CZECH MYCOL. 52 (1), 1999

A revision of new species of Pholiota and Flammula (Fungi, Agaricales) described by Josef Velenovský

JAN HOLEC

National Museum, Mycological Department,
Václavské nám. 68, 115 79 Praha 1, Czech Republic.

Holec J. (1999): A revision of new species of Pholiota and Flammula (Fungi, Agaricales) described by Josef Velenovský – Czech Mycol. 52: 17–39

New species of *Pholiota* and *Flammula* described by Josef Velenovský, an important Czech mycologist, have been studied using the type specimens, original material and descriptions. All 16 taxa published by Velenovský have been revised: *Pholiota decurrens, P. fallax, P. mammilata, P. maximovici, P. mucosa, P. nigrosetosa, P. pseudohypholoma, P. rigelliae, P. rostrata, P. salicina, P. sulphurea, Flammula granulosa, F. pholiotiformis, F. picea, F. squamulosa* and *F. vacini*. The revision showed that most of them do not belong to the genus *Pholiota* in the modern sense and in fact represent species of the genera *Cortinarius, Flammulaster, Galerina, Kuehneromyces, Pholiotina* and *Tricholomopsis*. Of this group, six species are identical with earlier described taxa (*Cortinarius bolaris, Flammulaster limulatus, Galerina triscopa, G. unicolor, Kuehneromyces mutabilis, Tricholomopsis rutilans*) and the other are considered either insufficiently documented dubious species or should be studied by specialists of the aforementioned genera. All of Velenovský's new species belonging to *Pholiota* in the present sense are identical with earlier described species: *Pholiota albocrenulata, P. alnicola, P. flammans* and *P. gummosa*. Consequently, no species of *Pholiota* s. str. described by Velenovský can be considered a "good" new species.

Key words: fungi, Agaricales, *Pholiota, Flammula*, taxonomy, type study, synonyms, Cortinarius, *Bolbitiaceae, Flammulaster, Galerina, Kuehneromyces, Pholiotina, Tricholomopsis*.

Holec J. (1999): Revize nových druhů rodů Pholiota a Flammula (Fungi, Agaricales) popsaných Josefem Velenovským – Czech Mycol. 52: 17–39

Nové druhy šupinovek, popsané Josefem Velenovským, byly podrobně studovány s využitím typových položek, dalšího originálního materiálu a původní Velenovského dokumentace. Bylo revidováno všech 16 druhů, které Velenovský popsal v rodech *Pholiota* a *Flammula*: *Pholiota decurrens, P. fallax, P. mammilata, P. maximovici, P. mucosa, P. nigrosetosa, P. pseudohypholoma, P. rigelliae, P. rostrata, P. salicina, P. sulphurea, Flammula granulosa, F. pholiotiformis, F. picea, F. squamulosa a F. vacini*. Revize ukázala, že většina z nich nepatří do rodu *Pholiota* v jeho současném vymezení, ale představuje druhy rodů *Cortinarius, Flammulaster, Galerina, Kuehneromyces, Pholiotina a Tricholomopsis*. Šest z nich bylo ztotožněno s dříve popsanými druhy (*Cortinarius bolaris, Flammulaster limulatus, Galerina triscopa, G. unicolor, Kuehneromyces mutabilis, Tricholomopsis rutilans*). Další druhy z této skupiny rodů nemohly být přesně určeny pro neúplnost Velenovského popisů nebo by musely být studovány specialisty na tyto obtížné rody. Všechny Velenovského nové druhy, které patří do rodu *Pholiota* v jeho současném vymezení, jsou identické s dříve popsanými druhy, a to s *Pholiota albocrenulata, P. alnicola, P. flammans* a *P. gummosa*. Revize tedy ukázala, že žádné Velenovského jméno nelze použít jako správné jméno některého druhu rodu *Pholiota*.

INTRODUCTION

Josef Velenovský (1858–1949), outstanding Czech botanist, palaeobotanist and mycologist, described 16 new species of *Pholiota* and *Flammula*, in particular

in the book České houby (Velenovský 1920–1922) and two later published works (Velenovský 1930, 1940). As most of them (14) were described in Czech, a language hardly understandable for foreign mycologists, his species have not been taken into consideration by most leading mycologists and monographers of *Pholiota*. Later Pilát (1948) translated all Czech descriptions of Velenovský's new species into Latin. However, a revision of Velenovský's new species of *Pholiota* and *Flammula* has never been made. As types or original material of most of these taxa are available in PRC and PRM, I decided to take this task upon me. This project is a part of my work on an European monograph of the genus *Pholiota*.

MATERIALS AND METHODS

All types or original specimens of *Pholiota* and *Flammula* described by Velenovský and stored in PRC (Charles University, Prague) and PRM (National Museum, Prague) have been studied. The specimens in PRC are being kept in glass or plastic bottles filled with a formaldehyde-based conservation liquid. The examination of fruitbodies preserved in this way is not easy but the microstructures are mostly well-preserved. In some cases, the original liquid had evaporated and was replaced by another one (based on ethanol). Such specimens mostly are in poor condition because of collapsed cells, invisible pigments and indistinct fine structures of clamps, basidia, cystidia etc. All specimens were examined in a 5 % solution of KOH and staining with Congo Red.

If a species was originally described in Czech, an English translation of this description is included in this paper, because the Latin translations of Velenovský's descriptions have been published a long time ago (Pilát 1948) and are not accessible to all mycologists. Species of which no type material exists are briefly discussed on the basis of the hand-written manuscript of České houby (Velenovský 1920–1922) and later works by Velenovský deposited in the Mycological Department of the National Museum in Prague. In these manuscripts most species are depicted in perfect line-drawings of fruitbodies, spores and cheilocystidia, which are very helpful when interpretating Velenovský's new species. Only a small part of these drawings have been published in České houby. Some of the unpublished line-drawings are reproduced in the present paper. Judging Velenovský's descriptions, it should be kept in mind that the shape of cystidia mostly represents only their upper part projecting from the hymenium.

RESULTS AND DISCUSSION

Pholiota decurrens Velen., České houby, pars 3: 503, 1921

Translation of the original description: "Pileus 3–4.5 cm, obtusely conical, then expanded and broadly obtusely umbonate; thick, firm and fleshy at centre, lobed

at margin, floccose-scaly when young, smooth, glabrous, hygrophanous, without translucently striate margin, honey-yellow, almost red at centre. Stipe twice as long as the pileus diameter, very thick (1 cm), firm, attenuated towards base, roughly fibrillose (fibrils forming a thick crust covering the context), brownish, dark in lower part, in upper part with persistent, broad, membranaceous, white, flaring annulus, below it with brown upright scales. Lamellae crowded, narrow, at z, B. whitish, then ochraceous, deeply and gradually decurrent. Context white in pileus, with sweetish fungoid smell. Spores ovoid-ellipsoid, yellowish translucent, 4–5 μm. Cystidia abundant, filiform, curved.

In dense clusters on rotten wood of a pine on the "Kožený vrch" hill near Mnichovice, September 1918. On rotten roots in soil in the "Krčský les" forest in April 1920. It is a good species, very remarkable by the deeply decurrent lamellae and prominent membranaceous ring. Edible, tasteful."

Reproduction of an unpublished line drawing by Velenovský: Fig. 2/1.

Material studied: 2 syntypes mentioned in České houby: Mnichovice, 1918. PRC (bottle no. 360). – Krčský les, April 1920, PRC (bottle no. 101).

Spores 6.0–8.0(-9.2) × 4.0–4.6(-5.2) μm, ovoid to ovoid-amygdaliform with truncate apex, smooth, wall thick, yellow-ochre, germ pore apparent, 0.8–1.2 μm broad. Basidia 4(2)-spored, 18–23 × 5–6 μm, basidioles 17–18 × 5–6 μm. Cheilocystidia 21–23 × 4.5–6 μm, variable in shape, narrowly cylindrical, clavate, lageniform or fusiform, with cylindrical and often curved upper part, hyaline. Pleurocystidia absent. Lamellar trama regular, made up of parallel 3–12 μm broad hyphae, consisting of cylindrical or slightly fusiform cells. Pileus cuticle a cutis, 2-layered, upper layer made up of cylindrical 3.0–4.5 μm broad hyphae, slightly gelatinizing, lower layer made up of densely arranged cylindrical 4–10 μm broad hyphae, locally with inflated elements up to 20 μm. Stipe cuticle a cutis made up of parallel 3–5 μm broad hyphae, densely covered with flexuose interwoven 3–8 μm broad hyphae forming the scales, cells cylindrical, often curved, terminal elements sometimes slightly clavate, wall relatively thick, with strongly rusty-brown membranal pigment. Clamp connections present in all tissues.

Result of the revision: = ***Kuehneromyces mutabilis*** (Schaeff.: Fr.) Singer et A. H. Smith, see also Fig. 1/1.

Discussion: Microscopically, the specimens examined represent typical *Kuehneromyces mutabilis*. In Velenovský's description of macrocharacters and habitat some data are in disagreement with the typical appearance and ecology of *K. mutabilis*: deeply decurrent lamellae, growth on rotten wood of a conifer (pine) in one case. The deeply decurrent lamellae (see Fig. 2/1) obviously represent an aberrant form of *K. mutabilis* which is known to have broadly adnate to subdecurrent lamellae (I have seen fruitbodies with slightly decurrent lamellae in the field). Concerning the untypical substrate, some finds of *K. mutabilis* on

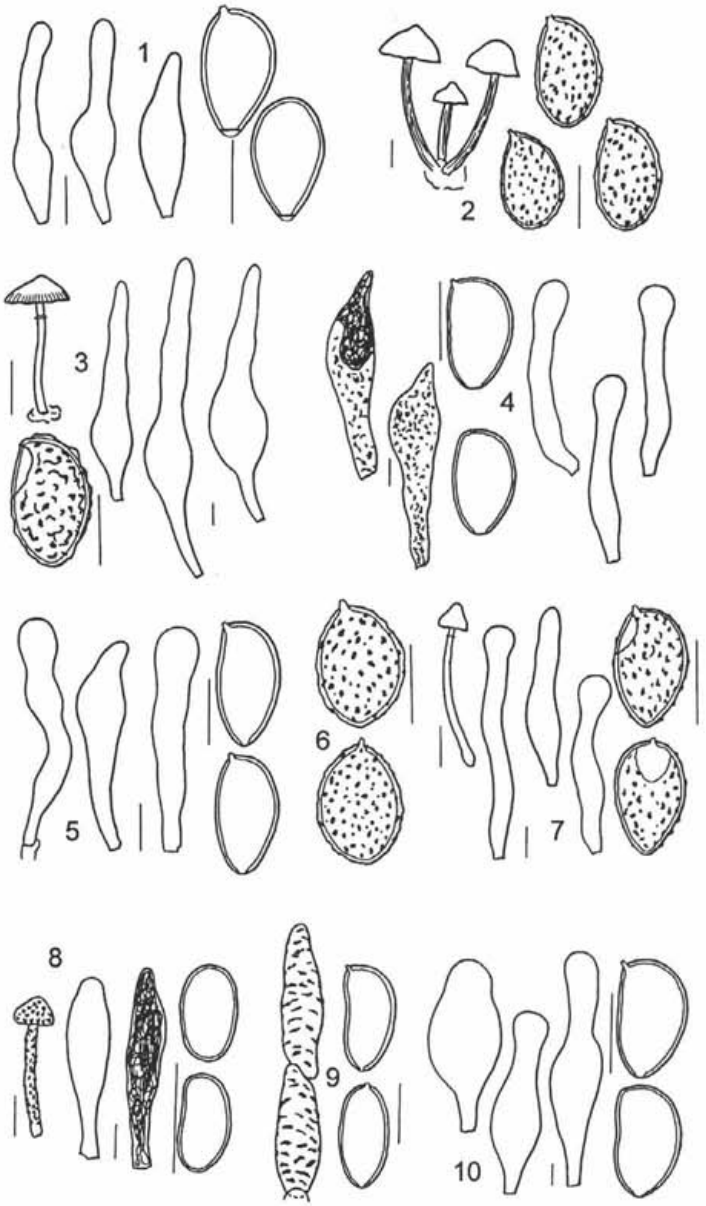

Fig. 1 **1**: *Pholiota decurrens*, cheilocystidia, spores; **2**: *Pholiota fallax*, fruitbodies, spores; **3**: *Pholiota mammilata*, fruitbody, 2 pleurocystidia, 1 cheilocystidium; **4**: *Pholiota mucosa*, chrysocystidia, spores, cheilocystidia; **5**: *Pholiota pseudohypholoma*, cheilocystidia, spores; **6**: *Pholiota rigelliae*, spores; **7**: *Pholiota rostrata*, fruitbody, cheilocystidia, spores; **8**: *Pholiota sulphurea*, fruitbody, cheilocystidia, spores; **9**: *Flammula granulosa*, cells from the pileus cuticle, spores; **10**: *Flammula picea*, 1 pleurocystidium, 2 cheilocystidia, spores. Scale bar: fruitbodies: 1 cm, microcharacters: 5 μm. Drawings by J. Holec.

wood of conifers are mentioned by e.g. Jacobsson (1990) and Breitenbach and Kränzlin (1995).

Conclusion: *Pholiota decurrens* Velen. is a later synonym of *Kuehneromyces mutabilis* (Schaeff.: Fr.) Singer et A. H. Smith

Pholiota fallax Velen., České houby, pars 3: 501, 1921

Translation of the original description: "Rather slender, like *Kuehneromyces mutabilis*, but smaller. Pileus 2–3 cm, campanulate-conical, with obtuse umbo, thin, weakly fleshy, glabrous although not smooth at all but mat, the whole surface conspicuously roughly verrucose-rugulose, hygrophanous, honey-brown with translucent lamellae when moist, alutaceous yellow when dry, paler towards margin. Stipe long, thin (2–3 mm), firm, bulbously thickened towards base, pale honey-coloured, in upper part whitish farinaceous, below the big, flaring, white annulus whitish fibrillose-floccose. Lamellae crowded, thin, broadly ventricose, honey-rusty, edge white, denticulate. Spores ellipsoid, clearly yellow, 6–7 μm. Cystidia long, filiform, obtuse, almost capitate. With slight fungoid smell.

On rotten stump of a deciduous tree in deep moist gorge under Slivenec, May 1918. Separately or in small clusters."

Reproduction of an unpublished line drawing by Velenovský: Fig. 2/2.

Material studied: holotype: Slivenec, May 1918, PRC (bottle no. 201). The holotype consists of a cluster of 5 moderately well-preserved fruitbodies.

Spores (7.0-)7.3–9.0(-9.2) × 5.0–5.5 μm, broadly ellipsoid to ellipsoid, with suprahilar depression, ochre, wall ochre-brown, without plage, roughly verrucose-rugulose. Basidia 4-spored, 23–26 × 7.5–8 μm. Cystidia not found. Lamellar trama regular, made up of parallel 3–15 μm broad hyphae, cells cylindrical to narrowly barrel-shaped, with yellow-ochre membranal pigment. Pileus cuticle a cutis made up of cylindrical parallel to slightly interwoven 3–8(-11) μm broad hyphae, with membranal and incrusting pigments. Stipe cuticle a cutis of parallel cylindrical 3–5 μm broad hyphae covered with nests of interwoven and branched 3–8 μm broad hyphae forming the stipe coverage. Clamp connections present at least in lamellar trama and pileus cuticle.

Result of the revision: = ***Galerina*** sp., see also Fig. 1/2.

I have not been able to identify the fungus at the species level. It is a *Galerina* with an annulus and distinctly verrucose-rugulose spores growing on rotten wood. In spite of a careful microscopic examination no cystidia have been found (they may have collapsed in the conservation liquid, a case often observed in other specimens of Velenovský stored in bottles). The narrowly cylindrical cystidia mentioned and depicted (Fig. 2/2) by Velenovský probably represent the upper cylindrical part of cystidia. The roughly verrucose-rugulose pileus surface is a character unusual in *Galerina*.

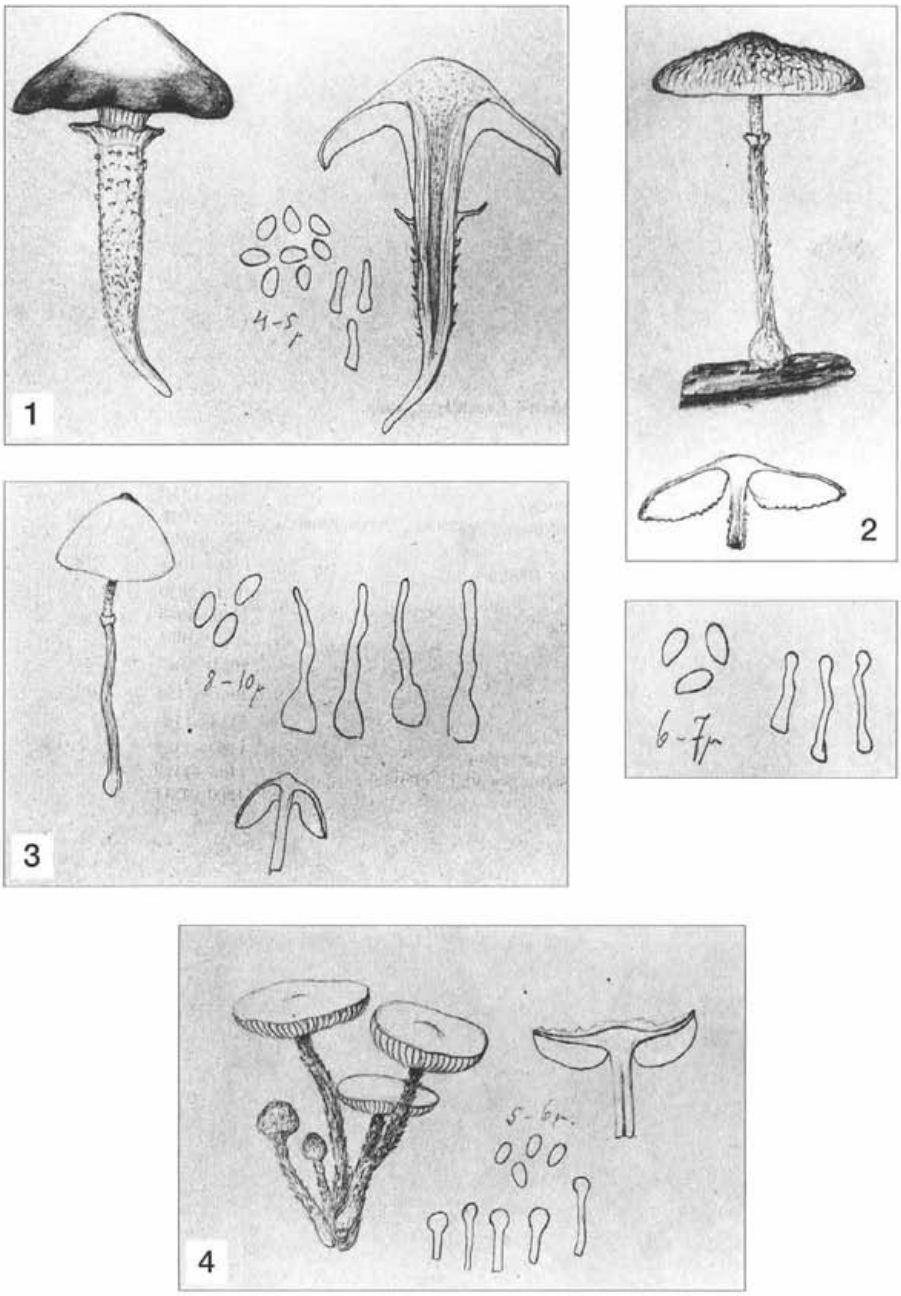

Fig. 2 Reproduction of unpublished pencilled line drawings by J. Velenovský from the manuscript of České houby (Velenovský 1920–1922). Fruitbodies, spores and cheilocystidia – **1**: *Pholiota decurrens*, **2**: *Pholiota fallax*, **3**: *Pholiota mammilata*, **4**: *Pholiota mucosa*. Slightly reduced.

In bottle no. 201, fruitbodies of three other fungal species are kept: *Hydrocybe acuta* Velen., *H. valentini* Velen. and *Dermocybe purpureobadia* Velen. *Pholiota fallax* Velen. was recognized thanks to its fasciculate growth on a small piece of wood in contrast to the other species representing mycorrhizal fungi.

Conclusion: *Pholiota fallax* Velen. is probably a species of *Galerina*, but can not be identified.

Pholiota mammilata Velen., České houby, pars 3: 501, 1921

Translation of the original description: "Tiny fungus, looking like a *Galera*. Pileus 1–1.5 cm, membranaceous, for a long time campanulate-conical with a verrucose umbo at the apex, hygrophanous, honey-coloured with translucent lamellae when moist, whitish to yellowish-ochraceous (originally: "like a bun") when dry, smooth, glabrous. Stipe long, 1–2 mm broad, flexuous, with appressed persistent membranaceous annulus, floccose-farinaceous in upper part, white fibrillose in lower part, glabrous, yellowish-ochraceous (originally: "like a bun"). Lamellae crowded, thin, broadly ventricose, broadly adnate, pale cream. Spores deep yellow, unevenly ellipsoid, 8–10 μm. Cheilocystidia large, with a broadly swollen base and long, gradually attenuated projection, curved, obtuse.

On soil in a *Larix*-forest on western slope near Mnichovice, November 1918. It is related to the previous species [which is *Pholiota blattaria*, see České houby p. 501], see also *Galera togularis*."

Reproduction of an unpublished line drawing by Velenovský: Fig. 2/3.

Material studied: probably holotype (there is no indication of locality and date of the collection on the card describing the content of bottle no. 36), PRC: originally bottle no. 36, fruitbodies of *P. mammilata* have been transferred to a separate small bottle marked 36a. The holotype consists of 2 well-preserved fruitbodies. From the about 30 fruitbodies in bottle 36 (representing *Pholiota mammilata* Velen., *Hebeloma squamulosum* Velen., *Lepiota pomacea* Velen., *Naucoria oligophylla* Velen., *Naucoria straminea* Velen., *Omphalina fusca* Velen., *Omphalina pythia* Velen., *Cantharellus radiatus* Velen., *Galera atripes* Velen., *Psathyra laricina* Velen., *Omphalia fuscipes* Velen.), that of *Pholiota mammilata* was recognized on account of the presence of an annulus, a character absent in all the species mentioned.

Spores 9.2–10.4 × 6.0–6.7 μm, ovoid in face view, ovoid-amygdaliform in side view, with suprahilar depression and distinct plage, roughly verrucose-rugulose, outer layer of the wall slightly separated in some parts, wall rusty brown. Basidia narrowly clavate, 26–31 × 7.5–10 μm, basidioles 20–21 × 7.5–8 μm. Cheilocystidia 56–68 × 11–12 μm, numerous, narrowly fusiform-lageniform. Pleurocystidia 54–77 × 9–14 μm, narrowly fusiform-lageniform. Lamellar trama regular to subregular, made up of 3–17 μm broad hyphae, cells cylindrical to narrowly barrel-shaped.

Pileus cuticle gelatinous, upper layer made up of cylindrical to narrowly fusiform 3.0–7.5 μm broad cells, lower layer formed by similar 6–15 μm broad cells. Stipe cuticle a cutis made up of parallel 2.5–5 μm broad hyphae, thin-walled, finely incrusted. Clamp connections present.

Result of the revision: = ***Galerina unicolor*** (Vahl) Singer, see also Fig. 1/3.

Both macro- and microcharacters of *Pholiota mammilata* Velen. agree very well with the characters of *Galerina unicolor* (Vahl) Singer as recently described by e.g. Smith and Singer (1964) and Gulden (1980). The fruitbodies of *P. mammilata* as well as the line drawing by Velenovský (Fig. 2/3) agree well with the original illustration of *Agaricus unicolor* (Flora Danica vol. 6, fasc. 18, pl. 1071, fig. 1, 1792) or plate 6, fig. B by Smith and Singer (1964).

Conclusion: *Pholiota mammilata* Velen. is a later synonym of *Galerina unicolor* (Vahl) Singer

Pholiota maximovici Velen., České houby, pars 3: 505, 1921

Translation of the original description: "Robust, fleshy, not hygrophanous, pileus 5–8 cm, thickly fleshy, convex, smooth, without scales, viscid, pale ochraceous. Stipe long, hard, firm, hollow, pale yellowish, 1–2 cm broad, with persistent membranaceous annulus, below the annulus with long, rough, fibrillose, brown and erect scales, above it finely densely brown granulose. Lamellae broad, adnate, later teared from the stipe, sparse, attenuated towards margin, olive-brown, edge smooth, white. Context white, smell absent, taste strongly bitter. Spores attenuated at both ends, almost fusiform, smooth, 12–15 μm. Cystidia small, obtusely cylindrical, hardly larger than basidia.

On a linden-tree near Žehušice, September 1920, collected by Mr. R. Maximovič. It belongs to the affinity of the previous species [which are *P. adiposa, P. aurivella* and *P. lucifera*] but does not agree with any one. The spores are very characteristic."

Reproduction of an unpublished line drawing by Velenovský: Fig. 3/5.

No herbarium material exists.

Discussion: The only European *Pholiota* with such long and uniquely shaped spores (see line drawing by Velenovský, Fig. 3/5) is *Pholiota albocrenulata* (Peck) Sacc. Some characters of *P. maximovici* fit this species well: its firm and fleshy fruitbody, appearance (Fig. 3/5), viscid pileus, broad adnate lamellae with white edge, hollow stipe with granulose apex and brown fibrillose scales, white context with bitter taste, obtusely cylindrical upper part of cheilocystidia. On the other hand, a smooth pileus with pale ochraceous colour is not typical of *P. albocrenulata*. As most characters of *P. maximovici* agree with those of *P. albocrenulata*, the absence of scales may be explained by their removal by rain, which is rather frequent in *Pholiota*.

Conclusion: *Pholiota maximovici* Velen. probably represents an aberrant pale form of *Pholiota albocrenulata* (Peck) Sacc. and is considered a later synonym of that species.

Pholiota mucosa Velen., České houby, pars 3: 508, 1921

Translation of the original description: "Growing in great clusters, pileus 1.5–2.5 cm, rather fleshy, at first campanulate-conical, soon convex, finally with a reflexed margin, scaly-tomentose when young, then glabrous, covered with a thick slime layer, with velum remnants at margin, dull olive ochre, slightly hygrophanous. Stipe long, 3–5 cm thick, cylindrical, solid, with a narrow channel only, dull ochre, yellowish in upper part, without a ring, entirely densely covered with white tomentose flaring scales. Lamellae narrow, thin, broadly ventricose, adnexed, pale ochre-yellowish at first, then dull brownish, turning brown after bruising. Context with a pleasant fungoid smell. Spores obtusely ellipsoid, yellow, 5–6 μm. Cystidia numerous, filiform, capitate at apex. Spore print reddish-brown.

Growing from soil in young stand of *Pinus nigra* on warm south slope of the "Michelský les" forest in November 1918. A peculiar fungus, rather distinct from other *Pholiota* species. It cannot be a *Hypholoma* because of the yellow spores and well-developed velum. Stipe covering is still rougher than in *Kuehneromyces mutabilis*."

Reproduction of an unpublished line drawing by Velenovský: Fig. 2/4.

Material studied: holotype: "Michelský les" forest, 1918, PRC (bottle no. 481). The holotype consists of a cluster of 5 moderately well-preserved fruitbodies.

Spores 6.0–7.3(-8.0) × 4.0–4.3 μm, variable in shape and size, ellipsoid to ovoid-ellipsoid in face view, ovoid-ellipsoid to slightly phaseoliform in side view, wall ochre-brown, smooth, germ pore distinct, 0.6–0.8 μm broad. Basidia 21 × 6 μm, cylindrical to narrowly clavate, 4-spored. Cheilocystidia 30–35 × 5–6 μm, forming a sterile band, cylindrical, slightly capitate at apex, thin-walled, hyaline. Chrysocystidia present on lamellae surface, 35–43 × 8–10 μm, clavate with apiculate to mucronate apex, with yellow-rusty refractive inclusion when observed in KOH. Lamellar trama regular, made up of parallel 4–15(-20) μm, near the subhymenium only 3–5 μm broad hyphae, cells cylindrical to barrel-shaped. Pileus cuticle an ixocutis, upper layer gelatinized, made up of loosely arranged 2.5–5 μm broad hyphae, lower layer formed by 5–8 μm broad hyphae, with fine membranal and incrusting pigment. Stipe cuticle a cutis of cylindrical 3–5 μm broad hyphae with finely membranal pigment. Scales on pileus surface formed by cylindrical, curved and apically rounded 5–9 μm broad cells, with membranal and incrusting pigment. Clamp connections present in all tissues.

Result of the revision: = ***Pholiota gummosa*** (Lasch: Fr.) Singer, see also Fig. 1/4.

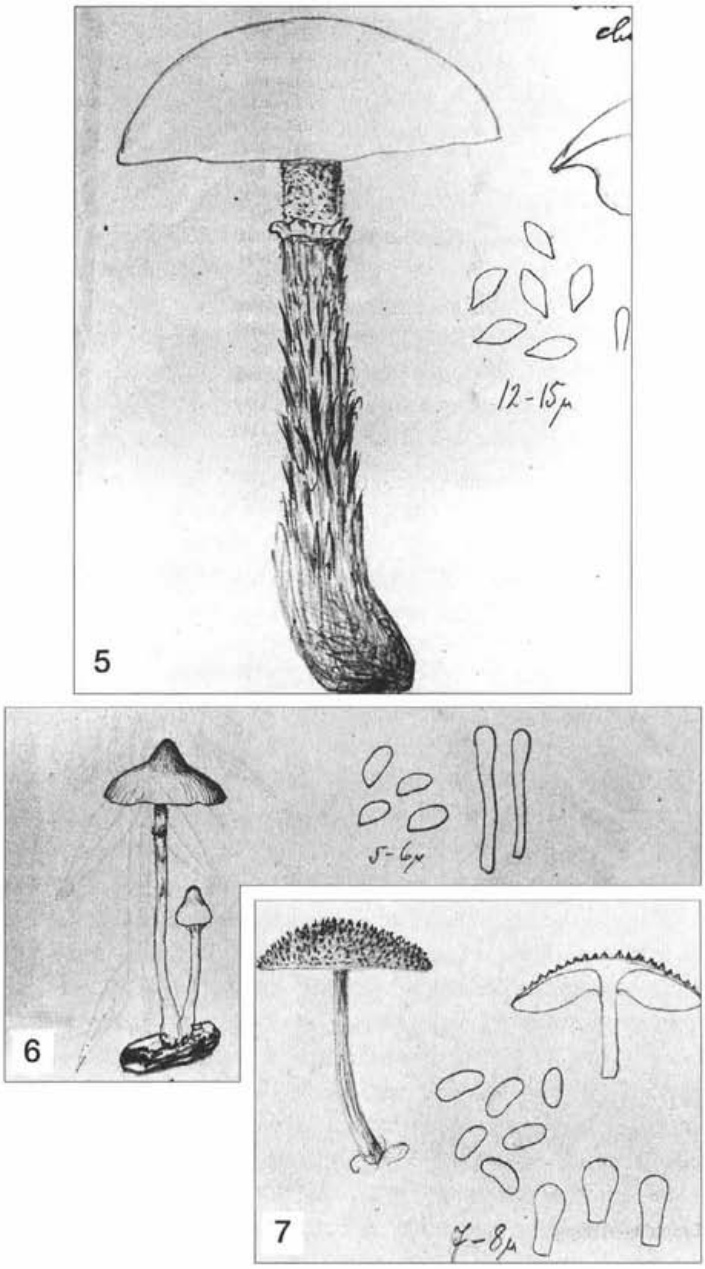

Fig. 3 Reproduction of unpublished pencilled line drawings by J. Velenovský from the manuscript of České houby (Velenovský 1920–1922). Fruitbodies, spores and cheilocystidia – **5**: *Pholiota maximovici*, **6**: *Pholiota rostrata*, **7**: *Flammula granulosa*. Slightly reduced.

Discussion: All microcharacters of the holotype agree well with those of *Pholiota gummosa*. The following macrocharacters of *P. mucosa* are typical of *P. gummosa*: growth in clusters, scaly pileus when young, strongly glutinose pileus surface, olive tinge of the pileus, dull ochre stipe. On the other hand, there are some controversial points in the Velenovský's description – stipe densely covered with white tomentose scales, reddish-brown colour of the spore print. The first character may be explained by the young stage of the fruitbodies and the resulting rich presence of velum, the latter one remains open. However, the fungus is certainly no *Hypholoma* (*Hypholoma* species do not have scaly stipes) or *Stropharia* (there is not such a combination of macro- and microcharacters in any European species). Due to the facts mentioned, the conspecifity of *Pholiota mucosa* and *Pholiota gummosa* seems to be sufficiently proved and acceptable. This conclusion is confirmed by an unpublished line drawing by Velenovský (Fig. 2/4) which perfectly fits young fruitbodies of *P. gummosa*.

Conclusion: *Pholiota mucosa* Velen. is a later synonym of *Pholiota gummosa* (Lasch: Fr.) Singer

Pholiota nigrosetosa Velen., Mykologia 7: 56, 1930.

In his description, Velenovský refers to the previously published description of *Pholiota flammans* in České houby: 504, 1921. In Mykologia, Velenovský writes that *P. nigrosetosa* differs from true *P. flammans* sensu Fries as well as from *Pholiota squarrosa*. According to him, the main distinguishing characters of his new species are firm, setigerous, erect and almost black scales on the pileus surface, large pilei (6–10 cm), growth exclusively on wood of conifers, and small spores (twice as shorter as in *P. squarrosa*). Later Velenovský (1940) summarised his conclusions in a Latin written discussion.

Translation of the original description (České houby, pars 3: 504. 1921; as *Pholiota flammans* Fr.): "In dense clusters, looking like the previous one [which is *P. squarrosa*]. The whole fungus possesses a pale yellow ground covered with erect, spiny, pointed, firm, dark scales. Pileus 6–10 cm, fleshy, hemispherical to obtusely conical when young, then convex, dry, for a long time with veil remnants at margin. Stipe hardly longer than the pileus diameter, 1–2 cm broad, firm, solid, with scaly ring, below it with spiny scales. Lamellae rather firm, at first pale yellowish, then rusty. Context yellowish, soft, with pleasant fungoid smell. Spores cylindrical, small, 3–4 μm.

On stems and stumps of conifers, rare, September-October. On *Picea* near Kunice, on *Abies* near Tehov, Řevnice, Třeboň (Weinzettl)."

No herbarium material exists.

Discussion: If the spore size is omitted, *P. nigrosetosa* seems to be a dark-scaled form of *Pholiota squarrosa* (the same conclusion was published by Pilát

1930: 30). However, the spores are too small for *P. squarrosa*. If the measurements of Velenovský are correct, the spores have exactly the same length as spores of *Pholiota flammans*, a species having the smallest spores in the genus *Pholiota*. However, the pilei of *P. flammans* never reach 10 cm and its scales are yellow. The combination of characters in *P. nigrosetosa* is not known in any European species of *Pholiota*. There are two explanations of this fact: 1) *P. nigrosetosa* really is a new species, or 2) characters of several *Pholiota* species are mixed in the description. Due to the fact that no herbarium material exists and such a fungus has never been collected later, I tend towards the second explanation.

Conclusion: *Pholiota nigrosetosa* Velen. is a dubious species, macroscopically resembling *P. squarrosa*. The name can be considered a nomen dubium.

Pholiota pseudohypholoma Velen., České houby, pars 3: 502, 1921

Translation of the original description: "Size, shape, consistence and colours like *Hypholoma fasciculare*. Pileus 3–5 cm, rather fleshy, campanulate-convex, with apiculate umbo, glutinous, smooth, lustrous, on some places with indistinct scaly velum, rusty fox-coloured at centre, sulphur-yellow in other parts, not hygrophanous, without translucent lamellae. Stipe long, firmly elastic, fibrillose, rusty and floccose-fibrillose in lower part, sulphur-yellow in upper part, with vanishing scaly ring, connected with the pileus by a pale velum when young. Lamellae crowded, even, adnate but soon teared, at first pale but then deep rusty brown, with white edge. Context sweet, whitish yellowish, odour slight pleasantly farinaceous when rubbed. Spores brightly yellow, ellipsoid, 8–10 μm. Cheilocystidia numerous, filiform, obtuse.

In clusters on an apple stump in a communal garden nursery in Mnichovice, September 1918. It is a peculiar fungus, very different from *Ph. mutabilis* by its colour. It is similar to *Hypholoma fasciculare* but has not the acrid taste."

Material studied: no original material mentioned by Velenovský in the original description (České houby p. 502) has been preserved. In PRC, there is one later collected specimen identified by J. Velenovský as *P. pseudohypholoma*: August 1922. Zvánovice, PRC (bottle no. 524). The cells of the fungus are in a bad state (collapsed, shape changed etc.).

Spores 7.3–8.6 × 4.6–5.2 μm ellipsoid in face view, somewhat applanate in side view, wall thick, brown, with distinct germ pore 0.6–0.8 μm broad. Basidia 17–20 × 5–6 μm, narrowly clavate. Chrysocystidia present at the edge, collapsed, shape unidentifiable. Cheilocystidia collapsed, probably cylindrical to narrowly lageniform. Pleurocystidia not identifiable. Lamellar trama regular, made up of parallel 3–8 μm broad hyphae, cells with ochre membranal pigment. Pileus cuticle a cutis, 2-layered, upper layer strongly gelatinous, made up of loosely arranged, 1.5–4 μm broad hyphae with membranal pigment, lower layer formed by parallel

6–19 μm broad hyphae, cells cylindrical, ellipsoid to oval, with membranal pigment. Clamp connections present.

Result of the revision: description in České houby: probably ***Pholiota alnicola*** (Fr.: Fr.) Singer, specimen in bottle 524: ***Hypholoma*** sp.

Discussion: As no original material of *P. pseudohypholoma* has been preserved, the literature data and the later collected specimen in the PRC herbarium must be considered separately. The following combination of macrocharacters given by Velenovský shows that his *P. pseudohypholoma* is no *Hypholoma*: fleshy fruitbodies, sulphur yellow pileus with rusty fox-coloured centre, rusty-brown lamellae, taste mild, sweet (*H. fasciculare*: bitter taste, *H. capnoides*: paler colours, dark grey lamellae, *H. sublateritium*: pileus brick red at centre). There is great similarity with the characters of *Pholiota alnicola*, which is also confirmed by an unpublished line drawing by Velenovský showing a typical appearance of*P. alnicola*, ellipsoid to subamygdaliform spores and cylindrical cheilocystidia.

The fungus kept in PRC (bottle no. 524) is a *Hypholoma* from the group of *H. fasciculare*, *H. sublateritium* and *H. capnoides*. The main character supporting this idea is the presence of inflated cells in the upper layer of the pileus cuticle which is a typical character of the genus *Hypholoma* (character completely absent in *Pholiota*). The cells of the specimen are poorly preserved. Due to this fact and the lack of any information on macrocharacters and habitat, it is impossible to identify the fungus at the species level.

Later published additional text: Velenovský, České houby pars 5: 918. 1922.

Translation of the additional text: "*Pholiota pseudohypholoma* Vel. I found a great number of fruitbodies of this interesting fungus on alder stumps near Jíloviště in November 1921. The pileus is soon convex and umbonate, nice sulphur yellow when young, turning brown at centre when old. Velum abundant in young stage, arachnoid, pure white. Lamellae broad near the stipe, attenuate towards margin. Spores ellipsoid, cystidia narrowly cylindrical or capitate. It has a strong smell, like *P. squarrosa*."

Material studied: Jíloviště, 1921, PRC (bottle no. 198). It is the fungus mentioned in the previous paragraph.

Spores (7.3-)8.6–9.8(-10.4) × (4.3-)5.0–5.5 μm, narrowly subamygdaliform in front view, ellipsoid-ovoid in side view, wall ochre-brown, with minute germ pore. Cheilocystidia cylindrical, narrowly lageniform-fusiform, narrowly clavate, sometimes with a cylindrical outgrowth, hyaline. Chrysocystidia and pleurocystidia absent.

Result of the revision: = ***Pholiota alnicola*** (Fr.: Fr.) Singer, see also Fig. 1/5.

Conclusion: *Pholiota pseudohypholoma* Velen. is a later synonym of *Pholiota alnicola* (Fr.: Fr.) Singer.

Pholiota rigelliae Velen., České houby, pars 3: 506, 1921

Translation of the original description: "Appearance and size like the preceding fungus [which is *Pholiota sulphurea* Velen. = *Pholiota flammans* (Batsch: Fr.) P. Kumm.] but not so sulphur-yellow. Pileus 3–5 cm, broadly convex, thickly fleshy, for a long time involute at margin and connected with the stipe by a yellow velum forming an arachnoid and later disappearing annulus on the stipe, pileus slightly viscid, yellow-brownish, densely covered with minute and rather erect red-brown scales. Stipe about 1 cm thick, long, firm, solid, curved, yellow, below the annulus with red-brown, appressed scales, roughly fibrillose. Context yellow, strongly sweetish aromatic. Spores globose, brown, 5–6 μm. Cystidia not frequent, big, obtusely cylindrical.

In oak forests near Chlumec nad Cidlinou in September 1916, collected by Miss Aloisie Rigellová, my diligent and staunch student."

Illustration: České houby p. 505, Fig. 80/1.

Material studied: holotype: Chlumec nad Cidlinou, 1916, PRC (bottle no. 60). The holotype consists of 5 well-preserved fruitbodies.

Spores (6.4-)7.3–8.6(-9.0) × 5.5–6.4(-6.7) μm, broadly ellipsoid with subacute apex, ochre-brown, wall brown, densely and prominently verrucose. Basidia 32–34 × 7.5–9 μm, narrowly clavate to cylindrical, 4(2)-spored, Basidioles 24–27 × 7.5–9 μm, narrowly clavate. Cheilocystidia and pleurocystidia not found. Lamellar trama regular, of parallel 6–14 μm broad hyphae, cells short, cylindrical. Pileus cuticle formed by 5–11 μm broad hyphae, cells cylindrical or slightly fusiform, with membranal pigment, scales consisting of nests of interwoven curved 9–20 μm broad hyphae, cells cylindrical to narrowly barrel-shaped, with strong membranal pigment. Stipe cuticle formed by parallel cylindrical 5–12 μm broad hyphae, often with ascending and outwards curved terminal elements, membranal pigmented, stipe covering made up of nests of interwoven 9–25 μm broad hyphae, strongly membranal pigmented. Clamp connections present in all tissues.

Result of the revision: = ***Cortinarius bolaris*** (Pers.: Fr.) Zaw., see also Fig. 1/6.

Discussion: Both Velenovský's description and the microcharacters studied by the present author agree well with the characters of *Cortinarius bolaris* as described e.g. by Brandrud et al. (1994). The most typical characters are the red-brown scales on the pileus surface of *Pholiota rigelliae* Velen., yellow context, appearance and size of the fruitbodies (see České houby p. 505, fig. 80/1), scaly stipe, size and shape of the spores and, finally, the occurrence in an oak forest.

Conclusion: *Pholiota rigelliae* Velen. is a later synonym of *Cortinarius bolaris* (Pers.: Fr.) Zaw.

Pholiota rostrata Velen., České houby, pars 3: 500, 1921

Translation of the original description: " Growing fasciculately, pileus 1–1.5 cm, conical-campanulate, with a massive, long, obtuse umbo, hygrophanous, red-brown when moist, with somewhat translucent lamellae, almost brick-coloured when dry, glabrous, smooth. Stipe long, thin (2–3 mm), brown, smooth, cartilaginous, flexuose, connected with the pileus by a white tomentose velum when young, the velum forming a minute, disappearing, scaly annulus on the stipe. Below the annulus the stipe is glabrous or with several small and disappearing scales only. Above the annulus the stipe is finely powdered. Lamellae rather crowded, rusty, adnate, emarginate near the stipe, with white edge. Spores honey-coloured, unevenly ellipsoid, obliquely contracted at base, 5–6 μm. Cystidia numerous, long, filiform, obtuse at apex.

On rotten stumps of *Picea* in "Zvánovické údolí" valley, September 1919."

Reproduction of an unpublished line drawing of Velenovský: Fig. 3/6

Material studied: holotype: Mnichovice, September 1919, PRC (bottle no. 93). The locality given in České houby (Zvánovické údolí valley) does not agree with the one on label of bottle no. 93 (Mnichovice). However, the discrepancy can easily be explained by the fact that "Zvánovické údolí" valley represents a sublocality of Velenovský's favourite locality Mnichovice (a small town he lived in). Bottle no. 93 contains another species: *Telamonia caespitosa* Velen. and *T. olivascens* Velen. *Pholiota rostrata* was recognised on account of its small fruitbody and small spores.

Spores (6.0-)6.7–7.3 × (3.4-)3.7–4.3 μm, ovoid-amygdaliform in face view, amygdaliform in side view, sometimes with slight suprahilar depression, wall rusty, distinctly tuberculose-rugulose, plage present, distinct. Basidia 18–22 × 4–6 μm, cylindrical to narrowly clavate, 4-spored. Basidioles 18–20 × 4–5 μm. Cheilocystidia numerous, 30–40 × 6–7 μm, cylindrical with capitate to subcapitate apex, rarely narrowly lageniform, sometimes flexuous or curved, thin-walled, hyaline. Pleurocystidia absent. Lamellar trama regular, of parallel 3–10 μm broad hyphae, cells cylindrical to slightly barrel-shaped, inflated or narrowly fusiform, with clamp connections. Pileus cuticle formed by 3–6 μm broad hyphae, cells cylindrical, exceptionally also oval to globose, 11–15 μm broad hyphae. Stipe cuticle a cutis of parallel, cylindrical 3–5 μm broad hyphae, rarely with caulocystidia of the same size and shape like the cheilocystidia.

Result of the revision: = ***Galerina triscopa*** (Fr.) Kühner, see also Fig. 1/7, 3/6.

Discussion: All characters of *Pholiota rostrata* and the unpublished line drawing by Velenovský (Fig. 3/6) agree well with the descriptions of *Galerina triscopa* by Smith and Singer (1964) or Watling and Gregory (1993) and with figure 123B by J. E. Lange (1935–1940).

Conclusion: *Pholiota rostrata* Velen. is a later synonym of *Galerina triscopa* (Fr.) Kühner

Pholiota salicina Velen., České houby, pars 3: 506, 1921

Translation of the original description: "Fruitbodies small, pale, flesh thin. Pileus 2–3 cm, obtusely campanulate-convex, dry, pallid with a yellowish tinge, covered with minute scrappy brownish scales. Stipe twice as longer as the diameter of the pileus, 2–3 mm thick, firm, white, scarcely floccose-scaly, thickened towards the base and finely arachnoid-floccose. Lamellae crowded, thin, broadly ventricose, adnexed, whitish with a yellow tinge, turning greenish when bruised. Spores ovoid-pyriform, yellowish, 8–10 μm. Cystidia numerous at the edge, scattered on the lamellae surface, large, shape like a violin (constricted in the middle part). Context whitish, smell none.

On a willow stump in "Radotínské údolí" valley, November 1917. – It is a peculiar species related to the previous one [which is *Pholiota muricata* Fr.]. Annulus poorly developed. Lamellae turning green in my solution [which is a conservation liquid based on formaldehyde and ethanol]. The cystidia are prominent."

Material studied: holotype: Radotín, on willow, November 1917, PRC (originally bottle no. 255, the fruitbody of *P. salicina* has been transferred to a separate small bottle marked 255a). The material consists of one poorly preserved fruitbody. From the about 7 fruitbodies in bottle 255 (representing *Pholiota salicina* Velen., *Clitocybe obolus* Fr., *Omphalia rosarum* Velen., *Collybia filamentosa* Velen. and *Naucoria arvalis* Fr.), that of *Pholiota salicina* has been selected on account of the size of the fruitbody and the brown scaly pileus.

There are 4 types of spores of brown-spored agarics on the lamellae surface. As no spores connected to sterigmata could be found, it was impossible to decide which type belongs to *P. salicina*. Basidia not found (probably collapsed). Basidioles 20 × 6 μm, narrowly clavate. Cheilocystidia probably present (see Velenovský's description) but not found. Pleurocystidia 35–54 × 12–18 μm, clavate or utriform with median constriction, partly filled with a pigment. Pileus cuticle formed by spherical, oblong to broadly clavate cells, 35–45 × 22–32 μm, rarely intermixed with hyphae formed by cylindrical to narrowly barrel-shaped cells. Stipe cuticle a cutis formed by parallel 3–5 μm broad hyphae, caulocystidia absent. Clamp connections present.

Discussion: The presence of spherical elements in the pileus cuticle places *Pholiota salicina* within the family *Bolbitiaceae*. My attempts to identify the fungus at the generic and species level remained unsuccessful. Due to the presence of alien spores and the poor state of the fruitbody some important characters are lacking and, therefore, reliable identification is impossible.

Conclusion: *Pholiota salicina* Velen. is a hardly interpretable dubious species that cannot be identified. It belongs to the family *Bolbitiaceae*.

Pholiota sulphurea Velen., České houby, pars 3: 506, 1921

Translation of the original description: "Figure 80. Relatively small but beautiful species related to *Ph. squarrosa*. Pileus 3–5 cm, obtusely campanulate at first, then plano-convex, margin involute for a long time, medium fleshy, strongly viscid, smooth and lustrous when dry, golden yellow, with minute appressed yellow scales, with reddish tinge at centre when old, margin connected with stipe by rich sulphur-yellow velum when young. Stipe 6–10 cm, longer than the pileus diameter, dry, yellow, somewhat thickened and red-brown at base, with saffron-yellow scaly annulus, below it with yellow erect scales. Lamellae crowded, sulphur-yellow at first, then golden yellow for a long time, finally yellow-brown, emarginate at the stipe, almost broadly triangular, turning brown when bruised. Context sulphur-yellow, with strong resinous smell, changing brown on air. Spores obtusely ellipsoid, 5–6 μm. Cystidia big, obtuse, bulbously swollen.

On a *Picea*-stump near Třeboň in August 1915 and 1916 collected by Director Weinzettl. Also collected near Písek (Macháček), on *Pinus*-stumps at Hůra near Tehov, on *Pinus*-wood in an enclosure in Smíchov (R). August-October."

Illustration: České houby p. 505, fig. 80/2.

Material studied: 2 syntypes: Třeboň, Aug. 1915, PRC (bottle no. 91). – Písek, 19 Aug. 1915, leg. Macháček, PRC (bottle no. 339). Material in bad condition: too hard, cells mostly indistinct.

Spores 4.3–5.0 × 2.4–3.0 μm, ellipsoid in face view, sometimes slightly phaseoliform in side view, wall thin, germ pore absent. Basidia 18–21 × 4.5–6.6 μm, narrowly clavate, 4-spored. Basidioles 15–20 × 4.4 μm. Chrysocystidia numerous, present both at the edge and on lamellae surface, 25–38 × 8–11 μm, narrowly clavate, cylindrical-clavate to narrowly utriform, filled with a refractive content. Cheilo- and pleurocystidia of the same shape and size as the chrysocystidia, hyaline or with granulose or homogeneous yellow pigment, thin-walled. Pileus and stipe cuticle: structure indiscernible.

Result of the revision: = ***Pholiota flammans*** (Batsch: Fr.) P. Kumm., see also Fig. 1/8.

Discussion: All microcharacters of the fruitbodies studied (including their appearance) and most macrocharacters of *P. sulphurea* given by Velenovský (description + Fig. 80/2 in České houby) agree well with those of *Pholiota flammans*. However, there is a substantial conflict concerning the nature of pileus cuticle – Velenovský writes that it is strongly viscid which is quite untypical of *P. flammans*. According to my observations, the cuticle can be slightly sticky in moist weather but is never strongly glutinous. This deviation may be explained by the fact that characters of several species of *Pholiota* are mixed in Velenovský's description (he based it on several collections). The syntypes really represent true *Pholiota flammans*.

Conclusion: *Pholiota sulphurea* Velen. is a later synonym of *Pholiota flammans* (Batsch: Fr.) P. Kumm.

Flammula granulosa Velen., České houby, pars 3: 513, 1921.

Translation of the original description: "Tiny fungus growing individually, pileus 1–2.5 cm, convex, without umbo, flesh thin, rusty brown, mat, whole surface erinaceous-granulose thanks to the presence of vertical conical papillae. Stipe twice as longer as the pileus diameter, 3–4 mm broad, solid, firm, elastic, roughly fibrillose, usually compressed, brown in basal part, yellow-brown in upper part, without annulus or ring. Lamellae rather sparse, thin, broadly adnate, broadly ventricose, yellow-ochre at first, then of brown-flesh colour. Spores obtusely ellipsoid, usually reniformly curved, translucently yellow, 7–8 μm. Cheilocystidia big, globose, with a short attenuated peduncle. Smell absent.

On drippy hollow place of a living beech stem in forests near Jevany, September 1918. It is a peculiar fungus by its appearance and the habitat, nor similar nor related to any other fungus known."

Reproduction of an unpublished line drawing by Velenovský: Fig. 3/7.

Material studied: holotype: Jevany, 1918, PRC (bottle no. 57). The holotype consists of one moderately well-preserved fruitbody. Further specimens in bottle no. 57: *Leptoglossum muscorum* Fr., *Pluteus excentricus* Velen.

Spores 8.0–9.2(-9.5) × 4.3–4.9 μm, oblong in front view, distinctly phaseoliform in side view, wall brown, thick, 0.4–0.6 μm, germ pore minute, narrow. Basidia collapsed. Cheilocystidia mostly collapsed, poorly visible, clavate. Lamellar trama regular, made up of 5–15 μm broad hyphae, cells cylindrical to narrowly ellipsoid. Pileus cuticle formed by chains of cylindrical, narrowly ellipsoid, narrowly barrel-shaped to pyriform and elongated cells, 25–64 × 6–22 μm. Stipe cuticle a cutis of cylindrical 3–5 μm broad hyphae with nests of velar remnants formed by interwoven 3–9 μm broad hyphae, cells often curved or slightly inflated, with incrustations. Clamp connections present in all tissues.

Result of the revision: = ***Flammulaster limulatus*** (Fr.) Watling, see also Fig. 1/9.

Discussion: All characters of *Flammula granulosa* Velen. agree perfectly with *Flammulaster limulatus* (Fr.) Watling as interpreted e.g. by Kühner and Romagnesi (1953) or *F. limulatus* var. *limulatus* by Vellinga (1986) as well as with my own finds of this fungus (Holec and Pouzar 1998).

Conclusion: *Flammula granulosa* Velen. is a later synonym of *Flammulaster limulatus* (Fr.) Watling

Flammula pholiotiformis Velen., České houby, pars 3: 513, 1921.

Translation of the original description: "Appearance exactly like *Pholiota adiposa*. Pileus 4–9 cm, fleshy with watery flesh, convex, with sharp, inflexed margin, sulphur-yellow, moist, abundantly covered with appressed dark brown scales, scales large at centre, towards the margin minute and crowded, sometimes also of pink colour. Stipe longer than pileus diameter, 1–1.5 cm broad, pale yellow, smooth, glabrous, coarsely fibrillose, elastic. Lamellae sparse, not broad, thick, gradually decurrent on the stipe, yellowish. Context yellowish, slightly fetid. Spored distinctly globose, rusty, towards the base shortly attenuated, 5–6 μm. Cheilocystidia large, utriform-clavate.

Near *Pinus* stumps in forests near Sojovice by the Jizera river in July 1914. A peculiar fungus – everybody would say it is *Pholiota adiposa* but it has neither a cortina nor velum but globose spores. I would say that it is close to *Flammula gymnopodia* Bull. which rarely grows in mountainous forests."

No herbarium material exists.

Discussion: Judging the description, *Flammula pholiotiformis* is a dark-spored fungus somewhat resembling *Pholiota adiposa*. However, the decurrent lamellae and perfectly globose spores are quite untypical of *Pholiota* and related genera. *Flammula gymnopodia* mentioned by Velenovský was recently reinstalled by Reijnders (1998) as *Pholiota gymnopodia* (Bull.: Fr.) A. F. M. Reijnders. Although its lamellae are decurrent, this species has an orange-brown pileus with minute scales and broadly ellipsoid spores.

As the characters of *Flammula pholiotiformis* given by Velenovský are insufficient to judge its identity (e.g. the colour of spore print is unknown) and herbarium material is lacking, the species cannot be identified.

Conclusion: *Flammula pholiotiformis* Velen. is a hardly interpretable dubious species.

Flammula picea Velen., Novitates mycologicae: 136, 1940 ("1939")

Original description: "Dense fasciculata, 5–12 cephala, pil. 2–3 cm, cito explanato, centro minute umbonato, rigidi-carnoso, parum hygroph., citrino-flavido, nudo, sine velo. St. pil. diam. parum longior, 2 mm cr., supra incrassatus, squamulis patulis totus vestitus. Lam. confertae, cinnamomeae, postice dente adnatae, acie serrulatae (!). Sp. ovato-ellipt., pellucido-luteae 5–7. Cyst. copiosa, acicularia, recta 25–60.

Ad radices Piceae in piceto pr. Okrouhlice (distr. Prag.) 11. 1938 legit V. Vacek. Cum nulla nota eam identificare nequeo. Pileus denique leniter radiato-rugosus. Inodora."

Material studied: holotypus: Zahořany (a village near Okrouhlice), 13 Nov. 1938, V. Vacek, PRM 677004. The holotype consists of 3 well-preserved fruitbodies.

Spores (6.0-)6.7–8.0 × 4.0–5.0 μm, ellipsoid in face view, ellipsoid-ovoid to ovoid or slightly phaseoliform in side view, wall thin, pale ochre in KOH, dextrinoid, smooth, germ pore present, indistinct, about 0.6 μm broad. Basidia 20–22 × 6 μm, 4(2)-spored, cylindrical to narrowly clavate. Cheilocystidia prominent, 45–55 × 13–16 μm, lageniform to narrowly utriform with cylindrical or broadened (subcapitate) upper part. Pleurocystidia 45–58 × 12–18 μm, shape like the cheilocystidia or fusiform with broad and obtuse apex, utriform with broader medium part when young. Lamellar trama regular, of parallel to slightly flexuously interwoven 3–14 μm broad hyphae. Pileus cuticle a transition between a hymeniderm and an epithelium formed by short chains of globose, subglobose to broadly ellipsoid, 6–9 μm broad cells. Stipe cuticle formed by parallel 4–6 μm broad hyphae with upright cylindrical or filiform outgrowths and nests of mostly lageniform but also lageniform-tibiiform or rarely also narrowly lecythiform caulocystidia. Clamp connections present at least in lamellar trama.

Result of the revision: ***Pholiotina*** sp., see also Fig. 1/10.

Discussion: according to the structure of pileus and stipe cuticle, *Flammula picea* Velen. belongs to the genus *Conocybe* s.l. I have tried to identify the fungus with the key published by Meusers (1996), which is the most complete recent key of European species of *Conocybe* and *Pholiotina*. *Flammula picea* should belong to the group of *Pholiotina* with a lacking annulus. The most similar species are *Pholiotina striipes* (Cooke) Singer and *Pholiotina friesii* (Lundell) Enderle (= *P. pygmaeoaffinis* (Fries) Singer). However, there are many differing characters in *Flammula picea*, especially the shape of cystidia and caulocystidia. As I am not a specialist in this taxonomically difficult genus, the identity of the fungus should rather be revised by a specialist of the genera *Conocybe* and *Pholiotina*. For the monograph of *Pholiota*, the exclusion of *Flammula picea* from *Pholiota* is sufficient.

Conclusion: *Flammula picea* Velen. is a species of *Pholiotina*

Flammula squamulosa Velen., České houby, pars 3: 512, 1921

Translation of the original description: "Pileus 3–4.5 cm, rather fleshy, smooth, dry, applanate, with inflexed obtuse margin, with densely arranged appressed red-brown scales on a clearly yellow ground, completely red-brown at centre, context pale yellow, smell absent. Stipe of the same length as the pileus diameter, 6–8 mm broad in upper part, gradually attenuated towards base, firm, elastic, solid, fibrillose, glabrous, without velum, pale yellowish, turning blackish red-brown when bruised. Lamellae thin, broad, crowded, adnate, sulphur yellow. Spores almost uncoloured, ovoid-ellipsoid to ovoid-globose, 8 μm. Cheilocystidia small, obtusely lageniform or filiform.

On stumps near Koloděje in the Pardubice region, September 1918, collected by Dr. Schustler. It is impossible to link it with the previous one." [which is *Flammula sapinea*].

Material studied: Mnichovice, 1918, PRC (bottle no. 129). It is neither type material nor original material and consists of one moderately well-preserved fruitbody.

Spores 6.0–6.7 × 5.0–5.2 μm, broadly ellipsoid, hyaline, wall thin, smooth, with distinct apiculus, without germ pore. There are also larger spores measuring 6.7–8.8 × 5.0–6.0 μm (from 2-spored basidia ?). Basidia not found (probably collapsed). Basidioles 23–30 × 5 μm. Cheilocystidia very prominent, 40–110 × 9–22 μm, narrowly clavate-cylindrical to narrowly clavate, hyaline, wall yellow-brown, up to 0.7 μm thick. Pleurocystidia absent. Lamellar trama regular, made up of 5–20 μm broad hyphae, cells cylindrical to narrowly fusiform, at centre sometimes with ellipsoid up to 30 μm broad cells. Pileus cuticle a cutis formed by cylindrical 5–11 μm broad hyphae, terminal elements rounded at apex.

Result of the revision: = ***Tricholomopsis rutilans*** (Schaeff.: Fr.) Singer

Discussion: Most characters of *Flammula squamulosa* Velen. agree very well with the characters of *Tricholomopsis rutilans*. According to the herbarium label, the fruitbody investigated represents neither type nor original material of *F. squamulosa*. However, the fruitbody in bottle no. 129 agrees well with the description of this fungus published in České houby. It is also possible that it is the type, but Velenovský or his technical assistants routinely labelled the bottle with the name of Velenovský's most favourite locality – Mnichovice.

Conclusion: *Flammula squamulosa* Velen. is a later synonym of *Tricholomopsis rutilans* (Schaeff.: Fr.) Singer

Flammula vacini Velen., Novitates mycologicae: 137, 1940 ("1939")

Original description: "Caespitosa, polycephala, hygroph., tenax. Pil. 2–3.5 cm, cito explan., non umbon., sordide pallide fulvidus, opacus, glaber, margine membranaceo lamellas superanti. St. duplo longior, elasticotenax, concolor, 5–8 mm, farctus, saepe compressus, totus dense granulosos-paleaceus, sed sine velo et cortina. Sp. 5–6 μm, breviter ellipt., laeves, luteae, pellucidae. Cyst. copiosa, aceim dentatam efficientia, polymorpha, columniformia, clavata, ramosa, cuspidata, 50–80 μm. Lam. conf., latae, postice dente adnatae, argillaceae. Olet inamoene.

Ad truncum acerosum pr. Libšice (distr. Prag.), octob. 1939, leg. V. Vacinus. Nulli notae affinis nec similis."

No herbarium material exists.

Discussion: This is a hardly interpretable lignicolous fungus with a small sordid pale brown pileus, brown lamellae, a relatively thick and granulose-paleaceous stipe and small spores. As there is no herbarium material, it is difficult to determine its

identity or its generic position – it could be a species of the families *Strophariaceae* (*Pholiota*?), *Bolbitiaceae* (*Conocybe* s.l. ?) or *Cortinariaceae* (*Galerina* ?).

Conclusion: *Flammula vacini* Velen. is a brown-spored agaric which can not be identified. It remains a nomen dubium.

CONCLUSIONS

In the genus *Pholiota*s. str. (in the present sense), no species described by Velenovský can be considered a "good" new species. Most of his *Pholiota* and *Flammula* species belong to other genera, sometimes quite distant from *Pholiota* (e.g. *Tricholomopsis*, *Cortinarius*). However, in Velenovský's time the old broad Friesian concept of *Pholiota* and *Flammula* was abandoned only slowly, which is the reason why so many taxa described by him belong now to genera like *Galerina, Kuehneromyces, Pholiotina* or *Flammulaster*. The main problem is that most of Velenovský's new species of *Pholiota* and *Flammula* are identical with earlier described taxa. It is generally known that Velenovský underestimated or even did not know the variability of many fungal species, which led him (together with omitting contemporary literature) to describe so many new taxa based on superficial observations of macrocharacters and overestimating minor differences caused in fact by infraspecific variability. This is the reason why also his new species of *Pholiota* and *Flammula* are either identical with previously described taxa (their names are synonyms) or represent hardly interpretable species (and the names must remain nomina dubia).

ACKNOWLEDGEMENTS

This work was financially supported by the Grant Agency of the Czech Republic (Project No. 206/97/0273), the final elaboration also by research project of the Ministry of Culture of the Czech Republic (F02/98:NMPM00001). I also thank the anonymous reviewer of this paper for linguistic correction.

REFERENCES

BRANDRUD T. E., LINDSTRÖM H., MARKLUND H., MELOT J. and MUSKOS S. (1994): Cortinarius, Flora Photographica. Vol. 3. – 60 coloured plates, 35 p. Matfors.

BREITENBACH J. and KRÄNZLIN F. (1995): Pilze der Schweiz. Vol. 4. – 371 p. Luzern.

GULDEN G. (1980): Alpine Galerinas (Basidiomycetes, Agaricales) with special reference on their occurrence in South Norway at Finse on Hardangervidda. – Norw. J. Bot. 27: 219–253.

HOLEC J. and POUZAR Z. (1998): New records of rare fungi in the Šumava mountains (Czech Republic). II. – Čas. Nár. Muz., Řada přírodovědná (Journal of the National Museum, Natural History Series) 167: 61–72.

JACOBSSON S. (1990): Pholiota in northern Europe. – Windahlia 19: 1–86.

KÜHNER R. and ROMAGNESI H. (1953): Flore analytique des champignons supérieurs. – 557 p. Paris.
LANGE J. E. (1935–1940): Flora agaricina danica. – Copenhagen.
MEUSERS M. (1996): Bestimmungsschlüssel für europäische Arten der Gattungen Conocybe und Pholiotina. – Österr. Z. Pilzk. 5: 245–272.
PILÁT A. (1930): Vzácnější bedlovité houby z okolí Plöckensteinského jezera na Šumavě (Einige seltenere Agaricaceen aus der Umgebung vom Plöckensteiner See im Böhmerwalde). – Mykologia 7: 7–11, 24–32, 57–60.
PILÁT A. (1948): Velenovskýi species novae Basidiomycetum quas in opere "České houby" (Fungi Bohemiae), annis 1920–22 in lingua bohemica edito, descripsit. – Opera Botanica Čechica 6: 1–301.
REIJNDERS A. F. M. (1998): Pholiota gymnopodia comb. nov. A redescription of a forgotten species. – Persoonia 17: 113–118.
SMITH A. H. and SINGER R. (1964): A monograph on the genus Galerina Earle. – 394 p. New York.
VELENOVSKÝ J. (1920–1922): České houby. Part 1–5. – 950 p. Praha.
VELENOVSKÝ J. (1930): Mykologické příspěvky. (Mykologische Beiträge). – Mykologia 7: 55–56.
VELENOVSKÝ J. (1940): Novitates mycologicae. – 211 p. Praha ("1939").
VELLINGA E. C. (1986): The genus Flammulaster (Agaricales) in the Netherlands and adjacent regions. – Persoonia 13: 1–26.
WATLING R. and GREGORY N. M. (1993): British fungus flora: Agarics and Boleti. Vol. 7. Cortinariaceae p.p. – 131 p. Edinburgh.