelnd und hier dicht mit langen, groben, weißlichen Fibrillen bekleidet.

Basidien 27–30 \times 8–9 μm , keulig, 4-sporig, mit Schnalle und mit 5,5–6,5 μm langen Sterigmen. Sporen 9,0–11,5 \times 5,4–6,7 μm , apfelkernförmig, glatt, farblos, amyloid. Cheilozystiden 27–60 \times 3,5–13,5 μm , einen sterilen Streifen bildend (Lamellenschneide homogen), keulig, subfusiform oder sublageniform, mit Schnalle, apikal abgerundet oder in einen einfachen, seltener gegabelten, kürzeren oder längeren Schnabel verlängert, oder mit einigen wenigen, groben, verschieden gestalteten, gewundenen, einfachen oder gegabelten bis etwas

verästelten Auswüchsen versehen. Pleurozystiden fehlend. Lamellentrama in Melzer-Reagens bräunlich weinrot. Hyphen der Pileipellis 1–3 µm breit, mit Schnallen, nicht in einer gelatinösen Masse eingebettet, glatt. Hyphen der Stielrinde 1–3 µm breit, mit Schnallen, ein wenig gelatinisierend, aber nicht in einer gelatinösen Masse eingebettet, glatt, die Endzellen der Hyphen 2.5–3.5 µm breit, mit ziemlich groben, zylindrischen oder etwas unregelmäßig geformten, einfachen bis gegabelten Auswüchsen, welche 2–16 × 1–3 µm messen.

HABITAT. — An einem größeren, mäßig vermorschten Kiefernstumpf wachsend. Am 20. März 1988 wenige Exemplare beobachtet. In den ersten Apriltagen kamen einige mehr nach, die am 13. April größtenteils abgeerntet wurden.

UNTERSUCHTES MATERIAL. — B.R.D., Baden-Württemberg, Landkreis Karlsruhe, Lehrwald in unmittelbarer Nähe der Ortschaft Pfinztal-Berghausen, 13. April 1988, H. Schwöbel s.n. (Holotypus, L, No. 988.103-056).

Die makroskopische Beschreibung der Art stützt sich auf die nach dem Einsammeln gemachten Notizen, sowie auf Farbdias, die Helmut Grünert am 15. April gefertigt hat; komplettiert durch spätere Beobachtungen am getrockneten Material. Die mikroskopischen Angaben beziehen sich auf die Untersuchung des Holotypus.

Die Merkmale der vorliegenden Art weisen mühelos auf eine Zugehörigkeit zur Sektion *Fragilipedes* hin, aber selbst ein Versuch, den Fund aus dem Lehrwald mit dem erst seit kurzem zur Verfügung stehenden Schlüssel (Maas Geesteranus, 1988: 45–50) zu bestimmen, blieb ohne Erfolg. Über mehrere Stationen gelangt man zu den zwei letzten Arten in diesem Schlüssel, *Mycena avellanea* (Murrill) Murrill und *M. pectinata* (Murrill) Murrill. Die erstere unterscheidet sich von *M. tephrophylla* durch haselnußfarbigen Hut, weiße Lamellen und divertikuläre Hyphen der Stielrinde, während die zweite einen blassen, in der Mitte rötlichbraunen Hut, ebenfalls weiße Lamellen und divertikuläre Hyphen der Stielrinde, sowie ziemlich grobe Auswüchse an den etwas breiteren Hyphen der Pileipellis besitzt.

Unterstellt man einmal, es sei nicht ganz sicher, daß *Mycena tephrophylla* die Pleurozystiden fehlen, gelangt man in den Abschnitt des Schlüssels, in dem sich die Arten *M. niveipes* (Murrill) Murrill und *M. tenuicula* (Murrill) Murrill, beide mit 6–7 µm breiten Sporen, befinden. Der bläulich-weiße bis weiße Stiel und die völlig verschiedenen Caulozystiden unterscheiden *M. niveipes*, während breit angewachsene bis herablaufende Lamellen und divertikuläre Hyphen der Stielrinde bestimmend sind für *M. tenuicula*.

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MYCENA OLIGOPHYLLA, ANOTHER NEW SPECIES FROM
SOUTHERN NORWAY

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Mycena oligophylla is proposed as a new species and indicated as the type of the new section *Rarifoliatae*. The species is compared with similar-looking *Mycena paucilamellata*, as well as with *Delicatula cuspidata* which had been suggested as possibly identical.

Mycena oligophylla is another new species (cf. Aronsen & Maas Geesteranus, 1989), recently discovered in southern Norway by the first author. On account of the striking scarcity or even absence of lamellae in the specimens found, at first the name *Mycena paucilamellata* from the United States came to mind. The latter is a species described by Smith (1947: 97) who stated that 'the fruiting bodies make very poor herbarium specimens when dried.' This remark seemed likely to spell difficulties for the reexamination of the type material. Fortunately, however, investigation of the stipe, the least vulnerable part of any dried *Mycena*, yielded ample proof that *M. paucilamellata* differs from *M. oligophylla*.

Grateful acknowledgement is made to the authorities of the herbarium at Ann Arbor (MICH) for the loan of the type of *Mycena paucilamellata*.

Mycena oligophylla Aronsen & Maas G., *spec. nov.*¹—Figs. 1–17

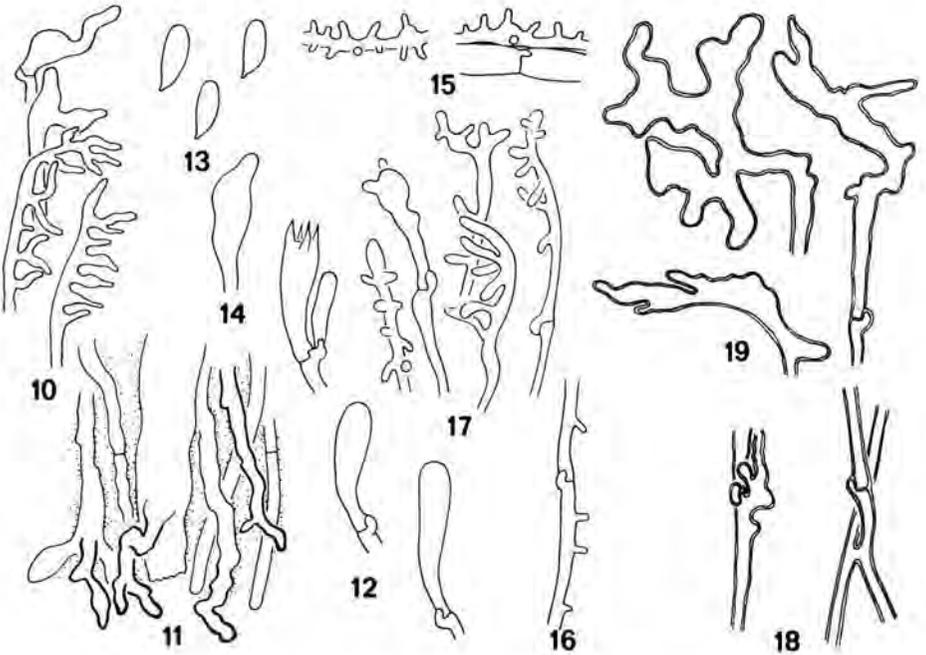
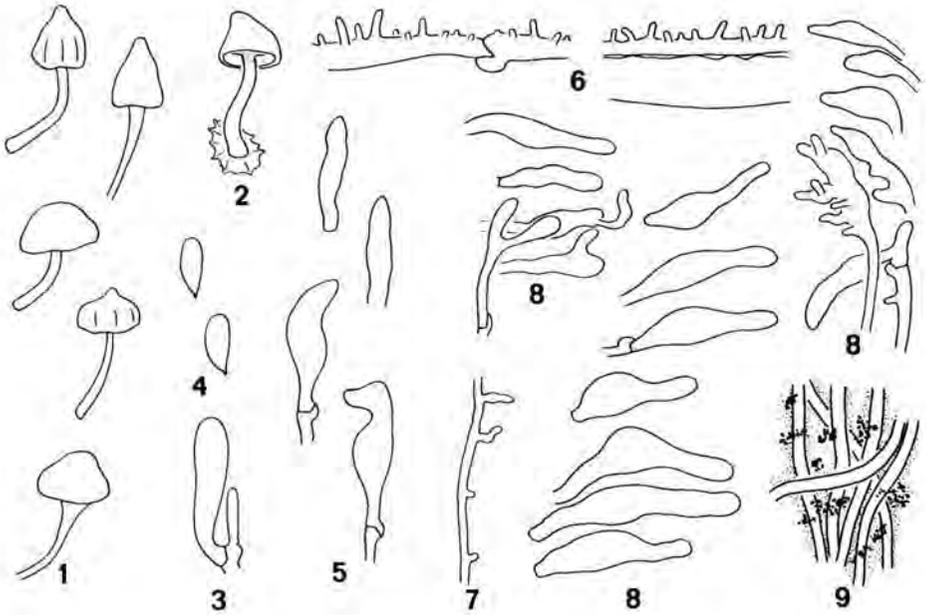
Basidiomata solitaria vel sparsa. Pileus 0.7–2.3 mm latus, apice obtusus vel papillatus, aetate interdum depressus, haud translucente striatus, minute pruinosis, glabrescens, udus haud lubricus, materia gelatinosa haud obiectus, albus. Caro tenuis, alba, odore nullo. Lamellae 0–5(–6) stipitem attingentes, late adnatae vel subdecurrentes, albae. Stipes 1–3(–4) × 0.1–0.3 mm, fragilis, totus pruinosis, albus, orbiculo basali instructus.

Basidia 23–27 × 7 µm, clavata, 4-sporea, fibulata, sterigmata c. 3.5 µm longa. Sporae 9.4–10.8 × 3.6–4.5 µm, amyloideae. Cheilocystidia 20–27 × 4.5–7 µm, sparsa, subcylindraceae vel subfusiformia, fibulata. Pleurocystidia nulla. Trama lamellarum iodi ope vivescens. Hyphae pileipellis 3.5–6 µm latae, fibulatae, diverticulatae. Hyphae stipitis corticales 2–2.7 µm latae, fibulatae, laeves vel sparse diverticulatae, cellululae terminales (caulocystidia) varieformes ramosaeque, sursum tamen cystidiis similes, 22.5–35 × 6.5–9 × 3.5–4.5 µm. Hyphae orbiculi basalis 2–3.5 µm latae.

Ad Junci conglomerati vaginas vulgo invenitur, etiam ad Caricis sp. caules.

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¹ Etymology: oligophylla, having few lamellae.



Holotypus: 'Fungi norvegici / *Mycena oligophylla* Aronsen & Maas G. / leg. A. Aronsen, no. A. 34/89 / 4 Oct. 1989 / Vestfold: Tjøme, Moutmarka / on the leaf sheaths of *Juncus conglomeratus*' (L, no. 986.126-085).

Basidiomata solitary to scattered. Pileus 0.7–2.3 mm across, conical to parabolical or convex, with or without a small papilla, more rarely hemispherical with the centre somewhat depressed, finally sometimes almost plane and the centre shallowly depressed, shallowly sulcate in some specimens, not in others, not translucent-striate, minutely pruinose, glabrescent, not lubricous when wet, white, the margin involute at first, straightening with age. Flesh very thin, white. Odour none, taste not recorded. Lamellae 0–5(–6) reaching the stipe, rarely fully developed (and then fairly broad), often only showing as low ridges and evanescent before reaching the margin of the pileus, tender, not ascending, broadly adnate to somewhat decurrent, smooth, white, the edge almost straight to concave, white. Stipe 1–3(–4) × 0.1–0.3 mm, fistulose (?), fragile, equal or widened just below the lamellae, sometimes also broadened near the base, terete, curved, smooth, delicately pruinose all over at first, glabrescent except at the apex, white, sometimes seemingly institious but actually attached to the substratum by radiating, fine, whitish fibrils which are united by a very thin film of gelatinous matter to form an irregularly shaped plaque (neither the plaque nor the fibrils being visible in dried material if the substratum has a rough surface).

Basidia 23–27 × 7 µm, clavate, 4-spored, clamped, with sterigmata c. 3.5 µm long. Spores 9.4–10.8 × 3.6–4.5 µm, somewhat narrowly pip-shaped, smooth, amyloid. Cheilocystidia 20–27 × 4.5–7 µm, rather scarce, occurring mixed with basidia, subcylindrical, subfusiform, clamped, smooth, apically gradually narrowed. Pleurocystidia absent. Lamellar trama weakly brownish vivescent in Melzer's reagent. Hyphae of the pileipellis 3.5–6 µm wide, clamped, covered with cylindrical, simple excrescences 2.5–5.5 × 1–2 µm which do not become gelatinized. Hyphae of the cortical layer of the stipe 2–2.7 µm wide, clamped, not gelatinizing, smooth or sparsely covered with cylindrical, simple excrescences 1.5–7 × 1–2 µm, terminal cells (caulocystidia) variously shaped, 20–40 × 2.5–9 µm, much branched, becoming less branched or even simple and subcylindrical farther upwards, then (just below the lamellae) gradually passing into cystidia-like, lageniform elements 22.5–35 × 6.5–9 × 3.5–4.5 µm. Hyphae of the basal plaque 2–3.5 µm wide, apparently not clamped, firm-walled, straight near the base of the stipe, embedded in a very thin film of gelatinous matter and with adhering clumps of dirt, more flexuous to kinked and thick-walled terminally, moreover mixed with some much inflated hyphae up to 13.5 µm wide.

Figs. 1–9. *Mycena oligophylla* (holotype, Aronsen A 34/89). — 1. Habit sketches (drawn by A. Aronsen after fresh material). — 2. Basidiome with basal plaque (drawn by M.G. after dried specimen). — 3. Immature basidia. — 4. Spores. — 5. Cheilocystidia. — 6. Hyphae of the pileipellis; one of the hyphae overlying a hypodermal hypha. — 7. Hypha of the cortical layer of the stipe. — 8. Caulocystidia. — 9. Hyphae of the basal plaque embedded in a film of gelatinous matter and encrusted with dirt.

Fig. 10. *Mycena oligophylla* (Aronsen A 34c/89; L). Caulocystidia.

Fig. 11. *Mycena oligophylla* (Aronsen A 34d/89; L). Hyphae of the basal plaque embedded in a film of gelatinous matter, one hypha much inflated.

Figs. 12–17. *Mycena oligophylla* (P. Marstad 133-88; L). — 12. Basidia. — 13. Spores. — 14. Cheilocystidium. — 15. Hyphae of the pileipellis. — 16. Hypha of the cortical layer of the stipe. — 17. Caulocystidia.

Figs. 18–19. *Mycena paucilamellata* (holotype; MICH). — 18. Thick-walled hyphae of the cortical layer of the stipe. — 19. Thick-walled caulocystidia. (Fig. 1, × c. 20; fig. 2, × 20; all others, × 700.)

Growing on the leaf sheaths deep down in clumps of *Juncus conglomeratus*, often found together with *Mycena bulbosa* (Cejp) Kühner, more occasionally also together with *Hemimycena delectabilis* (Peck) Sing. on culms of *Carex* sp.

COLLECTIONS EXAMINED.—NORWAY, Vestfold, Tjøme, Moutmarka: 16 Oct. 1988, P. Marstad 133-88 (L, no. 986.126-094); 16 Oct. 1988, A. Aronsen M 45/88 (L, no. 988.051-005); 4 Oct. 1989, A. Aronsen A 34/89 (holotype; L, no. 986.126-085); 4 Oct. 1989, A. Aronsen A 34b/89 (L, no. 988.051-074); 4 Oct. 1989, A. Aronsen A 34c-e/89 (L, no. 988.051-194).

The macroscopic description of the species has been made by the first author, complemented by the second author's observations on the dried material, while the microscopic details are based on reexamination of the collections cited above.

The way the stipe is attached to the substratum may be difficult to discern, especially in fresh material, probably because both the hyphae and the substance of the basal plaque do not stand out clearly against the background when wet. Moistening of this basal part of the dried stipe, however, causes the gelatinous matter of the basal plaque to swell, whereupon the whole is easily lifted from the substratum by means of a tiny scalpel.

The possession of two very differently shaped kinds of caulocystidia is a most unusual character, but it is apparently rare to find them both well-developed on the same stipe.

From the beginning, the name *Mycena paucilamellata* suggested itself since, going by Smith's description, several of its features were found to correspond with those of the Norwegian material, such as small size, white colour, little-developed, somewhat decurrent lamellae and narrow, amyloid spores. Disturbing elements, however, proved to be the description of the stipe as having its base 'inserted' on the substratum and the occurrence of the basidiomes on fallen twigs of *Sequoia sempervirens*. Subsequent reexamination of the type material of *M. paucilamellata* demonstrated that this species is fundamentally different from *M. oligophylla* on account of the thick-walled, smooth hyphae of the cortical layer of its stipe (Fig. 18) and their strangely shaped, much entwined terminal cells (Fig. 19). Extreme scantiness of the type prohibited further investigation.

Another species, kindly pointed out by Dr. Th. W. Kuyper (Wijster) as being possibly the same as the Norwegian find is *Delicatula cuspidata* (Quél.) Cejp. The description by Quélet (1881: 662, pl. 8, fig. 3, as '*Omphalia*') records such features like 'Chapeau ... festonnée, ... finement floconneux. Lamelles ... très décurrentes, ramifiées. Stipe ... avec la base bulbileuse et hérissée de soies.' These characters clearly do not apply to *M. oligophylla*. In passing, it may be remarked that Moser (1955: 93 till 1983: 67) accepted *Delicatula cuspidata* as a species with amyloid spores. This amyloidity, however, is an unproved assumption, while it is not clear whether the species actually belongs to *Delicatula*. Kühner (1980: 771) emphatically stated that the genus *Delicatula* in his opinion consists of only a single species — *D. integrella* (Pers.: Fr.) Pat.

Mycena oligophylla could easily be mistaken for some small species of *Hemimycena* on account of its white colour, shape of the pileus, poorly developed lamellae, rather narrow spores, and unobtrusiveness of the scanty cheilocystidia. This may add to the conviction of those who argue that (non-)amyloidity of the spores alone is insufficient as a character to separate *Mycena* and *Hemimycena*, but the issue cannot be pursued in the present paper.

Attempts at determining the pertinent section of *Mycena oligophylla* lead to the first half of couplet 20 of the key published in 1980 (Maas Geesteranus, 1980: 95), indicating section

Pudicae. Although the characters mentioned for this section are precisely those of *M. oligophylla*, this species is not a member of the *Pudicae*, a section which was subsequently abolished (Maas Geesteranus, 1986b: 285) as it was no longer considered to be a subdivision of *Mycena*. However, the abandonment of section *Pudicae* does not nullify the position it originally occupied in the key. In fact, by slightly emending the text of the couplet under discussion (e.g. by adding 'Stipe arising from a basal plaque'), some of the more important features are given that characterize the following new section.

Mycena* section *Rarifoliatae* Aronsen & Maas G., *sect. nov.

Basidiomata minuta. Pileus pruinose, udus haud lubricus, materia gelatinosa haud obtectus, albus. Caro tenuis, alba, odore nullo. Lamellae perpaucae, molles, late adnatae vel subdecurrentes, albae. Stipes fragilis, totus pruinose, albus, orbiculo basali instructus.

Basidia clavata, 4-sporea, fibulata. Sporae inaequilateraliter ellipsoideae, laeves, amyloideae. Cheilocystidia sparsa, subcylindracea vel subfusiformia, fibulata. Pleurocystidia nulla. Trama lamellarum iodi ope vivescens. Hyphae pileipellis fibulatae, diverticulatae. Hyphae stipitis corticales fibulatae, laeves vel sparse diverticulatae, cellululae terminales (caulocystidia) varieformes ramosaeque, sursum cystidiis similes.

Herbicola.

Species typica: *Mycena oligophylla*.

Basidiomata minute. Pileus pruinose, glabrescent, not lubricous when wet, not covered with a separable, gelatinous pellicle, white. Flesh very thin, white. Odour none. Lamellae very few reaching the stipe, sometimes poorly developed, tender, broadly adnate or somewhat decurrent, white. Stipe fragile, pruinose all over, white, arising from a basal plaque.

Basidia clavate, 4-spored, clamped. Spores pip-shaped, smooth, amyloid. Cheilocystidia rather scarce, subcylindrical to subfusiform, clamped. Pleurocystidia absent. Lamellar trama brownish vivescent in Melzer's reagent. Hyphae of the pileipellis clamped, diverticulate. Hyphae of the cortical layer of the stipe smooth or sparsely diverticulate, terminal cells (caulocystidia) variously formed, branched, farther upwards more cystidia-like. Hyphae of the basial plaque firm-walled.

Found on herbaceous culms.

Type species: *Mycena oligophylla*.

The specific epithet *oligophylla* is the plural form of a substantive, of which there exists no adjectival form suitable for the construction of a sectional name. Hence, an equivalent substitute had to be chosen. For euphonious reasons, however, the specific epithet is maintained.

The present section could be thought to be close to section *Basipedes* (Fr.) Quél. (Maas Geesteranus, 1983: 410) on account of its basal plaque. It differs, however, in the absence of a gelatinous pellicle covering the pileus and in the poorly developed, not ascending lamellae with concave edge.

Attachment of the stipe to the substratum by means of radiating fibrils is also known to occur in some species of section *Polyadelphia* Sing. ex Maas G. (Maas Geesteranus, 1986a: 159), more particularly in *M. culmigena* Maas G. and *M. juncicola* (Fr.) Gillet, two species which grow in a habitat similar to that of *M. oligophylla*. But members of this section are characterized by clavate cheilocystidia which are covered by numerous, usually evenly spaced cylindrical excrescences.

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Studies in Mycenas

Additions and Corrections, Part 1

by R.A. Maas Geesteranus

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Communicated by Prof. J.T. Wiebes at the meeting of March 25, 1991

Mycena acadiensis, *M. crocea*, and *M. favrei* are proposed as new species.

The status of *Mycena cariciofila* Redhead and *M. discopus* (Lév.) Quél. is reconsidered.

Redescriptions are given of *Mycena citrinovirens* M. Lange, *M. cucullata* (Ellis) Redhead, *M. flavifolia* Peck, *M. fusconigra* P.D. Orton, and *M. indica* Sing.

Over the years an important body of partially new information on Mycenas has become available which is here offered in the first part of the final instalment of the series 'Studies in Mycenas'.

Grateful acknowledgement is made to the authorities of the herbaria at Albany (NYS), Ann Arbor (MICH), Chicago (F), Edinburgh (E), Genève (G), Helsinki (H), København (C), Leningrad (LE), New York (NY), and Oberlin (OC) for the loan of type material. Sincere thanks are also due to Dr V. Antonín (Moravské Muzeum, Brno), Mr A. Hausknecht (Maissau), Dr K. Kalamees (Tartu), Mr M. Meusers (Meerbusch), Mr P.D. Orton (Crewkerne), Dr S.A. Redhead (Ottawa), Mr Ø. Weholt (Torp), and Prof. Dr W. Winterhoff (Sandhausen) for correspondence and loan or gift of interesting specimens.

MYCENA stirps ELEGANS A.H. Smith

Mycena stirps Elegans A.H. Smith, N. Am. Spec. *Mycena*: 40. 1947 (nomen nudum). — Lectotype (Maas Geesteranus, 1980: 102): *Mycena elegans* sensu A.H. Smith (= *M. chloranthoides*).

This subdivision of the genus *Mycena* was formerly (Maas Geesteranus, l.c.) placed in the synonymy of section *Luculentae* subsect. *Elegantes* Sing. ex Maas G.

Since its type species is now considered to be a member of section *Filipedes* (Fr.) Quél. (Maas Geesteranus, 1984: 413), stirps *Elegans* becomes a synonym of that section.

MYCENA sect. INSIGNES Maas G.

Mycena sect. *Insignes* Maas G. in Proc. K. Ned. Akad. Wet. (Ser. C) 92: 343. 1989.

The description of the caulocystidia is incomplete. They may be smooth or somewhat branched but also very much diverticulate.

Mycena acadensis Maas G., *spec. nov.*¹ — Figs. 1–10

Basidiomata sparsa. Pileus (siccatus) 14 mm latus, hemisphericus, sulcatus, minute pruinosis, glabrescens, obscure rubro-brunneus. Caro tenuis, albidus, odore saporeque ignotis. Lamellae c. 18 stipitem attingentes, molles, ascendentes, 1 mm latae, ventricosae, adnatae vel dente decurrentes, albidae, margine convexo, obscure rubro-brunneo. Stipes c. 35 × 1 mm, cavus, cylindraceus, levis, supra minute pruinosis, deorsum glaber, flavo-brunneus, basi fibrillis crassis rufidisque munitus.

Basidia 27–31 × 8–9 μm, clavata, 2-spora vel 3-spora, fibulata, sterigmatibus 5.5–7 μm longis instructa. Spores 10.3–12.7 × 5.8–6.5 μm, inaequilateraliter ellipsoideae, laeves, tenuiter amyloideae. Cheilocystidia 25–56 × 5.5–11 × 0–3 μm, fusiformia, etiam clavata vel irregularia, succum rubrum continentia, fibulata, interdum surculis lateralibus praedita. Pleurocystidia haud visa. Trama lamellarum iodi ope vinosobrunnescens. Hyphae pileipellis 1.8–4.5 μm latae, fibulatae, surculis cylindraceis, simplicibus vel ramosis, 3.5–6.5 × 1.8 μm munitae. Hyphae stipitis corticales 2.7–3.5 μm latae, fibulatae, leves pro maxima parte, cellulae terminales 2.7–4.5 μm latae, diverticulatae.

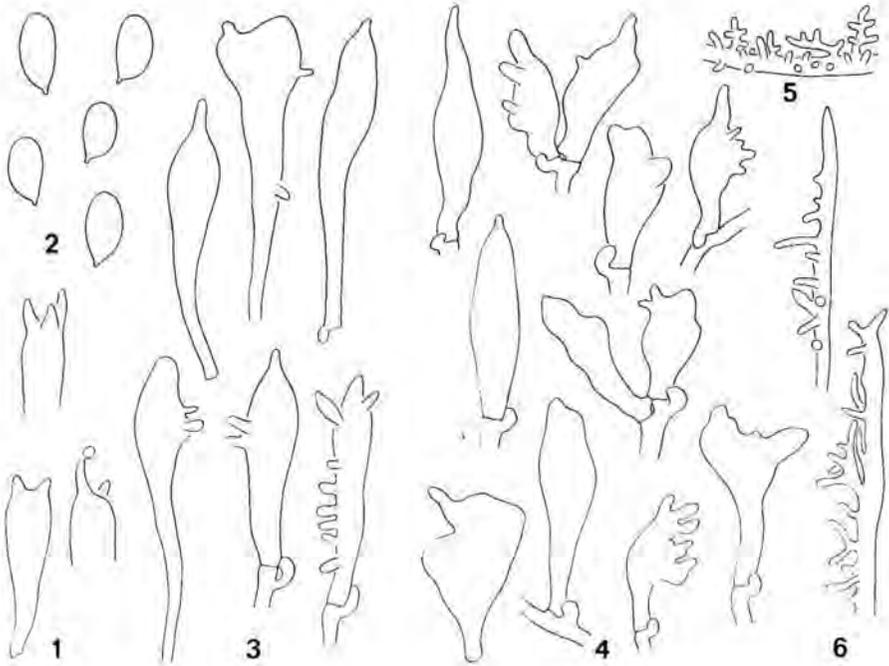
Ad *Abietis* lignum.

Holotypus: A.H. Smith 690 (MICH).

Basidiomata scattered. Pileus 14 mm across, hemispherical, sulcate, delicately pruinose, glabrescent, evenly very dark reddish brown. Flesh thin, brownish under the upper surface, whitish farther below. Odour and taste unknown. Lamellae c. 18 reaching the stipe, tender, ascending, 1 mm broad, ventricose, adnate or decurrent with a short tooth, whitish, the edge convex, dark reddish brown. Stipe c. 35 × 1 mm, hollow, terete, smooth, delicately pruinose above, glabrous farther below, yellowish brown, the base covered with coarse, somewhat rufous fibrils.

Basidia 27–31 × 8–9 μm, clavate, 2- and 3-spored, clamped, with sterigmata 5.5–7 μm long. Spores 10.3–12.7 × 5.8–6.5 μm, pip-shaped, smooth, weakly amyloid. Cheilocystidia 25–56 × 5.5–11 × 0–3 μm, forming a sterile band, fusiform, less frequently clavate or more irregularly shaped, with reddish contents, clamped, apically rostrate or without a neck, not infrequently with variously shaped, coarse, lateral excrescences. Pleurocystidia not observed.

¹ Etymology: *acadensis* is the adjectival form of Acadia, a corruption of the original name Archadia. Before 1763, Acadia was in use for New Brunswick and peninsular Nova Scotia as they are known at present (Raeburn, 1990: 78).



Figs. 1-6. *Mycena acadensis* (holotype, "*Mycena elegantula*"). — 1. Immature basidia. — 2. Spores. — 3. Cheilocystidia (taken from very young specimen). — 4. Cheilocystidia (taken from old specimen). — 5. Hypha of the pileipellis. — 6. Terminal cells of hyphae of the cortical layer of the stipe.

All figs., $\times 700$.

Lamellar trama brownish vinescent in Melzer's reagent. Hyphae of the pileipellis 1.8–4.5 μm wide, clamped covered with fairly short, cylindrical, simple to much branched excrescences 3.5–6.5 \times 1.8 μm . Hyphae of the cortical layer of the stipe 2.7–3.5 μm wide, clamped, smooth or, towards the terminal cells, covered with scattered excrescences, the terminal cells 2.7–4.5 μm wide, covered with cylindrical, simple or furcate to branched, generally more or less curved excrescences 1.8–10 \times 1.5–2.7 μm .

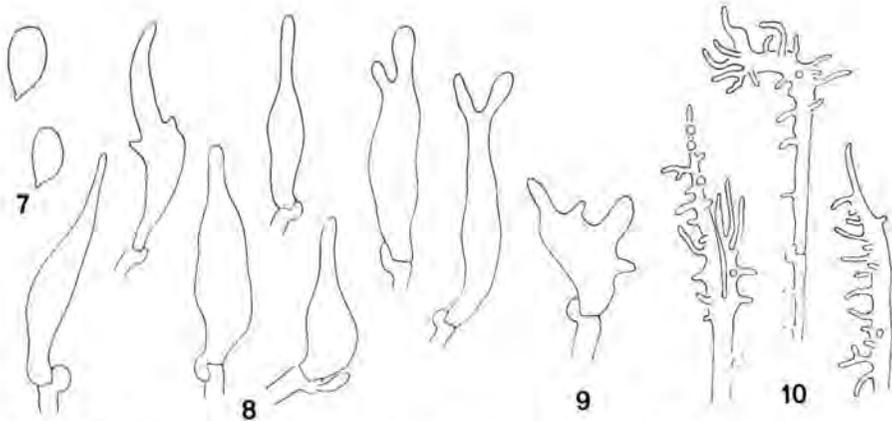
On wood of *Abies*.

Holotype: "[misidentified as] *Mycena elegantula* Pk. / on *Abies* sp. / Upper Brookside, Colchester Co., N(ova) S(cotia), July 23, 1931 / A.H. Smith 690" (MICH).

Additional material examined: same locality, "on stick of fir / Aug. 18, 1931 / A.H. Smith 690a (MICH).

The description of this species, which is a member of section *Rubromarginatae* Sing. ex Maas G., is based on collection A.H. Smith 690.

Smith (1947: 209) recorded numerous collections under the name *Mycena elegantula* Peck, of which I reexamined numbers A.H. Smith 690, 3606, and



Figs. 7-10. *Mycena acadensis* (United States: A.H. Smith 690a; MICH). — 7. Spores. — 8. Cheilocystidia (taken from some distance from the pileus margin). — 9. Cheilocystidium (taken from near the pileus margin). — 10. Terminal cells of hyphae of the cortical layer of the stipe. All figs., $\times 700$.

18140. Collection 3606 appeared to represent *Mycena renati* Quél. (Maas Geesteranus, 1986: 294), while I felt uncertain about number 18140. Number 690 turned out to be an undescribed species (herewith proposed as *Mycena acadensis*), which prompted me to request the loan of two further collections equally from Nova Scotia — numbers 690a and 635. The last one proved to be some different species again (notes deposited at MICH).

The difference of *Mycena acadensis* from *M. elegantula* is obvious. The latter is easily recognized by its narrower spores ($4.7\text{--}5.4\ \mu\text{m}$ wide) and very differently shaped cheilocystidia. In contrast, the separation of *M. acadensis* from *M. rubromarginata* (Fr.: Fr.) Kummer may cause more trouble. Both species have several features in common and a difficulty (for the moment) is that the colour of the stipe of *M. acadensis* in the fresh condition is unknown; Smith's published description of *Mycena elegantula* cannot be trusted as his material appears to be heterogeneous. As an added difficulty it could be argued that *M. acadensis* is perhaps a 2- or 3-spored form of *M. rubromarginata*. Three-spored forms of the last named species do seem to exist (Kühner, 1938: 430), but it is reasonable to expect 2-spored forms of *rubromarginata* to possess spores somewhat bigger than those of the 4-spored form ($6.5\text{--}9.4\ \mu\text{m}$ broad, Maas Geesteranus, 1986: 306) which in turn are broader than those of *acadensis* ($5.8\text{--}6.5\ \mu\text{m}$ broad). Moreover, the hyphae of the pileipellis of *M. rubromarginata* are covered with excrescences that are very much different from their counterparts in *M. acadensis*.

Like in *M. rubromarginata*, the cheilocystidia in *M. acadensis* are variable in shape from one collection (A.H. Smith 690) to the other (A.H. Smith 690a) or from the middle of the lamella to the region near the margin of the pileus.

This species, of course, has no connection whatever with *Resinomyces acadensis* Redhead & Singer (1981: 161).

AGARICUS ALBINEUS Fr.

Agaricus albineus Fr., Monogr. Hym. Suec. 1: 213. 1857. — Type locality: Sweden.

“On trunks of *Fraxinus* in dense woods towards the end of October. Inodorous. Stipe from the villose base upwards slightly attenuate, almost equal, c. 50–75 mm long (“2–3 unc.”), c. 2 mm thick (“1 lin”), firm but brittle, smooth, glabrous, hyaline-white. Pileus membranous, campanulate-conical, finally plane, split, somewhat angular, obtuse, hyaline-white, gibbous, at the umbo (also when dry) inconspicuously sulcate, c. 15–25 mm broad (“1/2–1 unc.”), white, hygrophorous, rarely sprinkled with a loose, white dust. Lamellae joined to form a collarium, attenuate-adnate, ventricose, distant, whitish.”

The above is a somewhat abbreviated translation of the original Latin diagnosis. Fries was uncertain about the affinities of his species but thought it perhaps best placed among the members of section *Filipedes*. In this section, *Mycena xantholeuca* actually shows some features which conform to Fries' description (fasciculate growth, absence of odour [when fresh], glabrous stipe), but there are other characters, which do not agree (the pileus is rather more yellowish white, the lamellae are certainly not distant, do not form a collarium, and are hardly ventricose).

Agaricus albineus does not seem to have been recognized by later authors, and I am one of them.

MYCENA ALCALINA? var. NIVEA J.E. Lange

Mycena alcalina? var. *nivea* J.E. Lange in Dansk bot. Ark. 1(5): 21, pl. 1 fig. c. 1914 — *Mycena laevigata* var. *nivea* (J.E. Lange) Cejp in Publ. Fac. Sci. Univ. Charles 104: 14. 1930.

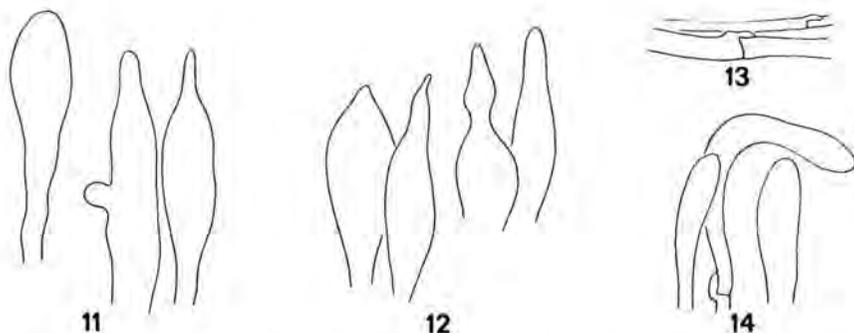
Contrary to Lange's supposition, var. *nivea* is not close to *Mycena laevigata* (Lasch) Gillet (Maas Geesteranus, 1982: 386).

A detail of his description (“Cystidia obtuse or subobtuse, broadly fusiform”) suggests that the taxon belongs to section *Fragilipedes*. The white species of this section are treated in Key 2 (Maas Geesteranus, 1988: 46), and of these it is not improbable that *Mycena zephirus* (Fr.: Fr.) Kummer was actually what Lange described as var. *nivea*. Lange (p. 32) did not know this species.

MYCENA ALNI Kalamees apud Vaasma & al. — Figs. 11–14

Mycena alni Kalamees apud Vaasma, Kalamees & Raitviir, Macrofungi Caucas. St. Nat. Res.: 73, fig. 7. 1986. — Holotype: “Fungi caucasici / [*Mycena maculato-niveipes* Kalamees] *Mycena alni* Kalamees / Krasnodari urai, . . . Laura . . . (Alneto-Fagetum . . . 10 V 1977 / K. Kalamees / No. 83600” (TAA).

The brief Latin diagnosis states this species to be different from *Mycena niveipes* (Murrill) Murrill in the rust-coloured stains it acquires with age and the obtuse apices of the cheilocystidia. The new species was also said to grow on *Alnus* wood.



Figs. 11–14. *Mycena alni* (holotype). — 11. Cheilocystidia (taken from some distance from the pileus margin). — 12. Cheilocystidia (taken from near the pileus margin). — 13. Hyphae of the pileipellis. — 14. Terminal cells of hyphae of the cortical layer of the stipe. All figs., $\times 700$.

Reexamination of some of the essential characters of the holotype, demonstrates that these are in no way unusual for true *Mycena niveipes*, so that I have no doubt in reducing *M. alni* to the synonymy of that species. In a later publication Kalamees (1989: 141) changed his mind and reduced *M. alni* to varietal status as *Mycena niveipes* var. *alni*.

MYCENA CAPILLARIPES sensu Beardslee & Coker

Mycena capillaripes sensu Beardslee & Coker in J. Elisha Mitchell Scient. Soc. 40: 64. 1924. — *Mycena beardsleeana* Sing. in Annls mycol. 41: 138. 1943 (name change). — Collected at Asheville.

The obvious place to look for material of the gathering named *Mycena capillaripes* by Beardslee and Coker is the Herbarium of the University of North Carolina (OC). However, Dr M.R. McGinnis in his reply kindly informed me that no specimens under this name had been found. Failing these, it is no use speculating whether Singer's proposal of a new name is justified.

MYCENA CARICIOPHILA Redhead

Mycena cariciophila Redhead in Fungi can. no 165, 1980.

Dr S.A. Redhead in a letter (September 15, 1986) showed his surprise "to see *Mycena cariciophila* placed in synonymy with the name *M. juncicola* [(Fr.) Gillet], and the new name *M. culmigena* proposed for what we have been calling *M. juncicola* [sensu A.H. Smith]." He also wrote that there "is a problem with the application of the name *Mycena juncicola* because Fries described the stipe as 'fusco'."

An important question to be answered is whether the species *M. juncicola* redescribed by me (Maas Geesteranus, 1986: 169) is identical with *Agaricus juncicola* of Fries, while it is equally important to know what was understood by *M. juncicola* in the sense of A.H. Smith.

To begin with, some explanation is needed for a more correct interpretation of the colour terms used by Fries, and his description of the pileus of *Agaricus juncicola* as "rufescente" is a case in point. This term should be interpreted within wide limits which may include a pinkish grey-brown, a delicate colour which sometimes verges towards grey, at other times towards brownish, but

Table 1. Comparison of *Agaricus juncicola* Fr., *Mycena juncicola* sensu Maas G., *M. cariciophila* Redhead, and *M. juncicola* sensu Smith

	pileus	lamellae	stipe	basal patch
<i>A. juncicola</i>	convexo striato rufescente 1 lin. latus dein subdepressus	distantibus albidis	capillari fusco	not mentioned
<i>M. juncicola</i> sensu Maas G., Polish material	truncate-conical to campanulate, translucent-striate, slightly dingy pale pink, 2-4 mm across	subdistant, white to faintly pinkish	12-30 × 0.25-0.5 mm, hyaline-white	radiating white fibrils
<i>M. cariciophila</i> Redhead	convex . . . etc., tending to be truncated, opaque, becoming faintly translucent-striate, greyish sepia to vinaceous buff, often fuscous black centrally, 2-7 mm across	moderately spaced, whitish to vinaceous buff	5-11(-23) × 0.25-0.5(-0.75) mm, vinaceous buff above, greyish sepia to fuscous black below	small plaque or tuft of coarse greyish-sepia mycelium
<i>M. juncicola</i> sensu Smith	conic to convex . . . etc. with or without a slight papilla, opaque sulcate-striate to the disc when fresh, disc tinged purplish to vinaceous or grayish vinaceous, margin paler vinaceous to whitish	distant, pale grayish vinaceous	3-5(-25) mm long, filiform, hyaline, grayish white or grayish vinaceous	an inconspicuous flat vinaceous or brownish plate

always with a pink flush (compare "stipite rufescente" of *Agaricus quietus* Fr., Syst. mycol. 1: 69. 1821 and "pileo rufescente" of *A. subdulcis* Fr., p. 70). Seen in this light, the colour of the pileus of *M. juncicola* sensu Maas G. (based on the annotations accompanying the Polish collection) is not different from Fries' colour term.

A difficult obstacle would seem to be the difference between the colour of the stipe as described by Fries ("fusco") and as annotated for the Polish collection ("hyaline-white"), but other species in section *Polyadelphia* Sing. ex Maas G. offer a solution. In *Mycena capillaris* (Schum.: Fr.) Kummer as well as in *M. smithiana* Kühn. the stipe in very young specimens is dark grey-brown but turns whitish with age. In another species of section *Polyadelphia* to be published elsewhere, the young stipe is even perfectly black, except for its base, but fades to watery white in age. It does not seem far-fetched therefore to assume that Fries saw young specimens of *A. juncicola* with dark stipes which would have turned whitish later on. In keeping with this assumption, it may be pointed out that Fries found the pileus to be "1 lin[ea] latus," one line being 2.1 mm (Jackson, 1928: 216), whereas the mature pilei in the Polish collection measured 2–4 mm across.

Another problem is that the stipe of *M. juncicola* from Poland arises from a basal patch of radiating fibrils, no mention of which is found in Fries' description. How to explain this discrepancy? Did Fries ignore these fibrils as being non-essential or did he not see them? Two examples, members of section *Basipedes* (Fr.) Quél., may help elucidate the issue. *Mycena mucor* (Batsch: Fr.) Gillet has a stipe which springs from a basal disc characterized by radiating white fibrils. Fries (1821: 155) said of this disc: "sed basis vere dilatata nec strigosa [but the base truly dilated and not strigose]." Not strigose means not covered with strigae (Stearn, 1967: 522), a striga being "a straight rigid close-pressed rather short bristle-like hair." Here is a case of Fries clearly expressing himself on the absence of any strigosity, although fibrils are actually present at the base of the stipe in younger stages of the basidiome. In *M. stylobates* (Pers.: Fr.) Kummer, however, Fries (p. 153) described the basal disc: "membranula orbiculari striata," obviously failing to notice the pubescence of the disc as well as its ciliate margin. It is perhaps small wonder that Fries in his specimens of *Agaricus juncicola* also ignored or failed to observe or just missed the basal fibrils.

I am not unduly disturbed by the ostensible differences discussed above and am confident that the material from Poland (Bialowieza, 9 Oct. 1984, S.A. Elborne SAE-1-PL; C) really represents *Mycena juncicola*. This implies that the words 'sensu Maas G.' can be dropped.

Mycena juncicola sensu Smith differs macroscopically from true *M. juncicola* in the basal disc being devoid of radiating hairs, while more differences can be demonstrated under the microscope. This has led me to recognize Smith's material as a new species — *Mycena culmigena* (Maas Geesteranus, 1986: 164).

Redhead in his letter (l.c.) stated that "The colours of *M. cariciphila* were

not 'rufescente' in the remotest sense. Basically it is a greyish species," but his description of the pileus reads: "greyish sepia to vinaceous buff, often fuscous black centrally." Vinaceous buff, if this is used in the sense of Ridgway (1912), is a pale brownish pink colour, not fundamentally different from the colour of the pileus of the Polish material. It is readily admitted that the specimens from Poland are not known to have had the pileus "fuscous black centrally," but quick fading of the grey pileus was described by Malençon & Bertault in e.g. *Mycena quercus-ilicis* (1975: 297, "gris chez le primordium mais vite blanc pur") while a darker pileus centre is known to occur in e.g. *Mycena lohwegii* Sing. (pileus white, centre brownish) and *M. smithiana* Kühn. (pileus pinkish to somewhat brownish pink, centre darker).

Redhead also remarked that "Fries described the stipe [of *Agaricus juncicola*] as hair-like," whereas in *Mycena cariciophila* "the stipe did not have a hair-like appearance." Here, Fries' terminology is best understood by comparing his description of *A. juncicola* with those of other species. Fries (1821: 156) introduced a group called *Omphalariae* which he subdivided into *Firmiores* (with a firm stipe) and *Tenelli* (p. 159; characterized by "stipite subcapillari"). Members of the latter are such species as *Agaricus capillaris* ("stipite capillari," 0.07–0.2 mm wide in European material), *A. pterigenus* ("stipite capillari," 0.2–0.3 mm wide), and *A. integrellus* (stipe 0.4–1 mm wide). *Mycena cariciophila* with its stipe 0.25–0.5(–0.75) mm wide would certainly have been considered a member of the *Tenelli* by Fries had he known the species.

Finally, Table 2 is added which compares some essential microscopic details of the species discussed above.

Table 2.

	spores	cheilocystidia regularly shaped	terminal cells present
<i>M. culmigena</i>	9.4–12.1 × 4.6–5.4 μm	+	–
<i>M. juncicola</i> Polish material	8.1–9.1 × 4.0–4.6 μm	–	+
<i>M. cariciophila</i>	Redhead's measurements 7.7–8.5 × 3.6–5 μm my measurements 8.5–9.2 × 4.6–5.2 μm	–	+

It was felt necessary to expound my views at some length. I have not changed my earlier opinion and am convinced that *M. cariciophila* (a small portion of the holotype of which was kindly presented to the 'Rijksherbarium') and *M. juncicola* are (1) the same species, and (2) different from *M. culmigena*.

MYCENA CHLORANTHA f. CAESPITOSA Courtecuisse & Guinberteau

Mycena chlorantha f. *caespitosa* Courtecuisse & Guinberteau in *Docums mycol.* 16 (fasc. 61): 51, figs. 1-4. 1985.

This form differs from the typical form by its fasciculate growth, numbering from a few to 30 basidiomes.

The authors, recognizing the desirability of recording such a deviation but also, at the same time, the limited taxonomic importance, considered it "préférable pour le moment . . . de se limiter au rang de forme."

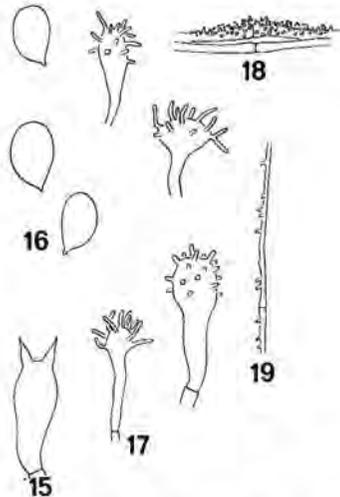
MYCENA CINEREOIDES Hintikka

In a former paper (Maas Geesteranus, 1986: 189) I expressed my doubt about the correctness of regarding *Mycena cinereoides* as a separate species from *M. cinerella* (P. Karst.) P. Karst. Material from Norway sent by Mr Ø. Weholt (Torp) and his discussion in writing have since convinced me that the binomial *M. cinereoides* must be relegated to the synonymy of *M. cinerella*. Too many intermediate forms have been found over the years to warrant maintaining *M. cinereoides* as a species in its own right.

MYCENA CITRINOVIRENS M. Lange — Figs. 15-19

Mycena citrinovirens M. Lange in *Meddr Gronland* 147: 41, fig. 24. 1955. — Holotype: "The Botanical Expedition to West-Greenland 1946 / Fungi No. 642 / *Mycena citrinovirens* n. sp. / Under *Juniperus* on needles / Ivigtut, 61° 12' Lat. N. Nordlandet / 27/9 [September] M. Lange" (C).

Basidiomata scattered. Pileus 7-8 mm above, parabolical to hemispherical,



Figs. 15-19. *Mycena citrinovirens* (holotype). — 15. Basidium. — 16. Spores. — 17. Cheilocystidia. — 18. Hyphae of the pileipellis. — 19. Hypha of the cortical layer of the stipe. All figs., $\times 700$.

almost smooth, translucent-striate, dry, clear yellow ("flavo-citrinus") but with the centre and striae greyish olive, drying pallid yellow. Flesh thin, pale yellow. Odour and taste not noticed. Lamellae not crowded, firm, ascending, c. 1 mm broad, somewhat ventricose, emarginate with a decurrent tooth, very pale yellow, the edge convex, whitish. Stipe 50–60 × 1–1.5 mm, hollow, firm, equal, terete, straight but curved below, smooth, delicately pruinose above, glabrous farther below, dark greyish brown above when young, pale greyish all over with age, at the base covered with long, coarse, flexuous, whitish fibrils.

Basidia 30–32 × c. 8 μm (few seen mature), clavate, clampless, 2-spored, more rarely 1-spored, with sterigmata 6.5–7 μm long. Spores 9.0–10.7 × 6.3–8.1 μm (a few much bigger spores possibly released by 1-spored basidia), broadly pip-shaped, smooth, weakly amyloid. Cheilocystidia 17–24 × 5.5–9(–11) μm, forming a sterile band, clavate, clampless, covered with unevenly spaced, simple or occasionally furcate, cylindrical, straight to curved excrescences 1.5–9 × 1–2 μm. Pleurocystidia absent. Lamellar trama brownish vinescent in Melzer's reagent. Hyphae of the pileipellis 2.5–3.5 μm wide, clampless, densely covered with short, simple to somewhat tuberculate-branched excrescences 0.9–2.5 × 0.5–0.9 μm. Hyphae of the cortical layer of the stipe 1–2 μm wide, clampless, rather sparsely covered with simple, straight to curved excrescences 1–2 × 1 μm; terminal cells not observed.

On fallen needles under *Juniperus*. Known only from the type locality.

The macroscopic description of the species is adapted from Lange's account and habitus drawing, complemented by my own observations on the dried material. The microscopic details are based on reexamination of the holotype.

It is unfortunate that misjudgement of Lange's description led to my sending an ill-timed request for the loan of the type material. The result is that only after Conspectus 4, treating section *Mycena* (Maas Geesteranus, 1985), had been published *Mycena citrinovirens* was discovered to belong to this very section. This additional member involves a (slight) change of the key to the species. The second part of couplet 16 should be read as follows:

16. Spores 6 μm broad or more.

20. Basidiomata growing on decayed wood or fallen *Juniperus* needles.

21. Pileus blackish when young. Spores 6 μm broad at the most: *M. hemisphaerica*

21. Spores broader than 6 μm

22. Pileus not umbonate, dry. Lamellae c. 1 mm broad. Stipe not rooting, attached to *Juniperus* needles: *M. citrinovirens*

22. Pileus more or less pronouncedly umbonate, becoming lubricous when wet.

Lamellae up to 8 mm broad. Stipe rooting in decayed wood: *M. galericulata*

20. Basidiomata typically growing on peat, in burnt heaths, among Ericaceae: *M. megaspora*

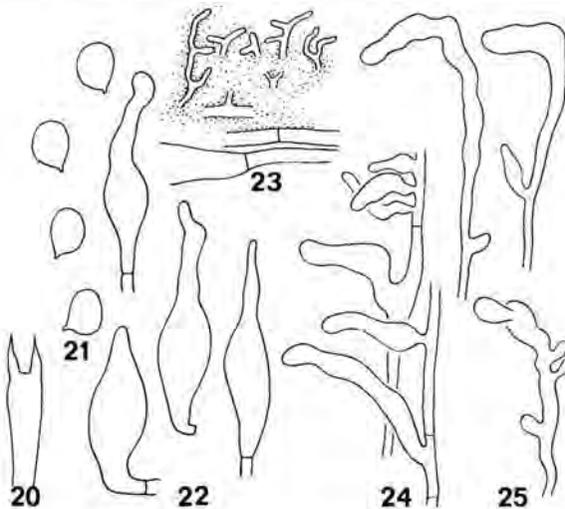
Lange described the spores of *M. citrinovirens* as "(almost?) non amyloid." It proved, in fact, very difficult to detect the slight discolouration of the spores, but there is a way of checking their amyloidity. A positive reaction of the outer spore-wall to Melzer's reagent coincides in *Mycenas* with a bluing of the liquid zone immediately covering the tips of the basidia. This bluing is best observed in such parts of the slide where an accumulation of hymenial elements prevents the colour from being dissolved into the surrounding fluid.

MYCENA CLAVATA (Peck) Redhead — Figs. 20–25

This species, redescribed in a former paper (Maas Geesteranus, 1991: 91), certainly deserves further attention, as it seems to be rare in Europe and its possible connection with *M. phaeophylla* Kühn. is not entirely clear. The following redescription may help shedding some more light in this situation.

Pileus up to 8 mm across, parabolical when young, then convex, finally more flattened and somewhat depressed at the centre, translucent-striate, minutely pruinose all over, glabrescent, greyish olivaceous brown, fairly dark when moist and young, dark sepia brown at the centre, drying pale greyish. Flesh very thin. Odour indistinctive, taste mild. Lamellae 15–20 reaching the stipe, tender, strongly arcuate, broadly adnate, decurrent, pale fuscous to greyish sepia, with concave edge. Stipe 20–50 × 1 mm, hollow, firm, equal, straight to curved, terete, pruinose all over, glabrescent, much paler than the pileus, the base covered with coarse, whitish fibrils.

Basidia c. $27 \times 6.5\text{--}7 \mu\text{m}$, clavate, 2-spored, clampless, with sterigmata $6.5\text{--}7 \mu\text{m}$ long. Spores $8.1\text{--}9.0 \times 6.3\text{--}7.0 \mu\text{m}$, broadly ellipsoid to subglobose, smooth, non-amyloid. Cheilocystidia $34\text{--}42 \times 8\text{--}11.5 \times 2.5\text{--}3.5 \mu\text{m}$, forming a sterile band, fusiform to sublageniform, clampless. Pleurocystidia similar, scarce. Hyphae of the pileipellis $2\text{--}3 \mu\text{m}$ wide, clampless, diverticulate, with branched excrescences $9\text{--}22.5 \times 1\text{--}2 \mu\text{m}$, somewhat difficult to discern on account of gelatinous matter. Hyphae of the cortical layer of the stipe $1.5\text{--}3.5 \mu\text{m}$ wide, clampless, smooth for the greater part, but covered with side-branches near the tip, the terminal cells (caulocystidia) $7\text{--}35 \times 3.5\text{--}7 \mu\text{m}$, not gelatinized.



Figs. 20–25. *Mycena clavata* (Norway: Ø. Weholt 138/83; L). — 20. Basidium. — 21. Spores. — 22. Cheilocystidia. — 23. Hyphae of the pileipellis. — 24. Hyphae of the cortical layer of the stipe. — 25. Terminal cells.

All figs., $\times 700$.

Norway: Åkershus, Ås, Bunu, 2 Oct. 1983, R. Kristiansen & Ø. Weholt, among short moss on bark of old *Picea* (Weholt 138/83; L and Herb. Weholt).

The macroscopic description is taken from Mr Weholt's notes, the microscopic details are based on reexamination of the dried material.

The colour of the pileus of the present collection is much darker than in the original description by Peck, but not different from that of *M. thujina* A.H. Smith which Redhead had reduced to the synonymy of *M. clavata*, and quite as dark as indicated in *M. phaeophylla*. A further point to be noted is that the present collection possesses 2-spored basidia which would appear to narrow the gap between *M. clavata* and *M. phaeophylla*. Some doubt remains, however. Kühner (1938: 591, 592) stated that both the 4- and 2-spored forms of *M. phaeophylla* lacked pleurocystidia; indicated the spores of the 4-spored form as definitely more pip-shaped than globose; apparently did not observe any branched excrescences of the hyphae of the pileipellis; and failed to give information on the nature of the substratum (wood of coniferous or deciduous tree). Still further collections both from Europe and North America will be needed before a consensus can be reached.

MYCENA CONCOLOR (J.E. Lange) Kühn.

Omphalia picta var. *concolor* J.E. Lange in Dansk bot. Ark. 6(5): 15. 1930; Flora agar. dan. 2: 61, pl. 61 fig. 1. ("1936") 1937 (not *Agaricus pictus* Fr.: Fr. var. *concolor* Fr., Epicr. Syst. mycol.: 126. 1838). — *Mycena concolor* (J.E. Lange) Kühn., Genre *Mycena*: 371. 1938.

The varietal epithet *concolor* does suggest that Lange was aware of Fries' *Agaricus pictus* var. *concolor*, although it was not explicitly indicated in 1930 that *Omphalia picta* var. *concolor* was *not* meant as a new combination. This became apparent only in 1937 when he credited himself as the author of the new variety. It is, moreover, obvious that Lange described an entirely different taxon from Fries' var. *concolor*.

Fries in his *Epicrisis* (in which he condensed the descriptions of *Observationes* 1, p. 83 and *Obs.* 2, p. 220), described (i) the habitus of his variety as "plene Batsch f. 86!" (which shows a fungus with a striking and very narrowly parabolical pileus), (ii) the pileus as umbilicate and never expanding, (iii) the lamellae as "multo latiores, quam longae," (iv) the stipe as concolorous with the pileus ("nigro-fusco"), and the habitat as "In fagetis." In contrast, Lange described (i) the pileus as campanulato-convex and (to judge from his later illustration) expanding with age, (ii) the lamellae "as broad as long," (iii) the stipe as "paler than the cap" (which was said to be pallid with fuliginous centre and striae), and the habitat as "outskirt of wood of *Picea*, edge of bog, . . . among moss and needles."

Clearly, Lange cannot have been ignorant of these widely different characters, so his choice of the same varietal epithet, although unfortunate, must be taken to have been accidental.

***Mycena crocea* Maas G., spec. nov.² — Figs. 26-37**

Misapplied name: *Mycena luteopallens* sensu A.H. Smith, N. Am. Spec. *Mycena*: 169, text fig. 16(1-3, 6). 1947.

Basidiomata solitaria vel subfasciculata. Pileus 8-15 mm latus, ovoideus, convexus vel campanulatus, aetate applanatus, translucide striatus, glaber, aurantiacus, pallescens. Caro tenuis, subflavus vel pallidus, odore saporeque ignotis. Lamellae 17-21 stipitem attingentes, molles, adscendentes, ventricosae, adnatae, subflavae, margine convexo pallido. Stipes 50-90 × 1-2 mm, fistulosus, fragilis, aequalis, cylindraceus, strictus, apice puberulus et pileo concolor, deorsum glabrescens et pallidior, basin versus radicans.

Basidia 25-30 × 7-8 μm, clavata, 4-sporea, fibulata, sterigmatibus usque ad 6.5 μm longis praedita. Sporae 8.1-9.2 × 4.7-6.3 μm, inaequilateraliter ellipsoideae, laeves, amyloideae. Cheilocystidia 30-50 × 9-18 μm, vulgo fusiformia, fibulata. Pleurocystidia numerosa, collis vulgo longioribus instructa. Trama lamellarum iodi ope brunneo-vinescens. Hyphae pileipellis 2.5-8 μm latae, fibulatae, laeves. Hyphae stipitis corticales 1.8-2.5 μm latae, fibulatae, laeves vel sparse diverticulatae, cellulae terminales 3.5-13.5 μm latae, fusiformia vel irregulares, interdum furcatae, grosse diverticulatae.

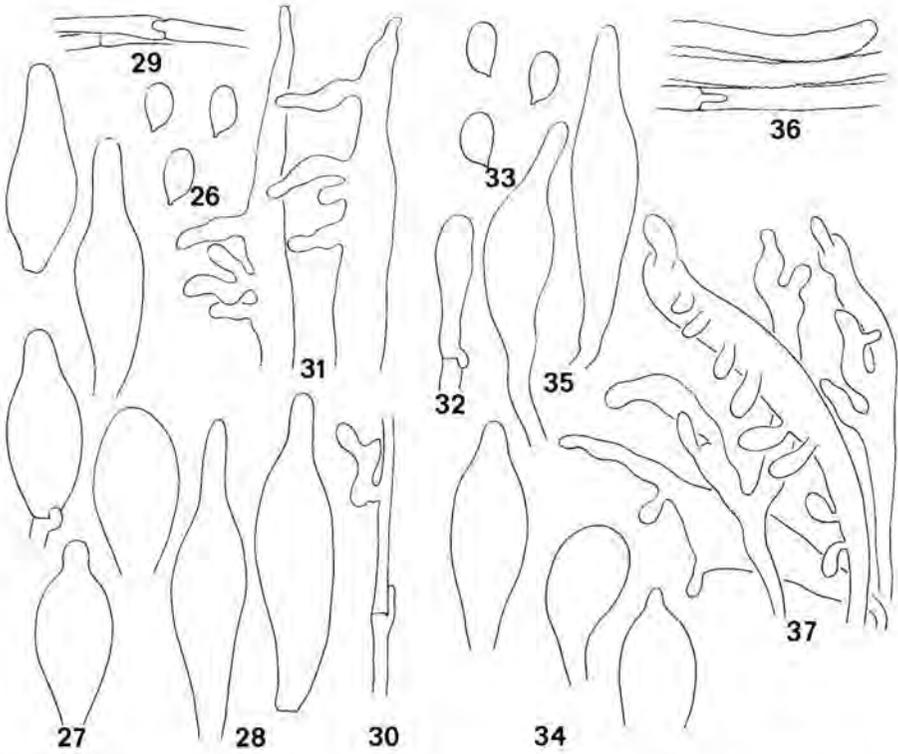
Plerumque nucicola.

Holotypus: A.H. Smith 32-479 (sub nomine *Mycena luteopallens*; MICH).

Basidiomata solitary or in small groups of up to four, subfasciculate. Pileus 8-15 mm across, ovoid at first, becoming convex to campanulate, flattening with age, with or without an umbo, translucent-striate, glabrous, hygrophanous, brilliant orange ('cadmium yellow') to rich yellow ('buff yellow'), fading whitish, the margin at first appressed to the stipe, often becoming wavy, concolorous. Flesh thin, somewhat pliant, yellowish to pallid. Odour and taste not recorded. Lamellae 17-21 reaching the stipe, tender, ascending, c. 1.5 mm broad, ventricose, adnate (to somewhat decurrent with a tooth to judge from the dried material), yellowish or tinged incarnate, the edge convex, pallid. Stipe 50-90 × 1-2 mm, hollow, fragile, equal, terete, straight to flexuous, densely puberulous above, glabrous farther below, apically concolorous with the pileus, paler below, the base much prolonged, densely covered with long, coarse, flexuous, whitish fibrils.

Basidia 25-30 × 7-8 μm, clavate, 4-spored, clamped, with sterigmata 5.5-6.5 μm long. Spores 8.1-9.2 × 4.7-6.3 μm, pip-shaped to broadly pip-shaped, smooth, rather weakly amyloid. Cheilocystidia 30-50 × 9-18 μm, forming a sterile band (lamellar edge homogeneous), mostly fusiform and generally with a short neck, but also sublageniform, ovoid or broadly clavate and without neck, clamped. Pleurocystidia 54-75 × 11-18 μm, numerous, fusiform, clamped, generally with the neck more pronounced than in the cheilocystidia. Lamellar trama brownish vinescent in Melzer's reagent. Hyphae of the pileipellis 2.5-8 μm wide, clamped, smooth or with transversely rugulose, firm cell-walls. Hyphae of the cortical layer of the stipe 1.8-2.5 μm wide, clamped, smooth or with few, very scattered, rather coarse, simple to furcate excrescences 4.5-13.5 × 2-3 μm, the terminal cells (caulocystidia) 3.5-13.5 μm wide, cylin-

² Etymology: *croceus*, orange.



Figs. 26–31. *Mycena crocea* (holotype). — 26. Spores. — 27. Cheilocystidia. — 28. Pleurocystidia. — 29. Hyphae of the pileipellis. — 30. Hypha of the cortical layer of the stipe. — 31. Caulocystidia.
 Figs. 32–37. *Mycena crocea* (United States: A.H. Smith 32–519; MICH). — 32. Immature basidium. — 33. Spores — 34. Cheilocystidia. — 35. Pleurocystidia. — 36. Hyphae of the pileipellis. — 37. Terminal cells of hyphae of the cortical layer of the stipe.
 All figs., $\times 700$.

drical, fusiform or irregularly shaped and branched, coarsely diverticulate, with excrescences $7\text{--}18 \times 2.5\text{--}5.5 \mu\text{m}$.

Usually on buried remains of hickory nuts and walnuts.

Holotype: "Michigan Fungi / *Mycena luteopallens* Pk. / Cascade Glen, Ann Arbor [Washtenaw Co.], Mich. Sept. 27, 1932 / A.H. Smith 32–479" (MICH).

As pointed out earlier (Maas Geesteranus, 1985: 52), the type of *Agaricus luteopallens* Peck belongs to the genus *Hygrocybe* (Fr.) Kummer. It has nothing to do with the present species which is a true *Mycena* and a member of section *Fragilipedes*.

Smith (l.c.) indicated *Marasmius nucicola* McDougal as a synonym of *M. luteopallens* (sensu Smith), and considering the specific epithet his statement may well be correct, but I do not know McDougal's publication, nor have I seen any material.

For an illustration of the habit of *M. luteopallens* (sensu Smith) Smith referred to plate 20 (upper figure) in Beardslee & Coker's work (1924), with which I am inclined to agree. A further illustration which I am fairly sure represents *M. crocea* is figure no. 184 of plate 25 in Imazeki & Hongo's work (1987).

It is unfortunate that the late discovery of *Mycena crocea* causes the following change in the key in section *Fragilipedes*, but I am not surprised. There is no doubt in my mind that more changes will be necessary in the future as further new species turn up.

27. Narrower hyphae of the pileipellis smooth (sometimes covered with granular matter) or transversely rugulose or covered with very few, widely spaced, and small excrescences: ...Key 7.

Key 7.

76a. Pileus black, grey-brown or white with brown centre. Stipe brown in various shades at the base.

76b. Spores 6-7 μm broad.

77. (unchanged)

77. (unchanged)

76b. Spores 3.5-5.5 μm broad.

78. (unchanged)

78. (unchanged)

76a. Pileus bright orange to yellow. Stipe concolorous with the pileus, paler below: *M. crocea*

Although there is considerable variation in the colouration of the pileus in section *Fragilipedes*, vividly coloured species were thus far decidedly rare, *Mycena chrysocorypha*, *M. citrinomarginata*, and *M. lutea* being the three examples known. *Mycena crocea* is the fourth addition, and a brilliant one.

MYCENA CRYPTOMERIICOLA Imazeki & Toki

Mycena cryptomeriicola Imazeki & Toki in Bull. Governm. Forest Exp. Sta. no. 79: 8, fig. 11, pl. 2 fig. 3. 1955 ("cryptomeriaecola"). — Holotype: F 3857 (Herb.?: not seen).

The Japanese authors remarked that their new species belonged "to the same group of *M. osmundicola* and *tenerrima*," in other words, to section *Sacchariferae*. Going by the presence of a basal disc to the stipe and their illustration of the cheilocystidia, *M. cryptomeriicola* would seem to be more closely related to *M. tenerrima*, a synonym of *M. adscendens*. A difficulty is that *M. cryptomeriicola* was said to have non-amyloid spores and to lack clamps ("hyphis non-nodosis") although the basidia are 4-spored. In *M. adscendens*, the spores are amyloid, and the hyphae clamped. Reexamination of the Japanese material should provide the answer.

A species possibly related to *M. cryptomeriicola* is *Mycena occulta* (which see in this paper) which is equally associated with coniferous trees, but the latter differs in the very different shape of its cheilocystidia and the much more delicate excrescences of the terminal cells of the hyphae of the pileipellis.

MYCENA CUCULLATA (Ellis) Redhead — Figs. 38-41

Marasmius cucullatus Ellis in Bull. Torrey bot. Club 6: 76. 1876. — *Mycena cucullata* (Ellis) Redhead in Sydowia 37: 252, figs. 1-4. 1984. — Lectotype: "Ellis, North American Fungi 702 /

Marasmius cucullatus, Ell. / On dead twigs of *Vaccinium corymbosum*. Newfield, N.J. Oct. 1875'' (NY).

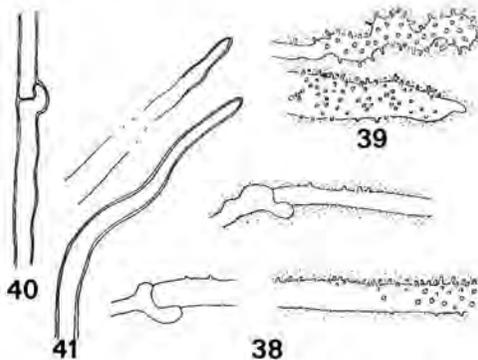
Basidiomata scattered. Pileus about 1 mm across, campanulate, sulcate, translucent-striate, appearing glabrous, pale straw-coloured. Flesh thin. Odour and taste not recorded. Lamellae c. 12 reaching the stipe, tender, horizontal, adnate, paler than the pileus, with straight, whitish edge. Stipe c. 6–12 mm long, hollow, equal for the greater part, terete, appearing glabrous, pale straw-coloured, the base somewhat enlarged, covered with white tomentum.

Basidia 28–30 × 5–6 μm , clavate, 4-spored, clamped. Spores 7–8 × 5–6.5 μm , broadly pip-shaped, smooth, amyloid. Cheilocystidia 20–25 × 9–11 μm , fusiform, apically smooth or covered with wart-like to more elongated finger-like excrescences. Pleurocystidia up to 48 × 12 μm , abundant, much protruding, fusiform, smooth. Hyphae of the pileipellis 2.5–4.5 μm wide, clamped, embedded in gelatinous matter, smooth or covered with a few, scattered wart-like excrescences, the terminal cells 3.5–9 μm wide, towards their tips increasingly densely covered with cylindrical, simple to furcate excrescences 1–3.5 × 1–2 μm . Hyphae of the cortical layer of the stipe 2.5–3.5 μm wide, clamped, fairly thick-walled, smooth for the greater part, caulocystidia — >100 × 3–6 μm .

On dead twigs and limbs of *Vaccinium* ("Viburnum") *corymbosum*. Known from the northeastern part of the United States.

The macroscopic description of the species is adapted from Ellis', complemented by my own observations on the (incomplete and scanty) material in the two copies of Ellis, North American Fungi 702 extant in NY. The microscopic details of the hymenial elements have been taken from Redhead's description. The details of the hyphae of the pileipellis and of the cortical layer of the stipe are based on reexamination of the lectotype.

The accommodation of *Mycena cucullata* has been somewhat of a problem. Redhead (l.c) considered the species "most closely related to *Mycena pachyder-*



Figs. 38–41. *Marasmius cucullatus* (lectotype). — 38. Hyphae of the pileipellis. — 39. Terminal cells of hyphae of the pileipellis. — 40. Hypha of the cortical layer of the stipe. — 41. Fragments of caulocystidia.

All figs., × 700.

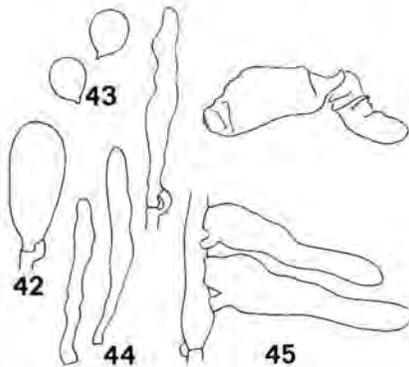
ma Kühner," but this is hardly acceptable. In *M. cucullata*, the spores are definitely pip-shaped rather than subglobose, the general shape of the cheilocystidia is fusiform, pleurocystidia are absent, the hyphae of the pileipellis are densely diverticulate and embedded in gelatinous matter but apparently the whole is not separable as a gelatinous pellicle. In *M. pachyderma*, the spores are subglobose, the general shape of the cheilocystidia is clavate, pleurocystidia are much in evidence, the pileus is covered with a separable, gelatinous pellicle, and the hyphae of the pileipellis, although much branched, are smooth.

Mycena cucullata appears best placed in section *Fragilipedes* (Fr.) Quél., where it should be compared with the species of Key 4 (Maas Geesteranus, 1988: 47). The difficulty which originally made me hesitate is the extremely small size.

MYCENA CYANEOBASIS Peck — Figs. 42–45

Mycena cyaneobasis Peck in Rep. N.Y. St. Mus. nat. Hist. 51: 284. 1898. — Holotype: "Mycena cyaneobasis Peck / North Elba / Chas. H. Peck June 1897" (NYS).

Smith (1947: 63) placed this binomial in the synonymy of *Mycena subcaerulea* (Peck) Sacc. Reexamination of the type of *M. cyaneobasis* proved Smith's conclusion to be correct, but in *Conspectus 2* (Maas Geesteranus, 1984:



Figs. 42–45. *Mycena cyaneobasis* (holotype). — 42. Immature basidium. — 43. Spores. — 44. Cheilocystidia. — 45. Caulocystidia.

All figs., $\times 700$.

137) I failed to give the pertinent drawings. This omission is here amended.

MYCENA DAISYOGUNENSIS Y. Kobayasi.

Mycena daisyogunensis Y. Kobayasi in J. Hattori bot. Lab. 5: 5, figs. 1 d, 5. 1951.

No opinion, type material not seen. Imazeki & Hongo (1987: 104) believed this to be a member of section *Sacchariferae* Kühn. ex Sing.

MYCENA DINGHUENSIS Bi apud Bi, Li & Zheng

Mycena dinghuensis Bi apud Bi, Li & Zheng in Acta mycol. sin. 6: 9, fig. 1. (1986) 1987.

To judge from Bi's description, *Mycena dinghuensis* belongs to section *Fragilipedes*. However, in order to be able to distinguish this species from other members of the section more information is needed. Without knowledge of the details of the hyphae of the pileipellis and of those of the stipe further classification is not possible. The only way to solve this problem is to ask for the loan of type material, but requests are said most likely to remain unanswered (personal communication of a visitor of a Chinese university).

MYCENA DISCOPUS (Lév.) QuéL.

In the key to the species of section *Sacchariferae* (Maas Geesteranus, 1983: 403), *Mycena discopus* and *M. adscendens* (Lasch) Maas G. were differentiated, among other things, as follows:

Lamellae narrowly adnate or seceding and forming a pseudocollarium: *M. adscendens*
Lamellae broadly adnate: *M. discopus*

Mycena adscendens was further stated to grow "On fallen twigs or moss-covered trunks of deciduous trees (e.g. *Aesculus*, *Populus*, *Salix*, *Ulmus*), much more rarely on conifers (*Picea*)," whereas the only host indicated by Lévillé (1841: 237) as substratum for his *M. discopus* is fallen nuts of *Corylus avellana*.

The 'Rijksherbarium' possesses three collections of a *Mycena* (Austria, 1986, leg. A. Hausknecht; Germany, 1988, leg. Th. Münzmay; Estonia, 1989, leg. C. Bas) which initially were taken to represent *M. discopus* because 1) they were found on fallen nuts of *Corylus avellana* and 2) their lamellae do not adhere to a pseudocollarium. But is seceding of the lamellae from the stipe and the formation of a pseudocollarium a character independent of the age of the basidiome and, in other words, of taxonomic value? Lévillé's illustration (pl. 14 fig. d) shows the lamellae broadly adnate, but the narrowly parabolical pileus (figs. a-c) suggests that the specimens depicted were probably very young. What would have happened to the lamellae with expanding of the pileus? In order to follow the development of the lamellae and their attachment to the stipe in *Mycena adscendens* (thus named by reason of their occurrence on all kinds of substratum except hazelnuts), all collections available (mainly from the Netherlands) were checked. Ten collections lack proper field notes or are otherwise unsuitable for investigation. In 21 collections, the lamellae appear to be attached to a pseudocollarium, but in five further collections they are adnate to the stipe. In one case, finally, one specimen of the collection has its lamellae attached to a pseudocollarium, whereas the other specimens have the lamellae adnate to the stipe. This shows that the character of the lamellae being adnate to the stipe is not a feature exclusively inherent with *M. discopus*.

A feature the collections from Austria, Germany, and Estonia have in common is that their basidia are 4-spored, whereas thus far *M. adscendens* was supposed to be only 2-spored. This fact initially strengthened my belief that the

specimens belonged to some species other than *M. adscendens*, probably *Mycena discopus*, but was it correct to assume that 4-spored basidia do *not* exist in *M. adscendens*? J.E. Lange (1914: 35; 1937: 49) described a variety of *Mycena tenerrima* (= *M. adscendens*), found "on dead pericarps of beech" which was named var. *carpophila* and proved to possess 4-spored basidia. I have not seen this material but Lange considered the variety identical to (the typical variety of) *M. tenerrima* in all other respects, which I have no reason to doubt. A comparative study of the hyphae of the pileipellis, the caulocystidia, and the hyphae of the basal disc subsequently demonstrated that these elements, either taken from the recently collected hazelnut-associated specimens or from other basidiomes, are essentially alike. It is tempting therefore to conclude that *Mycena discopus* and *M. adscendens* must represent the same species, but one difficulty remains. The basal disc as depicted by Lévillé looks rather flat and is certainly much larger (3 mm across) than the cushion-like disc of *M. adscendens*. A definite opinion still cannot be given, although my earlier conviction of *M. discopus* being a species in its own right has become very tenuous indeed.

As regards yet another species described from fallen hazelnuts, see under *Mycena nucicola*, where the essential microscopic features of the collections from Austria, Germany, and Estonia are given.

MYCENA ERUBESCENS Höhn.

The stipe of this species in fresh condition is generally said to exude a watery to milky juice when broken (Kühner, 1938: 232; Smith, 1947: 136; Pearson, 1955: 52), but if for some reason this character is not demonstrable, it cannot be denied that *Mycena erubescens* (section *Lactipedes*) and *M. corticiceps* (section *Fragilipedes*) look deceptively alike, both macro- and microscopically.

The abundance of vascular hyphae in the flesh with their refractive contents as well as the droplet-filled pleurocystidia should serve as reliable features to recognize *M. erubescens*.

AGARICUS ERYTHROPUS Pers.

In a lengthy account I rejected (Maas Geesteranus 1981: 434–435) the lectotypification of this species by Singer. Dr S.A. Redhead (Ottawa) stated (in a letter dated April 1, 1982) that after having carefully considered my comments he "came to another conclusion." He also said about Singer's lectotypification that "we are stuck with it . . . I believe we are obliged by the I.C.B.N. to accept Singer's choice of type." But he concluded his letter by writing "Unfortunately, neither of our interpretations helps us understand the species any better."

Right, then throw out this *Agaricus erythropus*.

Mycena favrei Maas. G., *spec. nov.* — Figs. 46, 47

Misapplied name: *Mycena ianthina* sensu Favre, Cat. descr. sup. zone subalp. Parc Nat. Suisse: 409, Fig. 18, pl. 6 fig. 4. 1960.

Basidiomata sparsa. Pileus 6–8 mm latus, usque ad 10 mm altus, parabolicus, raro extensus, leviter sulcatus, translucente striatus, subtiliter pruinosis, glabrescens, apice brunneo-lilaceus, ambitu pallide lilaceus. Caro tenuis, pallide lilacea, odore saporeque nullis. Lamellae 14–18 stipitem attingentes, molles, adscendentes, subventricosae, tenuiter adnatae, albae, margine convexo, albo. Stipes 60–70 × 1 mm, cavus, fragilis, aequalis, cylindraceus, levis, supra leviter pruinosis et lilaceus, deorsum glaber et brunneo-lilaceus, basi fibrillis crassis albidisque munitus.

Basidia 25–28 × 6.5–7 μm, clavata, 4-spora, fibulata. Sporae 6.5–9 × 3.3–4.7 μm, inaequilateraliter ellipsoideae, leves, amyloideae. Cheilocystidia 28–48 × 7–18 μm, clavata, fibulata, surculis 2–4 × 1 μm, cylindraceis instructa. Pleurocystidia non observata. Trama lamellarum iodi ope vivescens. Hyphae pileipellis 2.5–5 μm latae, fibulatae, dense verrucosae vel diverticulatae. Hyphae stipitis corticales 1.5–2.5 μm latae, fibulatae, diverticulatae, cellulae terminales 2.5–3.5 μm latae, diverticulatae.

In silvis coniferis.

Holotypus: "*Mycena ianthina* Fr. / val Tavrü, pr. Scarl / . . . 25 juill. 1943" (GK 14496; G).

Basidiomata scattered. Pileus 6–8 mm across, up to 10 mm high, parabolical, very rarely expanding, shallowly sulcate, translucent-striate, delicately pruinose, glabrescent, fairly pale brownish lilac at the centre, pale lilac towards the margin. Flesh thin, pale lilac. Odour and taste absent. Lamellae 14–18 reaching the stipe, tender, ascending, c. 1.5 mm broad, somewhat ventricose, weakly adnate, white, with somewhat convex, concolorous edge. Stipe 60–70 × 1 mm, hollow, fragile, equal, terete, smooth, delicately pruinose and lilac above, glabrous and brownish lilac farther below, covered with coarse, whitish fibrils at the base.

Basidia 25–28 × 6.5–7 μm, clavate, 4-spored, clamped. Spores 6.5–9 × 3.3–4.7 μm, pip-shaped, smooth, weakly amyloid. Cheilocystidia 28–48 × 7–18 μm, clavate, clamped, covered with comparatively few, evenly spaced, cylindrical excrescences 2–4 × 1 μm. Pleurocystidia not observed. Lamellar trama vivescent in Melzer's reagent. Hyphae of the pileipellis 2.5–5 μm wide, clamped, densely verrucose or covered with short, cylindrical excrescences. Hyphae of the cortical layer of the stipe 1.5–2.5 μm wide, clamped, more or less densely covered with cylindrical, simple to furcate excrescences 1.5–6.5 × 1–1.5 μm, terminal cells scarce, 2.5–3.5 μm wide, diverticulate.

Among moss and fallen needles of coniferous trees, over 1300 m alt.



Figs. 46, 47. *Mycena favrei* (holotype). — 46. Hypha of the cortical layer of the stipe. — 47. Terminal cell.

Both figs., × 700.

Holotype: "*Mycena ianthina* Fr. / val Tavrü, pr. Scarl / . . . 25 juill. 1943" (GK 14496; G).

The description of the species is adapted from Favre's account (details of the hyphae of the cortical layer of the stipe excepted), complemented by my own observations on the dried material.

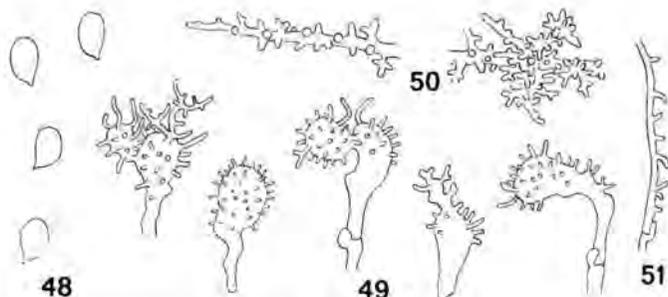
Dr E. Horak (Zürich) kindly drew my attention to *Mycena ianthina* as redescribed by Favre and believed by the latter to be the same as the taxon first described by Fries (1821: 147) as *Agaricus janthinus*. There are some differences, however. Fries simply indicated the general colour as "janthino-purpureus," without giving a separate description of the colour of the stipe or the lamellae. This implies that the lamellae are of the same violet colour, whereas Favre called them white in his material. Both Wharton (1884: 31) and Dade (1943: 12) accepted "janthinus" as violet, and the Friesian term "janthino-purpureus" therefore must be interpreted as a colour of considerable intensity. The pileus in Favre's material, however, was said to be "lilas brunâtre au sommet, lilas pâle à l'ambitus," while the illustration (pl. 6 fig. 4) actually shows two delicately coloured specimens. It is unlikely that Favre should have depicted faded specimens of the true *Agaricus janthinus* for in his description Fries emphasized that the stipe is "non expallens." Finally, Fries described the stipe as striate, whereas Favre said "mat." These differences in my opinion are sufficiently important to pronounce *Mycena ianthina* sensu Favre a different species from the original *Agaricus janthinus*.

The features of *Mycena favrei* identify it as a member of section *Filipedes* (Fr.) Quél., while its colours remind one of those of faded *M. urania* (Fr.: Fr.) Quél. Actually, Moser (1983: 179) placed *M. ianthina* sensu Favre in the synonymy of *M. urania*, and the former could conceivably be regarded as a pale form of the latter. However, in my opinion the following differences have sufficient weight to maintain the two taxa as separate species. (i) Favre knew the species from several localities between 1350 and 2100 m altitude but apparently never saw the colour of the pileus and the stipe as dark as described in *M. urania*; (ii) the pileus was described as "étroitement conoïde" and (iii) was only "très rarement" observed to expand; (iv) in *M. favrei*, 14–18 lamellae reach the stipe, against 17–22 in *M. urania*; (v) the lamellae are white in *M. favrei*, whereas at first they are violet-blue, then fading to greyish or whitish in *M. urania*.

MYCENA FLAVIFOLIA Peck — Figs. 48–51.

Mycena flavifolia Peck in Bull. N.Y. St. Mus. 167: 28. 1913. — *Prunulus flavifolius* (Peck) Murrill in N. Am. Flora 9: 324. 1916. — Holotype: "*Mycena flavifolia* Peck / North Elba / Sept. 1910 / C.H. Peck" (NYS).

Basidiomata gregarious. Pileus up to 11 mm across, conical to campanulate, occasionally with small umbo, sulcate, translucent-striate, pruinose, glabrescent, pale smoky yellow, becoming pale pinkish brown or subalutaceous in drying. Flesh thin. Odour and taste not recorded. Lamellae c. 20–23 reaching the



Figs. 48-51. *Mycena flavifolia* (holotype). — 48. Spores. — 49. Cheilocystidia. — 50. Hyphae of the pileipellis. — 51. Hypha of the cortical layer of the stipe. All figs., $\times 700$.

stipe, tender, ascending, up to c. 1.5 mm broad, slightly ventricose, narrowly adnate, decurrent with a short tooth, pale yellow, becoming pallid in drying, with convex, somewhat paler edge. Stipe c. 25×1 mm, hollow, equal for the greater part, terete, straight to somewhat curved, smooth, pruinose to minutely puberulous all over, glabrescent, chestnut coloured, the base covered with long, coarse fibrils.

Basidia (none seen clearly), c. $7 \mu\text{m}$ broad, 4-spored. Spores $7.2\text{--}8.2 \times 4.7\text{--}5.4 \mu\text{m}$, pip-shaped, smooth, weakly amyloid. Cheilocystidia $12.5\text{--}27 \times 7\text{--}9 \mu\text{m}$, forming a sterile band (lamellar edge homogeneous), clavate to more or less irregularly shaped, clamped, typically covered with numerous, evenly spaced, straight to somewhat curved, simple, cylindrical excrescences $1\text{--}5 \times 1 \mu\text{m}$, although much longer and much branched excrescences are not uncommon. Pleurocystidia absent. Lamellar trama pale vinaceous brownish in Melzer's reagent. Hyphae of the pileipellis $1.5\text{--}4.5 \mu\text{m}$ wide, clamped, more or less densely covered with simple to much branched excrescences. Hyphae of the cortical layer of the stipe diverticulate.

Stated to occur under balsam fir trees.

The macroscopic description of the species is adapted from Peck's, complemented by my own observations on the dried material. The microscopic details are based on reexamination of the type.

The characters of this *Mycena* classify it as a member of section *Filipedes* (Fr.) Quél., but further attempts at identification remain uncertain. The colour of the pileus ("smoky yellow") suggests *Mycena arcangeliana* Bres. (apud Barsali), and the colour of the stipe ("chestnut coloured") seems to point to *M. flavescens* Vel., but in either case there are certain characters that do not tally. Additional finds will be required to get a clear picture of this species which seems to be near *Mycena chloranthoides* (Maas Geesteranus, 1984: 426).

MYCENA FLORIDULA sensu Kühn.

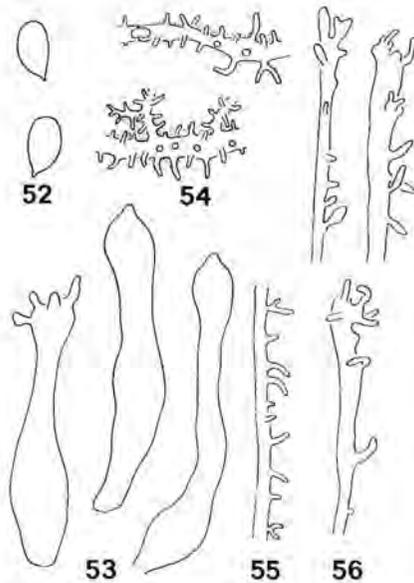
An interesting observation on this species was made by Mr A. Hausknecht (Maissau, Austria) who kindly consented to its being published here.

The pileus of *Mycena floridula* is known to fade from coral red to pale citrine with age and the species in that stage appears to be no longer distinguishable from *Mycena flavoalba* (Fr.) Quél. (Maas Geesteranus, 1990: 174). However, Mr Hausknecht found that the faded specimens of *M. floridula* sensu Kühner, placed in his drying apparatus, regained their original colour and have stayed red ever since, whereas no colour change was observed in the drying specimens of *M. flavoalba* which had been collected the same day.

MYCENA FUSCONIGRA P.D. Orton — Figs. 52–56

Mycena fusconigra P.D. Orton in Trans. Br. mycol. Soc. 91: 563, figs. 12, 26. 1988. — Holotype: "Mycena fusconigra P.D. Orton / Somerset, Chaffcombe, Park Wood / 16 Nov. 1987 / Orton 5827" (E).

The cheilocystidia of *Mycena fusconigra* as depicted by Orton (Fig. 26) are of a kind not uncommon in section *Fragilipedes*. However, reexamination of the holotype shows that there is a much greater variability in their shape, three examples of which are here presented in Fig. 53. The shape of these cheilocystidia is very characteristic of *Mycena leucogala* (Cooke) Sacc., a member of section *Lactipedes*. For a comparison, the following microscopic details of the type of *M. fusconigra* are given.



Figs. 52–56. *Mycena fusconigra* (holotype). — 52. Spores. — 53. Cheilocystidia. — 54. Hyphae of the pileipellis. — 55. Hypha of the cortical layer of the stipe. — 56. Terminal cells. All figs., $\times 700$.

Basidia (none seen mature), clavate, with four incipient sterigmata, clamped. Spores (mostly immature) $9.0\text{--}9.5 \times 5.8\text{--}6.5 \mu\text{m}$, pip-shaped, smooth, amyloid. Cheilocystidia $45\text{--}75 \times 10\text{--}11.5 \times 4.5\text{--}9 \mu\text{m}$, occurring mixed with unobtrusive basidia, lageniform, subfusiform, more rarely almost cylindrical, generally simple but also apically irregularly furcate or with a few coarse excrescences. Pleurocystidia similar to the regularly shaped cheilocystidia and, like these, very much protruding. Lamellar trama brownish vinescent in Melzer's reagent. Hyphae of the pileipellis $1.8\text{--}4.5 \mu\text{m}$ wide, clamped, together with their side-branches covered with simple to much branched excrescences $2\text{--}6.5 \times 1\text{--}2 \mu\text{m}$ which may form very dense masses and tend to become somewhat gelatinized. Hyphae of the cortical layer of the stipe $1.8\text{--}2.5 \mu\text{m}$ wide, clamped, covered with simple to furcate, more or less curved excrescences $2\text{--}6.5 \times 1\text{--}2 \mu\text{m}$, the terminal cells $2.5\text{--}5.5 \mu\text{m}$ wide, with variously shaped excrescences $5.5\text{--}9 \times 1\text{--}2.5 \mu\text{m}$.

Apart from some non-essential differences, the above description corresponds well with that of *Mycena leucogala* (Maas Geesteranus, 1988: 386). Several details in Orton's macroscopic description, the occurrence on wood, Orton's reference to brown vacuolar pigment (see also Kühner, 1938: 224 and 228), the telltale presence of very long, broad, aseptate, strongly refracting vascular hyphae in the trama of the stipe, these all point in the same direction — *Mycena fusconigra* is no other than *Mycena leucogala* and is here formally relegated to its synonymy.

MYCENA FUYOENSIS Imai

Mycena fuyoensis Imai in Bot. Mag. Tokyo 55: 448. 1941.

The red and orange colours in Imai's description suggest that his species may be a member of section *Adonideae*. It is not possible to give any further details without having seen the type.

Imazeki & Hongo (1987: 104) mentioned *M. fuyoensis* (along with *M. paralactea* Imai and *M. umeae* Imai) under *Hemimycena delicatella*, but it is not clear to me whether these names were meant as synonyms.

MYCENA GALERICULATA (Scop.: Fr.) S.F. Gray var. FERRUGINEOMACULATA Kalamees apud Vaasma & al. — Figs. 57–59

Mycena galericulata var. *ferrugineomaculata* Kalamees apud Vaasma, Kalamees & Raitviir, Macrofungi Caucas. St. Nat. Res.: 75, fig. 6, 1986. — Holotype: "Fungi caucasici / *Mycena galericulata* var. *ferrugineomaculata* Kalamees / Krasnodar, . . . , Laura, Reserv. Caucasicum . . . / V 1977 / K. Kalamees / No. 83616" (TAA).

This variety was said to differ from var. *galericulata* by the rust-coloured stains which appear in age. In a later paper, Kalamees (1989: 141) stated that "The appearance of rusty spots on *Mycena* fruitbodies presents a problem in itself and it is disputable whether they have a taxonomic significance." Hardly any, I am afraid.



Figs. 57–59. *Mycena galericulata* var. *ferrugineomaculata* (holotype). — 57. Spore. — 58. cheilocystidium. — 59. Hypha of the cortical layer of the stipe. All figs., $\times 700$.

MYCENA INCLINATA var. ALBOPILEA Derbsch & Schmitt

Mycena inclinata var. *albopileae* Derbsch & Schmitt in Nat. Landsch. Saarland 3: 527. 1987.

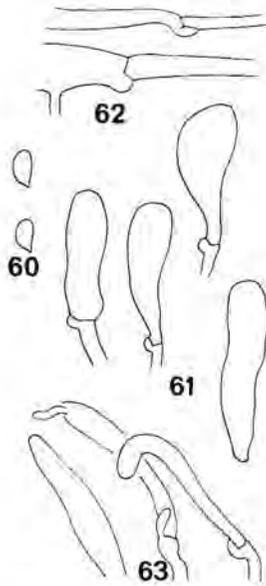
Occasionally, tufts of *M. inclinata* are found with very pale pilei. Derbsch & Schmitt described a form with the pilei pure white but, lacking a Latin diagnosis, the epithet *albopileae* remains not validly published.

MYCENA INDICA Sing. — Figs. 60–63

Mycena indica Sing. in Fieldiana (Bot.) 21: 76. 1989. — Holotype: “*Mycena indica* Sing. / India, H[imachal] P[radesh], Simla, Tutu / 20 VIII 1979 / N.S. Atri 12 / Ad folia putrida *Quercus incanae* Roxb. et *Rhododendri arborei* Sm. in silva montana, 1983 m alt.” (F 1030742).

Pileus up to 27 mm across, convex, umbonate, translucent-striate, glabrous, purplish grey. Flesh very thin, unchanging. Odour none. Lamellae 20–23 reaching the stipe, tender, ascending, fairly narrow, slightly ventricose, somewhat decurrent, ribbed and strongly intervenose, concolorous with the pileus, the edge shallowly convex, whitish. Stipe 75×2 mm, hollow, fragile, somewhat narrowed upwards, smooth, sparsely puberulous, somewhat concolorous with the pileus, the base covered with brownish fibrils.

Basidia (only immature ones seen) $18\text{--}24 \times 5.5\text{--}6.5 \mu\text{m}$, cylindrical-clavate, clamped, some with four incipient sterigmata. Spores (immature) c. $6.5 \times 3.5 \mu\text{m}$, pip-shaped, smooth, amyloid. Cheilocystidia $20\text{--}36 \times 7\text{--}12.5 \mu\text{m}$, forming a sterile band (lamellar edge homogeneous), cylindrical to subclavate, clamped, thin-walled, with broadly rounded apex. Pleurocystidia absent. Lamellar trama



Figs. 60-63. *Mycena indica* (holotype). — 60. Spores. — 61. Cheilocystidia. — 62. Hyphae of the pileipellis. — 63. Caulocystidia.
All figs., $\times 700$.

vinescent in Melzer's reagent. Hyphae of the pileipellis $1.5-3.5 \mu\text{m}$ wide, clamped, smooth. Hyphae of the cortical layer of the stipe $2.5-3.5 \mu\text{m}$, clamped, smooth, terminal cells (caulocystidia) $2.5-5.5 \mu\text{m}$ wide, slender-clavate to subfusiform.

The macroscopic description of the species is adapted from Singer's, complemented by my own observations on the dried material. The microscopic details are based on reexamination of the type.

This is *Mycena auricolor* (Berk. & Br.) Petch, a redescription of which was recently given by Pegler (1986: 198). The species is a member of section *Calodontes* subsect. *Purae* and would certainly have been included in my revision of that subdivision of *Mycena* (Maas Geesteranus, 1989) if I had known in good time about its occurrence that far north of the Tropic of Cancer.

Singer apparently was unaware of the existence of a previously published *Mycena indica* Manimohan & Leelavathy (*in Mycologia* 80: 861, fig. 1. 1988), a later homonym, and of *Mycena indica* Sarwal & Rawla (*in Current Sci.* 52: 564, figs. A-H. 1983), of which the authors had stated that part of the type had been sent to Kew (see also Maas Geesteranus, 1985: 416).

Studies in Mycenas

Additions and Corrections, Part 2

by R.A. Maas Geesteranus

c/o Rijksherbarium, Postbus 9514, 2300 RA Leiden, the Netherlands

Communicated by Prof. J.T. Wiebes at the meeting of May 27, 1991

Mycena romagnesiana and *M. winterhoffii* are proposed as new species. Redescriptions are given of *Mycena lohwegii*, *M. occidentalis*, *M. occulta*, *M. ochraceicinerea*, *M. pseudolaevigata*, *M. tenuispinosa*, and *M. translucetipes*.

MYCENA IRIS var. MIRABILIS (Cooke & Quél.) Quél.

Mycena iris var. *mirabilis* (Cooke & Quél.) Quél., Ench., Fung.: 38. 1886.

This recombination made by Quélet is of an earlier date than the one attributed to Mougeot cited in a former paper (Maas Geesteranus, 1984: 135).

MYCENA KUEHNERI Sing.

Mycena kuehneri Sing. in Annls mycol. 41: 138 (note 136). 1943. — Type locality: Altai Mountains.

The type packet, preserved in LE, was kindly sent on loan but proved to contain nothing but a bare fern stalk, various fragments of fern frond, and dust mixed with some insect excrements.

Singer said that going by its habitus and basidia *M. kuehneri* tended towards "stirps *Galericulata*," but otherwise was a (member of) "stirps *Vitilis*" which is better known as section *Filipedes* (Fr.) Quél.

The characters described by Singer in *M. kuehneri* do not seem to match those of any of the Northern Hemisphere species of section *Filipedes* known at

present (Maas Geesteranus, 1984); on the contrary, the stipe said to be cartilaginous rather suggests section *Mycena*. However, without an accurate description of the cheilocystidia and their excrescences, identification must remain uncertain. *Mycena kuehneri* is best left for what it is—an unknown taxon.

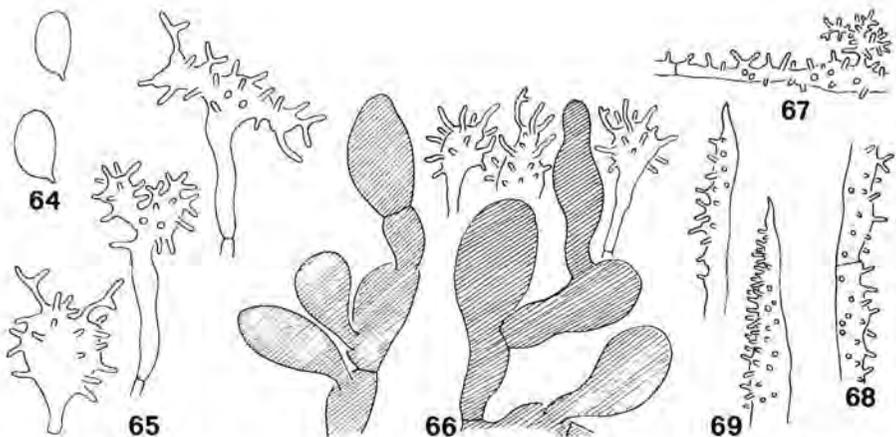
MYCENA KUTHANII Sing. — Figs. 64–69

Mycena kuthanii Sing. in *Fieldiana* (Bot.) 21: 78, 1989. — Holotype: “*Mycena kuthanii* Sing. / No. C5605 / CSSR: Moravia, Podolánský near Čeladná / 21 VII 1974 / Ad muscos varios in picceto humido / Singer & Kuthan” (F 1018666).

Instead of repeating Singer’s macroscopic description, *Mycena kuthanii* is here briefly characterized as follows, while the microscopic details are my own, based on reexamination of the type.

Pileus dark brown. Odour none. Lamellae grey with dark brown edge. Stipe brown, paler than the pileus.

Basidia c. $50 \times 9 \mu\text{m}$, slender-clavate, 2-spored, clampless, with sterigmata up to $11 \mu\text{m}$ long. Spores $10.5\text{--}13.2 \times 6.5\text{--}8.5 \mu\text{m}$, rather broadly pip-shaped, smooth, amyloid. Cheilocystidia $22.5\text{--}40 \times 6.5\text{--}14.5 \mu\text{m}$, forming a sterile band (lamellar edge homogeneous), clavate to irregularly shaped, clampless, covered with unevenly spaced, coarse, cylindrical, simple to furcate, somewhat curved excrescences $2\text{--}10 \times 1\text{--}2 \mu\text{m}$. Pleurocystidia absent. Hyphae of the pileipellis $1.5\text{--}4.5 \mu\text{m}$ wide, clampless, sparsely to densely diverticulate, excrescences $1\text{--}12 \times 1\text{--}1.5 \mu\text{m}$, cylindrical, simple to branched, forming dense masses. Hyphae of the cortical layer of the stipe $2.5\text{--}4.5 \mu\text{m}$ wide, clampless, diverticulate, excrescences $1.5\text{--}3.5 \times 1 \mu\text{m}$, cylindrical, simple or furcate, terminal cells $3.5\text{--}6.5 \mu\text{m}$ wide.



Figs. 64–69. *Mycena kuthanii* (holotype). — 64. Spores. — 65. Cheilocystidia. — 66. Hymenial region showing cheilocystidia pushed aside by alien hyphae. — 67. Hypha of the pileipellis. — 68. Hypha of the cortical layer of the stipe. — 69. Terminal cells. All figs., $\times 700$.

The label of the type packet mentions the locality as Podolánsky and the date of collecting as 21 VII (July), whereas Singer in his description records Podolánky and 20 IV (April).

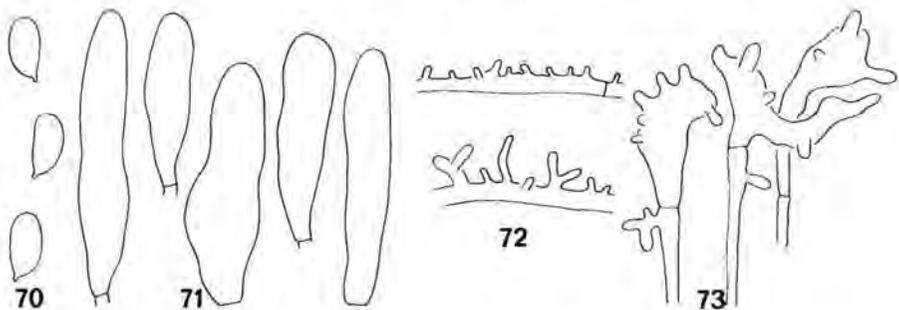
The most striking feature under the microscope is a dense, dark mass of hyphae which traverse subhymenium and hymenium, and whose (1) enormous size (up to $27\ \mu\text{m}$ wide), (2) manner of ramification, and (3) brown contents proclaim them alien elements. Obviously, Singer failed to recognize that these elements are of a different nature from the hyphae of the mycenoid tissue, and clearly those of a parasite.

The microscopic details described above identify the type material as belonging to *Mycena galericulata* (Scop.: Fr.) S.F. Gray, and *M. kuthanii* is formally reduced to its synonymy.

MYCENA LEPTOCEPHALA (Pers.: Fr.) Gillet, 2-spored and clampless — Figs. 70–73

Basidiomata gregarious. Pileus up to 20 mm across, campanulate, sulcate, dried appearing glabrous, dark grey-brown. Flesh very thin. Odour stated to be nitrous. Taste not recorded. Lamellae 15–21 reaching the stipe, up to 1.5–2 mm broad, tender, ascending, adnate or decurrent with a short tooth, conspicuously grey (“auffällig grau”), with convex, whitish edge. Stipe 35–60 × 1–2 mm, hollow, equal, smooth, pruinose or above minutely puberulous, concolorous with the pileus, the base covered with long, coarse, whitish fibrils.

Basidia 27–30 × 8–9 μm , clavate, 2-spored, clampless, with sterigmata 5.5–6.5 μm long. Spores 9.8–10.7 × 5.4–5.8 μm , somewhat elongated pip-shaped, smooth, amyloid. Cheilocystidia 40–55 × 10–12.5 μm , forming a sterile band (lamellar edge homogeneous), cylindrical, subclavate, subutriform, clampless. Pleurocystidia similar. Lamellar trama staining brownish vinaceous in Melzer’s reagent. Hyphae of the pileipellis 2–4.5 μm wide, clampless, covered (but not very densely) with simple to furcate, cylindrical excrescences 2.5–11.5 × 2–2.5 μm . Hyphae of the cortical layer of the stipe 1.8–2.5 μm wide, clampless,



Figs. 70–73. *Mycena leptcephala* (Germany: M. Enderle, 18 Aug. 1985; L). — 70. Spores. — 71. Cheilocystidia. — 72. Hyphae of the pileipellis. — 73. Caulocystidia.

All figs., × 700.

smooth, the terminal cells (caulocystidia) up to 10 μm broad, much inflated or variously shaped, usually covered with few but very coarse excrescences.

Material examined — Germany: Bayern, near Günzburg / M. Enderle 18 Aug. 1985 / *Picea*-wood (L, no. 983. 070–960).

The macroscopic description of this material is adapted from the collector's notes, complemented by my own observations on the dried specimens. The microscopic details are based on reexamination of this material.

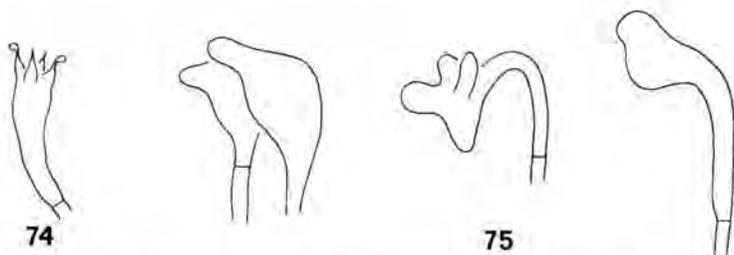
In the key to the species of section *Fragilipedes* (Maas Geesteranus, 1988), the present material would appear to represent a species near equally 2-spored *Mycena deceptor* Maas G. The difference is obvious, however. *Mycena deceptor* has a much smaller (4–8 mm) and fairly pale pileus, whitish lamellae, no distinctive smell, a narrow stipe (0.5–0.75 mm wide, the measurement given in my former paper being an error), and longer as well as more branched excrescences of the hyphae of the pileipellis. In the Enderle collection, the pileus is up to 20 mm across and dark grey-brown without vinaceous shades, the lamellae are conspicuously grey, the smell is nitrous, the stipe is 1–2 mm wide, the excrescences of the hyphae of the pileipellis are shorter and simple to furcate.

If, as should regularly be practised in a genus like *Mycena*, the material on hand is being regarded as a two-spored form of a commonly four-spored species, there appears to be no doubt about its identity—it represents *Mycena leptocephala*. Two-spored forms of this species apparently are rare in Europe, but have been recorded in the United States (Maas Geesteranus, 1988: 137).

MYCENA LEPTOCEPHALA (Pers.: Fr.) Gillet, 4-spored but clampless — Figs. 74, 75

Mycena leptocephala is known to be generally 4-spored with clamped hyphae and hymenial elements (Maas Geesteranus, 1987: 141; 1988: 134).

In a recent collection (Norway: A. Aronsen M10/88; L), the basidia proved to be 4-spored but devoid of clamp connections. This places the specimens of the collection among the species treated in Key 3, from which they can be readily told by their conspicuous terminal cells.



Figs. 74, 75. *Mycena leptocephala* (Norway: A. Aronsen M 10/88; L). — 74. Basidium. — 75. Caulocystidia.

Both figs., $\times 700$.

Much to my embarrassment, no explanation can be given for the lack of clamps. Small wonder that a species, already very much variable in its morphological characters, is apt to cause confusion.

AGARICUS LIMOSUS Fr.

Agaricus limosus Fr., Elench. fung.: 27. 1828. — Type locality: Sweden.

Fries regarded this species as a member of section *Nolanea* but drew the attention to its habitus which made him think of short-stemmed *Agaricus galericulatus* [var.] β . This variety he had described in his *Systema* (1821: 143) as solitary, larger [than *A. galericulatus*], terrestrial, with a rugose, fleshy-membranous pileus, and a rigid stipe. *Agaricus limosus* was said to have an odour of fresh meal, a dark leaden grey-brown pileus, and to grow on the dried peat of moors at the end of the summer.

This very much reads like the description of *Mycena megaspora* Kauff. apud Kauff. & Smith, but it seems unwise to abandon this well-established name, if there is no material of *A. limosus* (however evocative its epithet) to check its microscopic details.

MYCENA LOHWAGII Sing.

In my redescription of this species (Maas Geesteranus, 1986: 170), the macroscopic part had largely been adapted from Singer's account. Dried, well annotated material and a good colour print recently received from Mr A. Hausknecht (Maissau, Austria) necessitates some additional information.

The pileus is smooth, not sulcate, young pale brown to yellow-brown or yellowish at the centre, almost white at the margin, at a later stage more evenly pale ochraceous yellow. The stipe is young very dark at the apex, almost blackish grey, dark grey-brown, gradually paler and more honey brownish farther down, in the end evenly pale yellow-brown. The stipe was said to be strikingly elastic-pliant, which corresponds with Redhead's "cartilaginous" (1984: 439).

The spores in this material are probably somewhat immature, $6-9 \times 3.8-5.5 \mu\text{m}$. The cheilocystidia form a sterile band (lamellar edge homogeneous). Hyphae of the cortical layer of the stipe $2-3 \mu\text{m}$ wide, clamped, smooth or sparsely covered with minute warts, terminal cells up to $5.5 \mu\text{m}$ wide, very long, cylindrical, densely covered with simple, cylindrical excrescences $0.5-1 \times 0.5 \mu\text{m}$.

Material examined — Austria: Salzburg, Hollebachtal, 8 Sept. 1989, A. Hausknecht, T. Rucker, H. Forstinger, "Rhizome von Farnen, meist aus der Basis lebender oder toter Farnsubstanz sehr gesellig bis büschelig hervorwachsend" (L, no. 987. 169-467).

MYCENA MINIMA Dvořák

Mycena minima Dvořák, Zimní houby hadcové stepi u Mohelna: 3. 1930 (not *Pseudomycena*

minima Vel., 1939: 91; not *Mycena minima* Vel., 1947: 23; not *Mycena minima* Dennis, 1953: 498).
— Type locality: Czechoslovakia, near Mohelno.

Antonín in a recent paper (1988: 225–226) dealing with the type specimens of *Macromycetes* described by R. Dvořák, reported that a number of the types are missing. The type of *Mycena minima* is one of these. Dr Antonín kindly provided the following translation of the original Czech description.

“Very small, minute and fragile fungus, pileus 1–2 mm broad, membranaceous, regularly convex, slender, white, slightly sulcate. Stipe very thin (0.25 mm), hardly 4 mm long, white, on basis adnate to the bark with white hairs. Lamellae sparse, white. On bark of *Robinia* in moss, on steppe.”

The description suggests some member of section *Sacchariferae* Kühn. ex Sing., but the information given is too scanty for certainty.

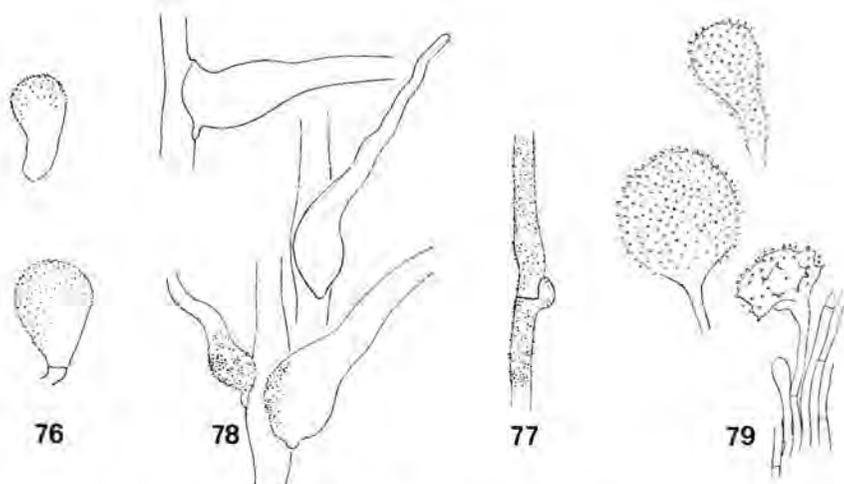
MYCENA MIRATA (Peck) Sacc.

The habitat of this species has usually been indicated as bases of trees or bark, moss-covered or not, of deciduous and coniferous trees (Kühner, 1938: 283; Smith, 1947: 114).

A single specimen of a perfectly white form, collected by A. Aronsen (No. M42/88; L), was found growing on grass near the beach in southern Norway.

MYCENA NIGROALBA Métrod

According to Index of Fungi 5: 839. 1989, my proposal to validate the name of this species (Maas Geesteranus, 1988: 140) has been considered superfluous.



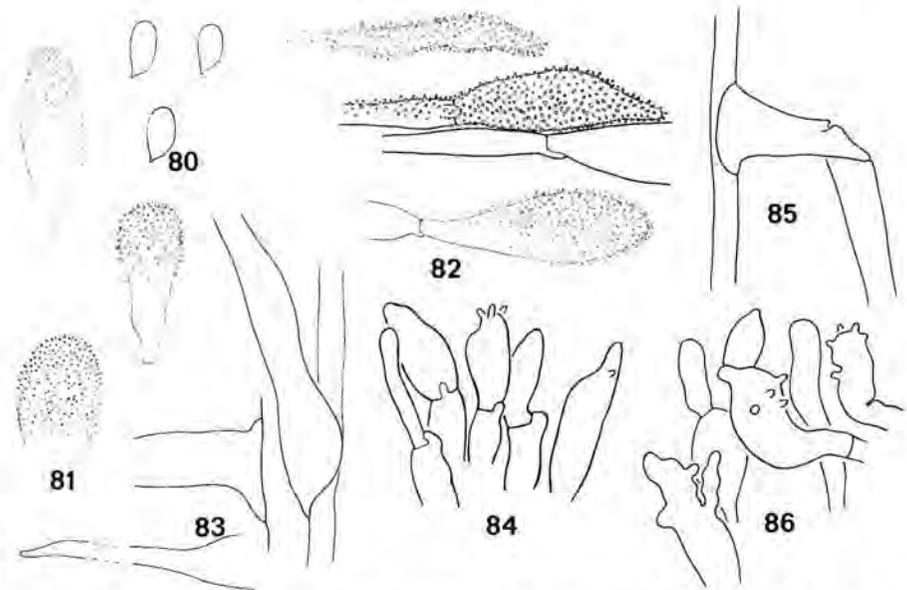
Figs. 76–79. *Mycena nucicola* (holotype). — 76. Terminal cells of hyphae of the pileipellis. — 77. Hypha of the cortical layer of the stipe. — 78. Caulocystidia taken some distance below the apex of the stipe. — 79. Hyphae of the basal disc with three terminal cells.
All figs., $\times 700$.

Mycena nucicola, a member of section *Sacchariferae*, was redescribed on a former occasion (Maas Geesteranus, 1983: 409) but the microscopic details remained rather incomplete as “it was considered inadvisable to try to reexamine the few remaining scraps of the type.” The truth is that at the time I lacked the courage and necessary experience to carry out the investigation. Since *M. nucicola* is the third species of the genus *Mycena* known to grow on fallen hazelnuts, *M. discopus* (which see) and *M. adscendens* being the other two, a closer look is imperative.

The difference between *Mycena nucicola* and *M. discopus*, in spite of Huijzman’s contention (1958: 160, “Il m’est cependant impossible d’identifier *M. nucicola* avec l’espèce de Lévillé . . .”), is just as inconclusive as it is between *M. adscendens* and *M. discopus*, which may well be an acceptable reason for abandoning the latter as a nomen dubium.

As regards the difference from *Mycena adscendens*, this will be obvious from the following description of some of the microscopic details of the holotype of *M. nucicola* (L 958. 91–202).

Hyphae of the pileipellis hardly distinguishable, presumably smooth, the ter-



Figs. 80–84. *Mycena adscendens* (Estonia: C. Bas 9200, initially taken to represent *M. discopus*; L). — 80. Spores. — 81. Cheilocystidia. — 82. Terminal cells of hyphae of the pileipellis. — 83. Caulocystidia. — 84. Terminal cells of hyphae of the basal disc.

Figs. 85, 86. *Mycena adscendens* (Germany: Th. Münzmay, 11 June 1988, initially taken to represent *M. discopus*; L). — 85. Hypha of the cortical layer of the stipe with caulocystidium. — 86. Terminal cells of hyphae of the basal disc.

All figs., $\times 700$.

minal cells ascending or erect, broadly clavate to obpyriform, covered with evenly spaced, small, short, cylindrical excrescences. Hyphae of the cortical layer of the stipe 6.5–8 μm wide, clamped, smooth or finely verrucose, covered with numerous caulocystidia, protruding obliquely or at right angles, 50–125 (or more) μm long and 9–16 μm wide at the base, smooth or finely verrucose at the base. Hyphae of the basal disc 3–4 μm wide, closely united, smooth, terminated by broadly clavate or spheropedunculate thin-walled cells 16–27 \times 10–22.5 μm which are covered with evenly spaced, short, cylindrical excrescences.

It is these terminal cells by which *M. nucicola* can best be distinguished from *M. adscendens* (see figs. 80–94).

Hájek (1988: 4) recorded two further finds of what he considered to be *M. nucicola* from Czechoslovakia, but in the microscopic part of his description he only mentioned the spores and the cheilocystidia. These data are insufficient for identification of the species.

MYCENA OCCIDENTALIS (Murrill) Murrill — Figs. 95–101

Prunulus occidentalis Murrill in N. Am. Flora 9: 337. 1916. — *Mycena occidentalis* (Murrill) Murrill in Mycologia 8: 221. 1916. — Holotype: "Prunulus occidentalis Murrill / Mill City, Cascade Mts, Oregon, November 9, 1911 / W.A. Murrill 879 / Virgin forest of conifers and a few hardwood trees" (NY).

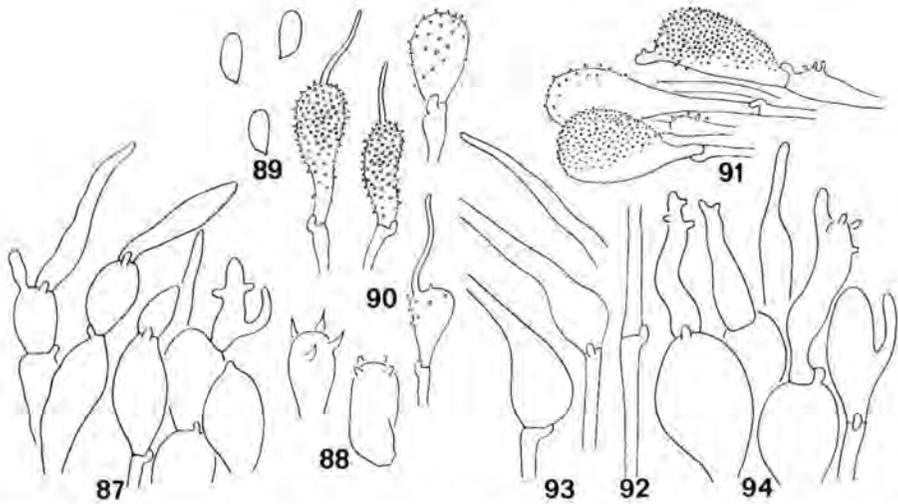


Fig. 87. *Mycena adscendens* (Netherlands: J. Reijnders, 22 Nov. 1976; L). — Terminal cells of hyphae of the basal disc.

Figs. 88–94. *Mycena adscendens* (Austria: A. Hausknecht, 26 July 1986, initially taken to represent *M. discopus*; L). — 88. Basidia. — 89. Spores. — 90. Cheilocystidia. — 91. Terminal cells of hyphae of the pileipellis. — 92. Hypha of the cortical layer of the stipe. — 93. Caulocystidia. — 94. Terminal cells of hyphae of the basal disc.

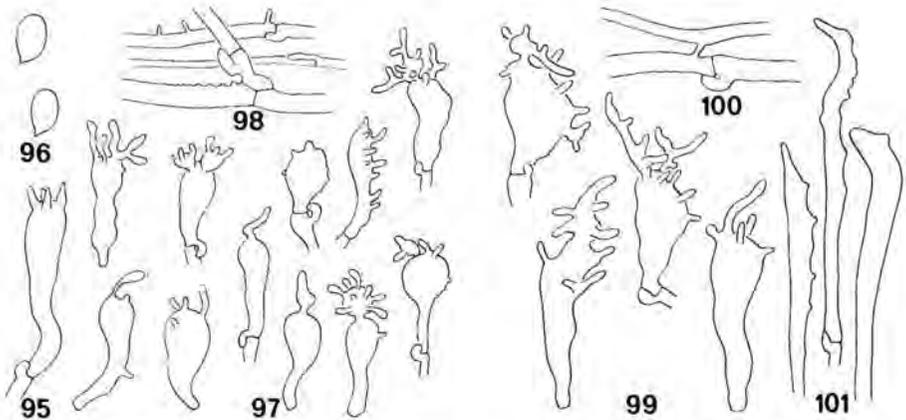
All figs., $\times 700$.

Basidiomata densely cespitose. Pileus up to 20 mm across, convex, not umbonate, not fully expanding, sometimes becoming slightly umbilicate with age or on drying, not sulcate, translucent-striate, dry, not viscid when moist, fumose-avellaneous, darker when young, the margin entire, concolorous. Flesh thin. Odour and taste not recorded. Lamellae 19–24 reaching the stipe, tender, ascending, then subhorizontal, somewhat decurrent with a tooth, white, turning grey, fumose-avellaneous on drying. Stipe 30–60 × 2–4 mm, hollow, equal or slightly tapering above, terete, smooth, glabrous, colour not recorded, towards the base densely covered with long, coarse, flexuous, whitish fibrils.

Basidia 30–40 × 6.5–9 μm, slender-clavate, 4-spored, clamped, with incipient sterigmata c. 4.5 μm long. Spores 8.0–9.2 × 5.4–5.8 μm, pip-shaped, smooth, amyloid. Cheilocystidia 13.5–50 × 5.5–14.5 μm, forming a sterile band (lamellar edge homogeneous), clavate to more or less irregularly shaped, apically passing into a simple neck or covered with a few low warts or longer, cylindrical to inflated, simple or branched, straight to flexuous excrescences 2–27 × 0.9–5.5 μm. Pleurocystidia not observed. Lamellar trama faintly brownish vinescent in Melzer's reagent. Hyphae of the pileipellis 1.8–4.5 μm wide, clamped, not embedded in gelatinous matter, the narrower hyphae smooth, the broader hyphae smooth or with uneven cell-walls or with a few scattered, short, cylindrical excrescences. Hyphae of the cortical layer of the stipe smooth or with uneven cell-walls, the terminal cells 2.7–6.5 μm wide, smooth, with uneven cells-walls or with scattered low warts.

Growing on dead coniferous logs. Known from Oregon and Washington in the United States.

The macroscopic description of the species is adapted from Murrill's, com-



Figs. 95–98. *Prunulus occidentalis* (holotype). — 95. Basidium. — 96. Spores. — 97. Cheilocystidia. — 98. Hyphae of the pileipellis.

Figs. 99–101. *Mycena maculata* (United States: A.H. Smith 17590, as "*Mycena occidentalis*"; MICH). — 99. Cheilocystidia. — 100. Hyphae of the pileipellis. — 101. Terminal cells of hyphae of the cortical layer of the stipe.

All figs., × 700.

plemented by my own observations on the dried material. The microscopic details are based on reexamination of the holotype and collection A.H. Smith 17590.

This species was not recognized by me until recently but, considering its microscopic features and more particularly the general appearance of the cheilocystidia both in the holotype and in collection A.H. Smith 17590, I am confident that *M. occidentalis* is a synonym of *Mycena maculata* P. Karst.

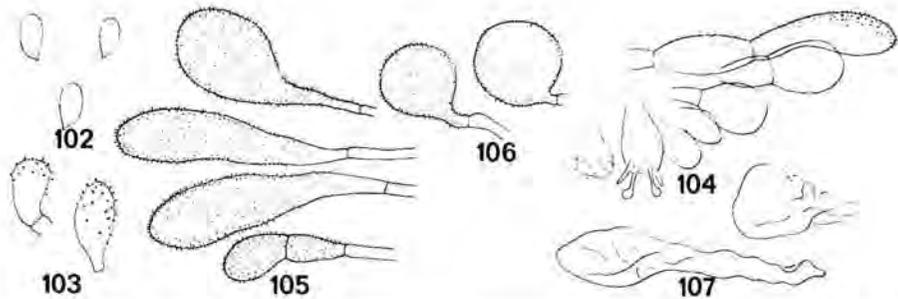
Smith (1947: 343) accepted *M. occidentalis* as a species in its own right, but there is reason to assume that he had heterogeneous material, resulting in an incorrect concept of the species. I reexamined collections A.H. Smith 3409 and 9186, both of which differ from Murrill's holotype (notes and drawings deposited at MICH).

MYCENA OCCULTA Harmaja — Figs. 102–107

Mycena occulta Harmaja in Karstenia 25: 45. 1985. — Holotype: "Mycena occulta Harmaja / U. Helsinki: Wiik, Hakala / Lehto (*Eupteris*, *Dryopteris*, *Rubus idaeus*, *Urtica*) Multa-maa, syvä ruohikko. Neulasilla, *Picea abies* ja *Pinus sylvestris*, neulaskasassa oksarydön alla / 16.08.1982 / Reima Saarenoksa 15182" (H).

Basidiomata scattered. Pileus 0.5–2 mm across, campanulate to convex, shallowly sulcate, somewhat lubricous, densely white-furfuraceous, very pale blue but turning white soon after having been collected. Flesh very thin. Odour not recorded. Lamellae up to 8 reaching the stipe, tender, ascending, narrowly adnate, ventricose, thin, smooth, white, with convex, concolorous edge. Stipe 5–20(–30) × 0.1 mm, narrowly fistulose, fragile, appearing glabrous above, sparsely and minutely puberulous below, said to be "viscid," like the pileus pale blue but turning watery white soon after having been collected, springing from a very small, cushion-like, white basal disc.

Basidia 13.5–18 × 7–8 μm , clavate to obpyriform, 4-spored, clampless, with sterigmata 2.5–3.5 μm long. Spores 7.4–9.0 × 4.3–4.7 μm , pip-shaped, smooth,



Figs. 102–107. *Mycena occulta* (holotype). — 102. Spores. — 103. Cheilocystidia. — 104. Pileus margin, showing terminal cells of the pileipellis, intermediate cells, one basidium, one cheilocystidium. — 105. Terminal cells of hyphae of the pileipellis taken from the pileus margin. — 106. Terminal cells taken from the centre of the pileus. — 107. Caulocystidia, partly collapsed. All figs., × 700.

amyloid. Cheilocystidia $12.5-18 \times 5.5-7 \mu\text{m}$, occurring mixed with basidia (lamellar edge heterogeneous), clavate, clampless, covered with comparatively few, cylindrical, straight excrescences $1-1.5 \times < 0.5 \mu\text{m}$. Pleurocystidia absent. Lamellar trama vinescent in Melzer's reagent. Hyphae of the pileipellis c. $2.5 \mu\text{m}$ wide, clampless, smooth or very sparsely covered with scattered short excrescences, the terminal cells $10-20 \times 10-20 \mu\text{m}$ and globose at the centre of the pileus, $13.5-40 \times 10-20 \mu\text{m}$ and clavate to subcylindrical nearer the margin of the pileus, clampless, long- to short-stalked, densely covered with cylindrical, straight excrescences $1-1.5 \times < 0.5 \mu\text{m}$. Hyphae of the cortical layer of the stipe c. $2.5 \mu\text{m}$ wide, clampless, smooth, with no trace of gelatinization, the caulocystidia (few observed, mostly in the lower part of the stipe) $50-135 \times 10-15 \times 2.5-4.5 \mu\text{m}$, narrowly conical or sublageniform, thin-walled, easily collapsed.

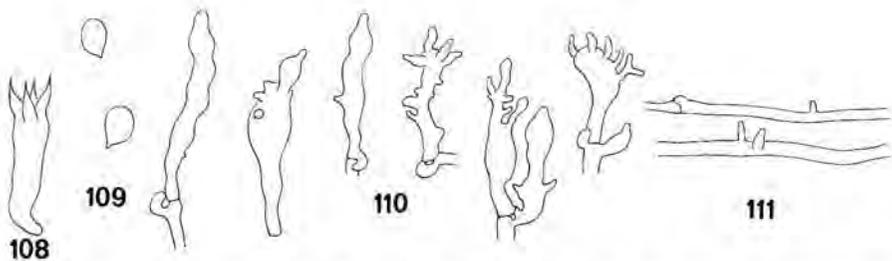
On fallen, decaying needles of *Picea abies* and *Pinus sylvestris*. Known from Finland.

The macroscopic description of the species is adapted from Harmaja's, complemented by my own observation on the dried material. The microscopic details are based on reexamination of the holotype.

Harmaja commented on the close affinity of his species to *Mycena adscendens* (Lasch) Maas G., the type species of section *Sacchariferae* Kühn. ex Sing. Apart from the differences indicated by him (some of which, however, are no longer applicable), the following can be mentioned. *Mycena adscendens*: (1) lamellae forming a pseudocollarium (but see remarks, Part 1, p. 395); (2) hyphae and hymenial elements clamped; (3) terminal cells of the hyphae of the pileipellis rather sparsely covered with excrescences. *Mycena occulta*: (1) lamellae not forming a pseudocollarium; (2) hyphae and hymenial elements clampless; (3) terminal cells of the hyphae of the pileipellis densely covered with excrescences.

Compare also *Mycena cryptomeriicola* Imazeki & Toki.

MYCENA OCHRACEICINEREA (Murrill) Murrill — Figs. 108–111.



Figs. 108–111. *Prunulus ochraceicinerus* (holotype). — 108. Basidium. — 109. Spores. — 110. Cheilocystidia. — 111. Hyphae of the pileipellis.

All figs., $\times 700$.

Prunulus ochraceinereus Murrill in N. Am. Flora 9: 333. 1916. — *Mycena ochraceinerea* (Murrill) Murrill in Mycologia 8: 221. 1916. — Holotype: "Prunulus ochraceinereus / New Jersey, Edgewater, rotten wood / Murrill & Earle 1419 September 20, 1902" (NY).

Basidiomata gregarious. Pileus 20 mm across, broadly convex, not umbonate, smooth, slightly translucent-striate, shining, pale ochraceous-cinereous, with whitish margin. Flesh thin. Odour and taste not recorded. Lamellae tender, ascending, somewhat decurrent with a tooth, pallid. Stipe 30–40 × 2 mm, hollow, equal, terete, smooth, glabrous, concolorous with the pileus, nearly white above, pruinose at the base.

Basidia 27–30 × 6.5–8 μm, clavate, 4-spored, clamped, with sterigmata up to 7 μm long. Spores (immature) 7.1–8.5 × 5.3–6.3 μm, pip-shaped, smooth, amyloid. Cheilocystidia 18–35 × 4.5–6.5 μm, clavate, subcylindrical or somewhat irregularly shaped, apically tapered into a short neck or variously covered with simple or, more rarely, branched, mostly cylindrical but also somewhat ventricose excrescences up to c. 7 μm. Pleurocystidia not observed. Lamellar trama faintly brownish vinescent in Melzer's reagent. Hyphae of the pileipellis 1.8–2.7 μm wide, clamped, not embedded in gelatinous matter, the narrower hyphae smooth, the broader ones with an occasional excrescence. Hyphae of the cortical layer of the stipe smooth.

Collected on decayed wood. Known from the type locality.

The macroscopic description of the species is adapted from Murrill's, complemented by my own observations on the dried material which consists of a single and incomplete specimen in poor condition. The microscopic details are based on reexamination of the holotype.

Smith (1947: 327) thought the species to be near *M. tintinnabulum*, but failed to see the connection with *M. maculata*, of which it is actually a synonym.

MYCENA OCHROGALEATA Favre

Mycena ochrogaleata Favre in Ergebn. wiss. Untersuch. Schweiz. Nationalparks 5 (33): 42, 199, fig. 18, pl. 4 fig. 8. 1955.

In connection with this species, Miss D. Lamoure (1973–1974: 56) made two interesting observations which had been missed by Favre. The latter indicated that he had found his material among very wet mosses, but Miss Lamoure stated that she had never seen this small fungus in absence of *Cirsium spinosissimum*, which convinced her of the existence of a close association between the two. Further, whereas Favre had not noticed any particular odour, Miss Lamoure described "[U]ne] odeur: de l'extérieur, nulle: à la section et au début de la dessication, nettement acidule pélargoniée et mélissoïde."

MYCENA OLIVACEOMARGINATA f. ROSEOFUSCA (Kühn.) Maas G.

Bon (1972: 22) raised Kühner's variety to specific level, but I overlooked (Maas Geesteranus, 1986: 297) that he had already done so previously – Bon

(1971: 143). The damage is negligible, Bon's earlier combination was not validly published.

MYCENA PACHYDERMA Kühn.

Kühner placed his *Mycena pachyderma* in an unclassified group *Cyanescentes* which is a not validly published name and later synonym of section *Viscipelles* (Maas Geesteranus, 1984: 131). In this section, it differs in several points (broadly adnate lamellae, non-gelatinized lamellar edge, lack of true blue colour, subglobose spores) from the type species, *Mycena cyanorrhiza* Quél., but at the time I did not propose any change because I had seen no material of Kühner's species. Although still no transfer of *Mycena pachyderma* is intended, it may be pointed out that there appears to be a much closer connection between this species and *Mycena clavularis* (Batsch: Fr.) Sacc., the single important difference being the basal disc of the latter from which the stipe arises.

MYCENA PARALACTEA Imai

Mycena paralactea Imai in Bot. Mag. Tokyo 55: 449, 1941.

No opinion, type material not seen. See remark under *M. fuyoensis*.

MYCENA PICEICOLA A.H. Smith

In a former paper (Maas Geesteranus, 1985: 362) I was very much in doubt about the disposition of *Mycena piceicola* as a member of section *Mycena*. I am now of the opinion that the species is best placed in section *Cinerellae*, where it comes near *Mycena pseudopicta* (J.E. Lange) Kühn. and *M. subconcolor* A.H. Smith.

MYCENA PSEUDO-ANDROSACEA (Bull. ex Fr.) Bi apud Bi, Li & Zheng

Mycena pseudo-androsacea (Bull. ex Fr.) Bi apud Bi, Li & Zheng in Acta mycol. sin. 6: 13. (1986) 1987.

Bi proposed this as a new combination but omitted to provide a description, which precludes the identity of his material to be checked. Moser (1983: 93) considered the species to be a member of the genus *Omphalina* as *O. pseudoandrosacea* (Bull.: St. Amans) Moser. I am inclined to agree with the latter view.

MYCENA PSEUDOLAEVIGATA Kalamees apud Vaasma & al. — Figs. 112–115

Mycena pseudolaevigata Kalamees apud Vaasma, Kalamees & Raitviir, Macrofungi Caucas. St. Nat. Res.: 78, fig. 8. 1986. — Holotype: "Fungi caucasici / *Mycena pseudolaevigata* Kalamees var. *pseudolaevigata* / Regio Krasnodar, Reservatum Caucasicum, 1000 m / Fagetoso – Abietinum / 30 VIII 1975 / L. Pihlik & M. Vaasma / No. 94332" (TAA).

Lamellae about 30 reaching the stipe, tender, ascending, narrowly adnate.

Stipe hollow, pruinose above. Basidia clavate, 4-spored, clamped. Spores (mostly collapsed, possibly not mature) $6.3\text{--}7.0 \times 3.8\text{--}4.5 \mu\text{m}$, pip-shaped, weakly amyloid. Cheilocystidia $27\text{--}40 \times 8\text{--}13.5 \mu\text{m}$, forming a sterile band, clavate, obpyriform, clamped, covered with fairly numerous, evenly spaced, simple, cylindrical excrescences $1\text{--}2.5 \times 1 \mu\text{m}$. Lamellar trama faintly brownish vinescent in Melzer's reagent. Hyphae of the pileipellis $2.5\text{--}4.5 \mu\text{m}$ wide, clamped, covered with simple, cylindrical excrescences $2\text{--}3.5 \times 1\text{--}2 \mu\text{m}$. Hyphae of the cortical layer of the stipe $1\text{--}2.5 \mu\text{m}$ wide, clamped, covered with short excrescences $1\text{--}2 \times 1\text{--}2 \mu\text{m}$, terminal cells $3.5\text{--}5.5 \mu\text{m}$ broad, diverticulate, excrescences $1\text{--}3.5 \times 1\text{--}2 \mu\text{m}$.

This partial description is based on reexamination of the holotype and clearly identifies this collection as a member of section *Filipedes* (Fr.) Quél. Translation of part of the original Russian text gives the additional information that (i) the pileus is white or whitish, greyish-brownish at the centre; (ii) the lamellae are white; and (iii) the stipe from bluish grey turns greyish-brownish. Consulting the key to the species of section *Filipedes* (Maas Geesteranus, 1984: 415), there appear to exist five further species with a bluish shade to the stipe, at least when young. These are best compared with *M. pseudolaevigata* as follows.

KEY TO BLUISH-STIPED SPECIES OF SECTION FILIPEDES

1. Hyphae and hymenial elements clamped.
 2. Basidia 4-spored.
 3. Pileus either not white or, if whitish, spores longer than $8 \mu\text{m}$.
 4. Lamellae white, yellowish or pale brownish.
 5. Cheilocystidia generally distinctly stalked.
 6. Odour of iodoform when drying: *M. arcangeliana*
 6. Odour not of iodoform when drying: *M. flavescens*
 5. Cheilocystidia short-stalked or (the majority) sessile: *M. filopes*
 4. Lamellae violet-blue when young: *M. urania*
 3. Pileus white to whitish, greyish brown at the centre. Lamellae white. Spores $6.3\text{--}7.0 \mu\text{m}$ long: *M. pseudolaevigata*
 2. Basidia 2-spored: *M. caesiolivida* and 2-spored form of *M. filopes*
 1. Hyphae and hymenial elements clampless, basidia 2-spored: ... 2-spored form of *M. urania*

From the above it is obvious that *Mycena pseudolaevigata* is an independent species.

Kalamees recognized two varieties of his species, one of which is the type variety, *M. pseudolaevigata* var. *pseudolaevigata*. He subsequently (1989: 142) raised this variety to specific rank which, superfluously, was indicated *Mycena pseudolaevigata* (Kalam.) Kalam., comb. et stat. nov.

The other variety originally described by Kalamees is var. *maculata* which appears stained reddish brown by old age but does not differ microscopically from var. *pseudolaevigata*. This var. *maculata* he later (1989: 142) raised to specific rank as *Mycena pseudomaculata*. The choice of the name is rather unfortunate because it suggests a certain relationship of the species with *M. maculata* P. Karst. which is a member of a very different section.

MYCENA PSEUDOSTYLOBATES Y. Kobayasi

Mycena pseudostylobates Y. Kobayasi in J. Hattori bot. Lab. 5: 4, figs. 1C, 4. 1951. — Holotype: not seen.

Imazeki & Hongo (1987: 104) placed this species in section *Sacchariferae* which seems a correct choice. Whereas all members of this section are characterized by the possession of caulocystidia, *M. pseudostylobates* was described as being devoid of them. The species further differs from the other members in its luminous mycelium and (except for *M. discopus* whose microscopic details are still unknown) its much narrower spores (2.5 μ m).

MYCENA PURA f. VIOLACEA (Gillet) Maas G.

Mycena pura f. *violacea* (Gillet) Maas G. in Proc. K. Ned. Akad. Wet. (Ser. C) 92: 498. 1989.

Due to oversight f. *violacea* was not included in the key to the forms of *Mycena pura* (p. 494). Instead of "5. Centre of the pileus not reddish or fulvous: . . . f. *ianthina*," this part of the key should be read:

5. Centre of the pileus not reddish or fulvous.

7. Stipe reddish violet: f. *ianthina*
7. Stipe very dark violet: f. *violacea*

MYCENA PURPUREOFUSCA (Peck) Sacc.

In the key to the species of section *Rubromarginatae* (Maas Geesteranus, 1986: 287), *Mycena purpureofusca* was said to be "Strictly associated with conifers." Apparently, there are exceptions to this rule. The following collection was found in a wood of *Fagus*:

Netherlands: Mrs G.J.M.G. Tjallingii, 3 Oct. 1987, among fallen leaves in *Fagus* wood on loamy soil (L).

CLITOCYBE PUSILLA Peck.

Clitocybe pusilla Peck in Bull. Torrey bot. Club 22: 199. 1895. — Holotype: not seen.

Bigelow (1982: 60) reexamined the holotype of this species and found the spores inamyloid, the "cystidia not differentiated." Peck described the species as occurring on manure and the stipe as solid. Contrary to Bigelow's conclusion, the above combination of features excludes *C. pusilla* from the genus *Mycena*.

MYCENA QUINAULTENSIS Kauff. apud Smith

Mycena quinaultensis Kauff. apud Smith, treated in Conspectus 12 (Maas Geesteranus, 1989: 350) as a member of section *Insignes* Maas G., is ill-placed and definitely belongs to section *Fragilipedes* (Fr.) Quél. In this section, it keys out near *Mycena overholtsii* A.H. Smith & Solh., from which it differs, among other characters, in larger spores and much broader cheilocystidia.

***Mycena romagnesiana* Maas G., spec. nov. — Figs. 116–120**

Misapplied name: *Mycena rugulosiceps* sensu Romagnesi in Bull. trimest. Soc. mycol. Fr. 94: 103. 1978.

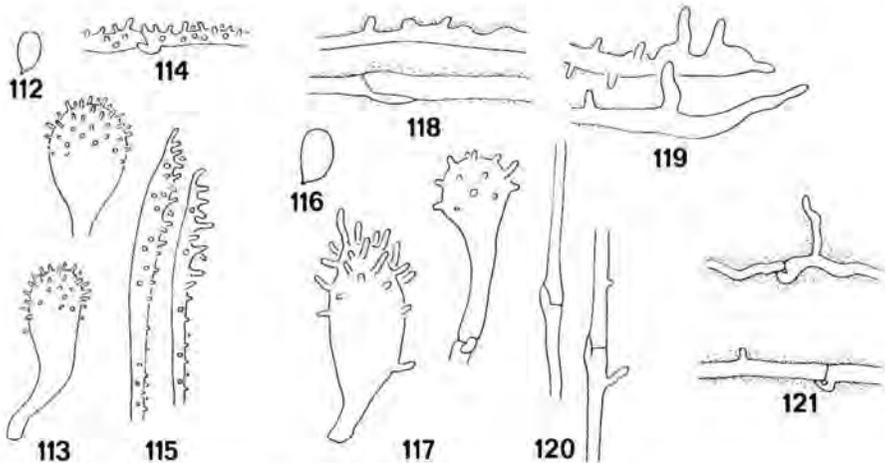
Pileus 20–30 mm latus, campanulatus, conspicue umbonatus, ruguloso-sulcatus, glaber, pallide flavo-aurantiaco-brunneolus marginem versus pallidior. Caro tenuis, albida, odore suave, sapore haud farinaceo. Lamellae 27–30 stipitem attingentes, lentae, adscendentes, usque ad 5.5 mm latae, ventricosae, ± anguste adnatae, cremeo-albae, margine convexo, albo. Stipes 40–110 × 25–55 mm, fistulosus, rigido-lentus, cylindraceus, deorsum curvatus, laevis, glaber, cremeo-albus, basi radicans, fibrillis albis obtectus.

Basidia 30–36 × 6.5–7 μm, clavata, 4-sporea, fibulata, sterigmatibus c. 6.5 μm longis instructa. Sporae 8.1–9.4 × 5.8–6.3 μm, inaequilateraliter ellipsoideae, leves, amyloideae. Cheilocystidia 35–54 × 9–18 μm, fusiformia vel clavata, fibulata, surculis 1.5–7 × 1–2 μm praedita. Pleurocystidia nulla. Trama lamellarum iodi ope vivescens. Hyphae pileipellis 2.5–4.5 μm latae, fibulatae, sparse diverticulatae, materia gelatinosa aliquid praeditae. Hyphae stiptis corticales 1.5–2.7 μm latae, fibulatae, leves vel sparse diverticulatae.

Ad truncum *Fagi*.

Holotypus: "B. Cetto & A. Hausknecht, sine no., 6 Oct. 1989" (L, no. 987. 169–494).

Basidiomata scattered. Pileus 20–30 mm across, campanulate, with conspicuous, obtuse umbo, more flattened with age, rugulose at the margin, with age the whole surface becoming rugose-sulcate, apparently not translucent-striate, glabrous, not pruinose, young pale greyish brownish to pale orange brownish (Kornerup & Wanscher, 1967: 5 C4, 5 B4), darker at the centre, paler



Figs. 112–115. *Mycena pseudolaevigata* (holotype). — 112. Spore. — 113. Cheilocystidia. — 114. Hypha of the pileipellis. — 115. Terminal cells of hyphae of the cortical layer of the stipe. All figs., × 700.

Figs. 116–120. *Mycena romagnesiana* (holotype). — 116. Spore. — 117. Cheilocystidia. — 118. Hyphae of the pileipellis. — 119. Terminal cells of hyphae of the pileipellis. — 120. Hyphae of the cortical layer of the stipe. All figs., × 700.

Fig. 121. *Prunulus trojanus* (holotype). — Hyphae of the pileipellis, × 700.

nearer the margin, becoming paler with age, pale cream to very pale flesh-colour, whitish at the very margin. Flesh up to 1.5 mm thick, tough, white in the pileus. Odour of apples when cut, then sweetish fruity. Taste indistinctive, not farinaceous. Lamellae 27–30 reaching the stipe, elastic-tough, ascending, up to 5.5 mm broad, fairly thick, ventricose, rather narrowly adnate or decurrent with a short tooth, creamy white, the edge convex, white. Stipe 40–110 × 2.5–5.5 mm, hollow, tough, equal for the greater part, terete, somewhat curved, smooth, glabrous, not visibly pruinose at the apex, shiny, cream to whitish cream, the base white-tomentose, extending into a long root penetrating the substratum.

Basidia 30–36 × 6.5–7 μm (non seen quite mature), clavate, 4-spored, clamped, with sterigmata, c. 6.5 μm long. Spores 8.1–9.4 × 5.8–6.3 μm (probably not mature), pip-shaped, smooth, amyloid. Cheilocystidia 35–54 × 9–18 μm , forming a sterile band (lamellar edge homogeneous), fusiform to clavate, clamped, covered with comparatively few, unevenly spaced, more or less coarse, cylindrical, simple, mostly curved excrescences 1.5–7 × 1–2 μm . Pleurocystidia absent. Lamellar trama strongly vivescent in Melzer's reagent. Hyphae of the pileipellis 2.5–4.5 μm wide, clamped, smooth or sparsely covered with low warts or short, cylindrical excrescences, covered with a thin gelatinous layer, terminal cells infrequent, up to 6.5 μm wide, covered with more prominent excrescences 1.5–9 × 1–3.5 μm . Hyphae of the cortical layer of the stipe 1.5–2.7 μm wide, clamped, smooth or very sparsely diverticulate, not gelatinized.

On decayed stump of *Fagus*.

Holotype: "Italy, Trento, Vezzena near Levico, 6 Oct. 1989, B. Cetto & A. Hausknecht" (L, no. 987. 169–494).

The macroscopic description of the species is adapted from notes and a good colour photograph provided by Mr Hausknecht, complemented by my own observations on the dried material. The microscopic details are based on reexamination of the type.

In a former paper (Maas Geesteranus, 1985: 363), the pileus of the species (at the time known as *Mycena rugulosiceps* sensu Romagn.) was described as being "of a very light whitish-ochraceous colour without grey shades," but darker and especially more greyish colours apparently do exist. One of the colour samples indicated by Mr Hausknecht is "Kornerup & Wanscher 5 C4" and this represents a true grey-brown. Considering that pallescent specimens of *M. romagnesiana* may be quite as pale as *M. galericulata* var. *albida*, care should be taken already in the field to cut or bruise a sample in order to check the odour. Apart from the different smell, *M. romagnesiana* can be told from *M. galericulata* by the pileus lacking a translucent striation, and the hyphae of the pileipellis being smooth or only sparsely covered with low warts.

MYCENA SILVAE-NIGRAE Maas G. & Schwöbel

Mycena silvae-nigrae Maas G. & Schwöbel in Beitr. Kenntn. Pilze Mitteleur. 3: 149, figs. 10–15. 1987.

Weholt (1988: 96) recorded a number of localities in southern Norway, indicating that the species is common there.

MYCENA SUBGRACILIS Bi apud Bi, Li & Zheng

Mycena subgracilis Bi apud Bi, Li & Zheng in Acta mycol. sin. 6: 10, fig. 2. (1986) 1987 (later homonym: not *Mycena subgracilis* Métrod, 1949).

The yellowish colours of the pileus, flesh, and lamellae, the slender and in-amyloid spores, as well as the woody substratum suggests that *M. subgracilis* may be a member of section *Aciculae*. It seems to differ from *Mycena acicula* (Schaeff.: Fr.) Kummer in the stipe which is said to be covered with a powdery tomentum and in the narrower spores (2–3 μm).

MYCENA SUBLONGISETA Bi apud Bi, Li & Zheng

Mycena sublongiseta Bi apud Bi, Li & Zheng in Acta mycol. sin. 6: 12, fig. 3. (1986) 1987.

The description of the species includes such characters as (1) pileus scaly and with black minute setae, (2) lamellae orange yellow to pale orange brown, (3) stipe eccentric, . . . solid, fibrous, with tomentum and a few setae, (4) cheilocystidia rare, (5) "epicutis hyphae of pileus" irregular to subhymeniform. This assemblage of features suggests that the species is not a member of the genus *Mycena*.

MYCENA TENERRIMA var. SALICIS Derbsch & Schmitt

Mycena tenerrima var. *salicis* Derbsch & Schmitt in Nat. Landsch. Saarland 3: 530. 1987.

The authors, judging their material to be different from the description by Kühner (1947: 206) in the verrucosity of the cheilocystidia and the shape of the spores, proposed a new variety ad int[erim], and refrained from giving their var. *salicis* a formal status by omitting a Latin diagnosis. In my eyes, the material merely demonstrates that the variability of *Mycena adscendens* (syn.: *M. tenerrima*) is greater than thus far recorded.

MYCENA TENUISPINOSA Favre

The only description of this species thus far available was the one published by its author, while it was Dr O.H. Monthoux (Genève) who kindly supplied information on the absence of clamp-connections (Maas Geesteranus, 1983: 414). Two years later, Mr M. Meusers (Meerbusch, Germany) in a letter reported the find of a similar-looking fungus which, however, possessed clamps. Renewed examination by Dr Monthoux then revealed that Favre's type does have clamps which had passed unnoticed the first time. This entails a change in the key to the species of section *Basipedes*.

KEY TO THE SPECIES

1. Cheilocystidia with narrow excrescences 1–2 μm wide.
 2. Pileal surface smooth. Spores 3–4(–5) μm broad: *M. mucor*
 2. Pileal surface densely covered with acute spinules. Spores 5–5.5 μm broad:
M. tenuispinosa
1. Cheilocystidia with coarse, inflated excrescences: *M. stylobates*

It seems opportune here, with kind permission of Mr Meusers, to give a translation of the German description, somewhat complemented by my own observations on a colour photo presented by the collector.

Pileus 3–4 mm across, covered with a separable, gelatinous pellicle, convex, sulcate, densely covered with broad-based, but otherwise fairly slender, verrucose, acute, spinules, pale grey-brown at the centre, whitish towards the margin. Lamellae c. 12 reaching the stipe, ascending, forming a pseudo-collarium, ventricose, white. Stipe 12–20 \times 1 mm, equal, widening below, curved, smooth, pruinose above, finely pilose farther below, watery white, springing from a pulvinate, densely pilose, white basal disc.

Basidia 4-spored, clamped. Spores 9.3–9.8 \times 5–5.5 μm . Cheilocystidia c. 21.5 \times 12.5 μm , clavate, clamped, covered with numerous, narrowly cylindrical excrescences. Pileal spinules made up of coherent, verrucose hyphae. Caulocystidia up to c. 900 μm long, acicular, clamped.

Germany, Nordrhein-Westfalen: Krefeld-Hüls, 6 July 1985, M. Meusers, on moss-covered bark of *Salix* (L).

Two further collections, equally from Germany, and equally with clamped hyphae, were received by the Rijksherbarium.

Baden-Württemberg: Untergrombach, 29 June 1985, W. Winterhoff 8573, on *Alnus* (L).

Baden-Württemberg: Weingartener Moor, 19 July 1985, W. Winterhoff 85104, on *Alnus* (L).

MYCENA TINCTURA Kauff.

Mycena tinctoria Kauff. in Pap. Mich. Acad. Sci. 5: 138, 1926. — Type locality: Oregon, Mt. Hood.

Smith (1947: 490) amply discussed this species and came to the conclusion that “it is necessary . . . to discard the name *M. tinctoria*.” I endorse this view, but my line of reasoning differs slightly.

Kauffman cited two collections (October 7 and 16; both MICH) which could be termed syntypes, but there is yet another collection, the label of which reads as follows: “Oregon Fungi / (*Lactipedes*) / *Mycena tinctoria* Kauff. sp. nov. / (short stem form) / Mt. Hood, Ore., Oct. 12/22 / (near cabin + road) / on hemlock log, rotten wood, in cracks (almost instititious but rooting)” (also MICH).

It is to this third collection that Kauffman referred in his discussion: “It [*M. tinctoria*] belongs to the section *Lactipedes* by virtue of the rather copious

watery juice of the stem, which stains the crushed flesh wine color." Smith (p. 492) believed this collection to represent probably *Mycena maculata*, but this is an error. The latter species has, among other features, cheilocystidia whose excrescences look quite different from those in Kauffman's collection. It is certainly true that the stipe (and other parts) of *M. maculata* stain some shade of red-brown with age (or on being crushed), but it would be definitely incorrect to describe the stipe of the species as having "rather copious watery juice." Indeed, having copious watery juice is not a character of members of section *Mycena* and, given the features I found on reexamining the material (drawing and notes deposited in MICH), the 12 October collection does belong to section *Mycena*. Considering that Kauffman was unaware that "each collection represents a different species" (Smith, p. 492), it does not seem far-fetched to assume that even a fourth species could be involved, consisting of a single specimen which squeezed yielded copious juice, and was subsequently discarded. This aggravates a situation already complicated, and the one acceptable solution is to reject an obvious nomen dubium. Moreover, no matter which lectotype one might wish to select, it would inevitably and "seriously conflict with the protologue" (Internat. Code bot. Nomencl.: 80. 1983).

MYCENA TRANSLUCENTIPES (Murrill) Kühn.

Mycena translucentipes Murrill in N. Am. Flora 9: 312. 1916. — *Omphalia translucentipes* (Murrill) Murrill in Mycologia 8: 220. 1916. — *Mycena translucentipes* (Murrill) Kühn., Genre *Mycena*: 394. 1938; — (Murrill) A.H. Smith, N. Am. Spec. *Mycena*: 156. 1947 (preoccupied). — Holotype: "Fungi of Louisiana / *Omphalopsis translucentipes* Murr. / on an old stump in wet woods in City Park, New Orleans / F.S. Earle no. 72 Sept. 6, 1908" (NY).

Basidiomata gregarious to subfasciculate. Pileus up to c. 10 mm across, convex, depressed at the centre, not striate, glabrous, pure white, margin entire, concolorous. Flesh very thin. Odour unknown. Lamellae c. 24 reaching the stipe, tender, arcuate, narrow, decurrent, smooth, white. Stipe 20 × c. 1 mm, hollow, equal, terete, more or less curved, smooth, glabrous for the greater part, watery-white, somewhat white-hirsute below, the base attached to the substratum by radiating, fibrous, greyish strands.

Basidia c. 22 × 6.5 μm (none found mature), slender-clavate, a few seen with 4 incipient sterigmata, clamped. Spores 4.6–6.2 × 3.6–4.9 μm, broadly pip-shaped to subglobose, smooth, amyloid. Cheilocystidium (only one seen) c. 20 × 9 μm, occurring mixed with the basidia (lamellar edge heterogeneous), apparently rare, fusiform, with slightly narrowed, broadly rounded apex. Caulocystidia not observed. Lamellar trama turning yellowish in Melzer's reagent. Hyphae of the pileipellis 1.8–2.5 μm wide, clamped, smooth. Hyphae of the cortical layer of the stipe 1.8–3 μm wide, clamped, smooth, near the base of the stipe developing caulocystidia at right angles, 3.5–6.5 μm wide, cylindrical, constricted at their bases or not, thin-walled.

On decayed wood in wet forests. Reported from Louisiana in the States, the Lesser Antilles (Guadeloupe), and Trinidad.

The macroscopic description of the species is adapted from Murrill's and complemented by my own observations on the dried material. The microscopic details are based on reexamination of the holotype (NY). Unfortunately, the latter proved to be in very poor condition, while of several of the specimens all lamellae had been removed.

Good descriptions have been published by Dennis (1951: 466) and Pegler (1983: 267).

Kühner (1938: 394) ranged *M. translucetipes* in the group "*Omphaliariae*", a heterogeneous subdivision of "*Ciliatae* Lange (pro parte)." If, as I prefer to, this "*Omphaliariae*" is typified by *Mycena rorida* (Fr.: Fr.) Quél. (a species which in my opinion should no longer be maintained in *Mycena*), it is clear that the assignment of *M. translucetipes* to the "*Omphaliariae*", being a true *Mycena*, is an untenable choice.

Smith (1947: 156) assigned *M. translucetipes* to what he called section *Adonidae*, subsection *Albidae* which, however, is an assemblage of unrelated species.

Pegler placed the species in section *Fragilipedes*, a choice which is open to questioning. *Mycena translucetipes* differs from the species of this section by (i) the arcuate lamellae, (ii) the basal patch of radiating strands, and (iii) the rareness of the cheilocystidia. However, since I am unfamiliar with the sections and species of more southern distribution in the Americas, Pegler's opinion is best followed for the time being.

MYCENA TROJANA (Murrill) Murrill — Fig. 121

Prunulus trojanus Murrill in N. Am. Flora 9: 339. 1916. — *Mycena trojana* (Murrill) Murrill in Mycologia 8: 221. 1916. — Holotype: "*Prunulus trojanus* / 866 / Fungi of Jamaica / Troy and Tyre, Cockpit Country, 2000 ft., wet, wooded, limestone region / W.A. Murrill and W. Harris January 12-14, 1909" (NY).

Lamellae adnate, decurrent with a tooth. Basidia mostly immature, clavate, some with 4 incipient sterigmata, clamped. Spores very few seen mature, 5.4-6.3 × 2.8-3.2 μm, pip-shaped, smooth, amyloid. Cheilocystidia 30-45 × 4.5-6.5 × 2.7-3.5 μm, occurring mixed with basidia, not embedded in gelatinous matter, fusiform, very long-stalked, smooth. Pleurocystidia similar. Hyphae of the pileipellis 1.3-3.6 μm wide, clamped, smooth, embedded in gelatinous matter.

The above fragmentary description is only meant partly to confirm and partly to complement the very good one given by Smith (1947: 465). His account draws the attention to such important details as "gelatinous pellicle [of the pileus] . . . gelatinous subhymenium, . . . stipe tissue . . . is found to be surrounded by a gelatinous layer." These details coupled with the information given above (e.g. smooth and long-stalked cheilocystidia not embedded in gelatinous matter) classify the species as a member of section *Euspeireae* Maas G., while the combination of little decurrent lamellae ("hardly decurrent" according to Murrill's pencilled note) and smooth hyphae of the pileipellis further

identify it as belonging to *Mycena euspeirea* Berk. & Curt.) Sacc. On page 466, Smith stated: "It is more difficult to distinguish *M. trojana* from *M. euspeirea*. In fact, the two impress me as being identical." His assumption was perfectly correct.

It may be remarked that the original label of the type reads *Prunulus trojanus*.

MYCENA UMEAE Imai

Mycena umeae Imai in Bot. Mag. Tokyo 55: 450. 1941.

A description which mentions broadly ellipsoid or subglobose spores and pyriform, apically 'muricellate' (a diminutive form of muricate, which means 'rough with short tubercular excrescences') cystidia very much suggests a species of section *Supinae* Konr. & Maubl. This supposition is strengthened by the information that the substratum is dead twigs. Among the species of this section thus far known, there is none with a white pileus and spores as small as $4 \times 3 \mu\text{m}$, but further judgment must be suspended until the type has been examined.

AGARICUS VIRIDULUS Pers.

Agaricus viridulus Pers., Mycol. eur. 3: 261. 1828 — Type: represented by Bulliard, Herb. Fr.: pl. 560 fig. 2 (P) 1792.

In a former publication (Maas Geesteranus, 1990: 165), *Agaricus adonis* Bull. was typified by its author's illustration, pl. 560 fig. 2 (M, N, O), with the exclusion of fig. 2 (P) which shows a fungus with a greenish pileus. It is this illustration that Persoon referred to, but he mentioned several features that showed his *A. viridulus* distinct from Bulliard's *A. adonis*. The colour of the pileus in fig. 2 (P) suggests *Mycena chlorantha* (Fr.: Fr.) Kummer, but in Bulliard's description (Hist. Champ. Fr.: 445. 1792/1793) the lamellae were said to be free, narrow, and usually white, which is not applicable to *M. chlorantha*. It is impossible to interpret *Agaricus viridulus* from its too short description.

It may be pointed out that *Mycena virens* Quélet was partly based on the same fig. 2 (P), but Quélet, unlike Persoon, gave a somewhat deviating description of his own. This, too, is a binomial that cannot be identified (Maas Geesteranus, 1984: 78).

MYCENA VISCALBA S. Ito & Imai

Mycena viscalba S. Ito & Imai in Trans. Sapporo nat. Hist. Soc. 16: 18. 1939.

No opinion, type material not seen.

MYCENA VITILIS (Fr.) Quél.

I described (Maas Geesteranus, 1988: 310) the hyphae of the cortical layer of the stipe as smooth. Occasionally, however, these may be very sparsely covered with short, cylindrical excrescences (Germany: H. Schwöbel, 29 April 1989; L).

Mycena winterhoffii Maas G., *spec. nov.*³ — Figs.

Basidiomata sparsa. Pileus (siccat) usque ad 8 mm latus, convexus, subsulcatus, griseobrunneus. Caro tenuis, pileo pallidior, odore saporeque ignotis. Lamellae 11–14 stipitem attingentes, molles, arcuatae, 1 mm latae, late adnatae, paulo decurrentes, leves, pileo pallidiores, margine concavo, albo-crenulato. Stipes (siccat) usque ad 40 mm longus, 0.5 mm latus, cavus, aequalis, levis, superne minute pruinosis, deorsum glabrescens, pileo concolor, basi fibrillis longis crassisque et albidis munitus.

Basidia c. $28 \times 9 \mu\text{m}$, clavata, 2-spora, fibulata, sterigmatibus usque ad $8 \mu\text{m}$ longis instructa. Sporae $10.8\text{--}11.6 \times 7.1\text{--}8.1 \mu\text{m}$, inaequilateraliter ellipsoideae, leves, amyloideae. Cheilocystidia $25\text{--}63 \times 7\text{--}9 \mu\text{m}$, clavata, fibulata, surculis variabilibus simplicibus vel ramosis plerumque curvatis $\text{--}25 \times \text{--}3 \mu\text{m}$ munita. Pleurocystidia nulla. Trama lamellarum iodi ope dilute vivescens. Hyphae pileipellis $1.8\text{--}3.5 \mu\text{m}$ latae, fibulatae, surculis $2.5\text{--}15 \times 2\text{--}3 \mu\text{m}$, simplicibus vel ramosis, cylindraceis praeditae. Hyphae stipitis corticales $2.5\text{--}3.5 \mu\text{m}$ latae, fibulatae, diverticulatae, surculi $2.5\text{--}5.5 \times 1\text{--}2 \mu\text{m}$, cellulae terminales $5.5\text{--}9 \mu\text{m}$ latae, clavatae surculis $2.5\text{--}11 \times 1.8\text{--}3 \mu\text{m}$, simplicibus vel ramosis instructae.

In Trinio-Cariceto humilis Volk.

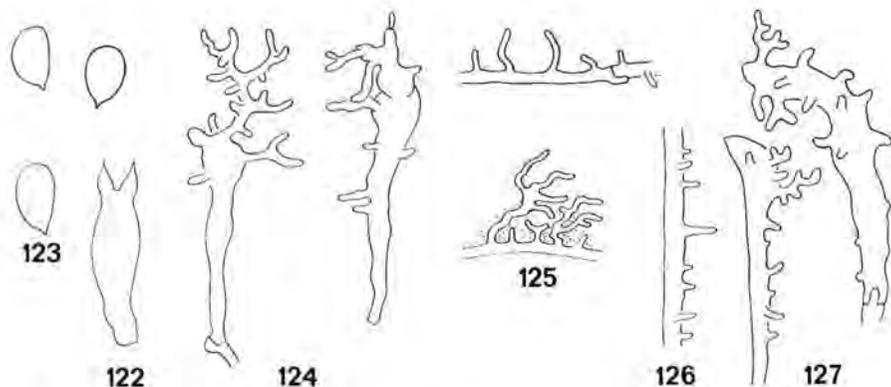
Holotypus: W. Winterhoff 82277 (L).

Basidiomata scattered. Pileus (dried) up to 8 mm across, convex, shallowly sulcate, grey-brown. Flesh thin, paler than the pileus. Odour and taste not recorded. Lamellae 11–14 reaching the stipe, tender, arcuate, 1 mm broad, broadly adnate, somewhat decurrent, smooth, paler than the pileus, the edge concave, white-crenulate. Stipe (dried) up to 40 mm long, 0.5 mm wide, hollow, equal, smooth, delicately pruinose above, glabrescent farther below, concolorous with the pileus, the base covered with long, coarse, whitish fibrils.

Basidia c. $28 \times 9 \mu\text{m}$, clavate, 2-spored, clamped, with sterigmata up to $8 \mu\text{m}$ long. Spores $10.8\text{--}11.6 \times 7.1\text{--}8.1 \mu\text{m}$, pip-shaped, smooth, amyloid. Cheilocystidia $25\text{--}63 \times 7\text{--}9 \mu\text{m}$, clavate, clamped, covered with fairly few, coarse, simple to variously branched, cylindrical straight to curved excrescences $\text{--}25 \times \text{--}3 \mu\text{m}$. Pleurocystidia absent. Lamellar trama weakly vivescent in Melzer's reagent. Hyphae of the pileipellis $1.8\text{--}3.5 \mu\text{m}$ wide, clamped, covered with simple to branched, cylindrical excrescences $2.5\text{--}15 \times 2\text{--}3 \mu\text{m}$, which tend to become somewhat gelatinized. Hyphae of the cortical layer of the stipe $2.5\text{--}3.5 \mu\text{m}$ wide, clamped, covered with scattered, cylindrical excrescences $2.5\text{--}5.5 \times 1\text{--}2 \mu\text{m}$, the terminal cells $5.5\text{--}9 \mu\text{m}$ wide, clavate, covered with simple to somewhat branched excrescences $2.5\text{--}11 \times 1.8\text{--}3 \mu\text{m}$.

Holotype: "Fungi germanici / *Mycena winterhoffii* Maas G. / Bayern, Maintal, Wiesenfeld, Mäusberg / 22 Oct. 1982 / W. Winterhoff 82277 / in Trinio-

³ Named in honour of Prof. Dr W. Winterhoff who over the years has discovered several interesting *Mycenas*.



Figs. 122-127. *Mycena winterhoffii* (holotype). — 122. Basidium. — 123. Spores. — 124. Cheilocystidia. — 125. Hyphae of the pileipellis. — 126. Hypha of the cortical layer of the stipe. — 127. Terminal cells of hyphae of the cortical layer of the stipe. All figs., $\times 700$.

Caricetum humilis Volk. on calcareous soil (Kalk-Trockenrasen)" (L, no. 982. 217-579).

The description of the species is based entirely on my own observations of the dried material. Prof. W. Winterhoff (Sandhausen) in his letter accompanying the shipment stated that owing to a very rich mycological harvest he had run too short of time to prepare adequate field notes. This explains a certain lack of detail in the macroscopic part of the above description, but those characters that are independent of the fresh condition of the material leave no doubt that this is a species in its own right.

It may be interesting for eco-mycologists to have a look at Prof. Winterhoff's list of "Begleitpilze" which is here copied unchanged: *Agrocybe semiorbicularis*, *Bovista tomentosa*, *Camarophyllus niveus*, *Clitocybe glareosa*, *C. pseudobinata*, *Collybia impudica*, *Crinipellis stipitaria*, *Cyathus olla*, *Entoloma incanum*, *E. rusticoides*, *Galerina laevis*, *G. unicolor*, *G. vittaeformis*, *Gastrum minimum*, *Hygrocybe conica*, *Lycoperdon lividum*, *Mycena aetites*, *M. avenacea*, *M. citrinomarginata*, *M. flavoalba*, *M. pseudopicta*, *Mycenella bryophila*, *Pseudoclitocybe expallens*, *Ramaria roellinii*, *Rhodocybe popinalis*, *Rickenella fibula*, *Panaeolus olivaceus*, *Stropharia coronilla*, *Tulostoma brumale*.

In section *Cinerellae* Sing. ex Maas G., *Mycena madronicola* A.H. Smith is the only other species which has two-spored and at the same time clamped basidia, but it differs from *M. winterhoffii* by its more numerous lamellae (reaching the stipe), smaller spores, differently ornamented hyphae of the pileus, and its apparently strict association with madroña trees.

Taking into account the (rather remote) possibility of finding four-spored specimens of *Mycena winterhoffii*, this species would prove to be intermediate

between *M. cinerella* (P. Karst.) P. Karst. and *M. pseudopicta* (J.E. Lange) Kühn., but different from both as shown in the table below.

COMPARISON OF IMAGINARY 4-SPORED *M. winterhoffii* WITH EQUALLY 4-SPORED *M. cinerella* AND *M. pseudopicta*

	lamellae reaching the stipe	lamellae far decurrent	cheilocystidia of the <i>pseudopicta</i> -type
<i>M. cinerella</i>	13-27	-	-
<i>M. pseudopicta</i>	16-21	+	+
<i>M. winterhoffii</i>	11-14	-	-

MYCENA WRIGHTII S. Ito & Imai

Mycena wrightii S. Ito & Imai in Trans. Sapporo nat. Hist. Soc. 16: 18. 1939.

No opinion, type material not seen.

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