Type Studies on Agarics IV.[1])

Rolf Singer [2]).

Laccaria trullisata f. *rugulospora* Morten Lange, Medd. Grønl. 147: 30. 1955.

Authentic material of the *forma* was studied and carefully compared with part of the type form of the species. The spores were found to be exactly as described by Morten Lange while the spores of the type form are actually quite smooth. This goes for all the material of the type form seen by this author including that from the east coast of North America from Maine south to Florida and the Great Lakes collections, as well as for all the material of f. *rugulospora* seen by this author, i. e. the material from Denmark, Scotland (with *Ammophila, Carex arenaria,* etc., K) and the Netherlands (with *Festuca rubra*, L) which seems to be identical with material from Greenland and the Baltic region (Theodorowicz as *Hygrophorus maritimus* Theod.). I have not found any significant difference in spore measurements: Scotland: 13.8—17.2 × 6.3—7.8 μ — Netherlands: (10)—15——18.5 × (7)—8—9.5 μ — Denmark: 12.7—15.8 × 7.2—9.3 μ — Sweden: 16—18 × 8—10 μ (Anderson) — Greenland: 12—15.5 × × 7.5—8.5 μ (Morton Lange) — New: Jersey 15—22 × 5—10 μ — Massachusetts 15.5—17 × 6.5—7 μ.

But there seem to be minor differences in macroscopical characters which, together with the sharpness of the spore ornamentation difference, and the coincidence with the respective geographic areas suggest that we are dealing with vicariant species. The European-Greenlandic species is therefore *Laccaria maritima* (Theod.) Sing.

Bertrandiella ianthina Heim, Rev. d. Mycol. 24: 187. 1959.

The type (P) from Mexico is in liquid preservation but in good condition. Through the amability of Dr. R. Heim, sections could be made which revealed the following characters:

Spores 5.7—7.2—(9.2) × 4—5.8—(7) μ, smooth, hyaline, with somewhat irregularly uneven inner wall surface, not pseudoamyloid or

[1]) Earlier contributions under this title have been published in *Lloydia* 5: 97—135, 1942; 9: 114—131, 1946; *Lilloa* 25: 463—514, 1952.

[2]) The present paper was prepared as part of the work necessary to edit a second edition of my book "Agaricales in modern taxonomy" and was as such supported by the National Science Foundation, Washington, D.C. and carried out at the herbaria of the Royal Botanic Garden in Kew (K), and at the Rijksherbarium, University of Leiden (L). Material from some other herbaria has also been received and used for the present purpose (P, W, FH, LIL).

amyloid, short ellipsoid to ellipsoid, thin to very moderately firm-walled, with or more often without a suprahilar depression, with a somewhat prominent hilar appendage; basidia 21—30 × 7—9.2—(11.5) μ, mostly 4-spored, a minority 2-spored, cylindric (especially the 2-spored ones) to clavate, hyaline, sterigmata often remarkably straight but also often normally half sickle-shaped, rather long, up to 5 μ; laticifers 6—9 μ thick, long and filamentous, often somewhat brownish inside when mounted in the Melzer reagent, some reaching the hymenial level as pseudocystidia, and then cylindric or subcylindric with rounded tips; hymenophoral trama rather dense, regular, not at all gelatinized, consisting of structural hyphae 5—17.5 μ broad and connective hyphae about 2 μ broad, hyline in NH_4OH, yellowish to hyaline in iodine solutions, with the laticiferous vessels generally running parallel with the hyphae, no spherocysts; subhymenium subcellular, consisting of chains of very short multiseptate elements which are often almost isodiametric, hyaline, not gelatinized, e. gr. 7×5.5 μ; epicuticular layer consisting of hyphal elements which are repent and subparallel with each other, about 2—6 μ in diameter, hyaline, smooth, with attenuate or cylindric hyphal ends but these always rounded at the tip; underneath this uppermost layer, there are hyphae of the same kind but reaching 5— 18μ in diameter, forming a hypodermium which is little differentiated from the more irregular context of the pileus; all hyphae with very thin to up to 0.7 μ thick wall which is hyaline and inamyloid, not gelatinized, with clamp connections.

These data do not tend to confirm a relationship with either the Hygrophoraceae (*Bertrandia*) or the Russulaceae (*Lactarius( )* but suggest affinity with the genus *Lactocollybia*.

Armillaria omnituens (Berk.) Sacc.

The type from Darjeeling, India (K) has inamyloid spores 9—10 × 5—6.5 μ; hyphae also inamyloid; veil consisting of intervowen thick-walled hyphae, no clamp connections seen. These data in combination with the drawing by Hooker (no. 46) make it quite clear that this species is congeneric with the type species of the genus *Armillariella* but specifically different.

Armillaria adelphus (Berk.) Sacc.

This has the same microscopical characters as the preceding species. The type (K) comes from Sikkim, no. 47, apparently from a higher altitude, and the carpophore seems smaller. I consider this a synonym of the preceding species *Armillariella omnituens* (Berk.) Sing.

Tricholoma ipatungaensis Batista.

The type (preserved at the Instituto de Micologia, Recife) has the same characters as those observed by me in a collection made at

João Pessõa, Paraibo, Brazil (Singer B 3341, LIL) and *Tricholoma praegrande* (Berk.) Sacc.:

Pileus whitish to "Mastic" (Maerz & Paul), at first so strongly involute that the margin touches the stipe (pseudoangiocarpous?), the marginal zone of the surface white and subvelutinous, not hygrophanous or viscid, convex, up to 250 mm. broad. — Lamellae "Malacca" (Maerz & Paul), rounded at the stipe even when young, close, not very broad; spore print white. — Stipe white, squarrose-squamose, solid with almost tough rind, concrescent at base, ventricose, up to 200 × 40 mm. — Context white, fleshy, unchanging, mild. — Spores 5.5—6.2 × 4—4.2 μ ellipsoid, smooth, appearing roughened at first glance but only with an irregularly thickened wall, hyaline, inamyloid, with or without some granular-oleaginous contents, with a slight suprahilar depression; basidia clavate, without carminophilous granulation, 4-spored, e. gr. 19 × 4.8 μ; cystidia, none seen; hymenophoral trama of thin filamentous hyphae, regular; all hyphae inamyloid, with clamp connections.

This is undoubtedly an interesting and showy species of the open places in Eastern Brazil from Paraibo to Minas Geraes, and belongs in the section *Rigida* of *Tricholoma*. It has some affinity — as has that whole section — with the fleshy species of *Clitocybe* sect. *Disciformes* and *Collybia* sect. *Striaepedes* but differs clearly from both and seems to be most closely related to *Tricholoma mongolicum* Imai.

Agaricus cerealis Lasch, Linnaea 4: 526. 1829.

This is the authentic material and topotype distributed by Klotzsch, Herb. viv. myc. no. 1301 (L) and was collected by Lasch at Driesen, Germany. It may even be part of the original type. The spores are 6.3—8 × 4.5—5.8), asperulate-verruculose, strongly amyloid, cystidia none seen; clamp connections present. This confirms that *A. cerealis* is a *Leucopaxillus*. The carpophore is in good condition and is undoubtedly identical with the European variety of what until now had been called *L. albissimus* (Peck) Sing. in the monograph by Singer & Smith, and *L. paradoxus* by some European mycologists.

Agaricus eugrammus Mont., Ann. Sc. Nqt. II. 8.: 366.1837.

The authentic material of which Dennis (Kew Bull. 1953: 36.) makes reference had not been studied previously to Dennis's publication by the present author whose concept was based on material compared with this material by Berkeley and determined as *Lentinus eugrammus* by Berkeley & Curtis. This authentic Cuban material has, however, been consulted twice since then, and not only, in agreement with Dennis's findings been confirmed as identical with *Lentinus eugrammus* sensu Berk. & Curt. as well as with *Panus wrightii* Berk. & Curt. but also with the other synonyms indicated by me when the species was redescribed in Lilloa 23: 168. 1950 (publ. 1951).

The spores of the authentic material were found to be just ½ μ longer than in my description (here, in Montagne's material 8 × 3.8—3.8 μ) and not like Dennis's measurements (7—10 × 3—3.5 μ which seem to be refer to a *Pleurotus* sp.). It is true that Montagne's specimen is relatively thicker and somewhat larger than the Florida specimens distributed by me (Rel. Farl. no. 987) but I am not convinced that they are specifically different. In order to see whether *P. hygrophanus* ss. Dennis is the thinner form of this species or another species or genus, I have checked an two of his collections from Trinidad (Dennis 68 and 68 A—K) and find them indeed conspecific, i. e. quite like my own collections and with spores corresponding to my own data (5.5—5.8 × 3.2—3.8 μ). The question that comes up in connection with these findings concerns the fact whether it is possible, as Dennis proposes to distinguish between a species with thin and relatively small, often purple fibrillosriped pileus, and another closely related species of *Nothopanus* with white, thicker and somewhat larger pileus, more deeply furrowed, and with slightly larger spores. It seems to this writer that more investigations are necessary to come to a final conclusion but that in principle such a distinction is possible. If so, the genus *Nothopanus* contains two species (in addition to *N. guadelupensis* (Pat.) Sing. and *P. vinosofulvus* (Bres.) Sing.):

1. *Nothopanus eugrammus* (Mont.) Sing. Mycologia 36: 365. 1944.
2. **Nothopanus hygrophanus** (Mont.) comb. ad int.

Lentinus veraecrucis Berk. in Berk. & Curt., Journ. Linn. Soc. 10: 303. 1869.

This is again identical with the preceding, probably the small, smaller-spored form, according to the type (K).

Marasmius obliqius Berk. & Curt., type (K), seems to be again the same species, but in rather bad condition.

Panus coriaceus Berk., F. Austr., Journ. Linn. Soc., Bot. 13: 160. 1873.

The type from Gipps Land, Australia, (K), is a polypore (Aphyllophorales).

Lentinus subtilis Berk.

This is a small almost clitocyboid species of *Pleurotus*, pileus whitish to brownish white, opaque, with scattered setose spinules in marginal area and extreme margin ciliate like in *Ripartites*, smooth; stipe coarsely sordid-pallid tomentose, evelate; lamellae now brownish from a necrotic pigment, close but not crowded, rather narrow, decurrent; apparently on wood; spores 6—6.2 × 1.8—2 μ, cylindric, hyaline, smooth; no cystidia seen on sides of lamellae; basidia 19 × 4 μ;

hymenophoral trama irregular, consisting of thick-walled hyphae; subhymenium well developed.

These data were taken from the type (K) from Brazil (Bahia).

Lentinus squarrosulus Mont.

The type has not been seen, but a phototype (K) shows that this is the same as the following species, and that, therfore, it should be called *Pleurotus squarrosulus* (Mont.) Sing.

Lentinus subnudus Berk.

This has all macro- and microscopical characters of the acystidiate species of section *Lentodiellum* (Murr.) Sing. of *Pleurotus*. It is closely related to but specifically different from *P. sajor-caju* (Fr.) Sing. and identical with *Pleurotus squarrosulus* (Mont.) Sing. I have also studied the types of *Lentinus inconspicuus* Berk. (Hook. J. Bot. 6: 494. 1847), *L. cretaceus* Berk. & Br. (J. Linn. Soc. Bot. 14: 42. 1873), *L. lobatus* Berk. & Br. (l. c. p. 44), *L. manipularis* Berk. & Br. (l. c. p. 43), *L. bavianus* Pat., (Journ. Bot. p. 15, 1890), *L. caespitosus* Curray (non Berk.) (Linn. Soc., Bot. 2nd ser. 1: 120. 1875 = *L. curreyanus* Sacc. & Cub.) but can find no macro or microscopical difference of diagnostic value between these, and believe them to be synonyms of *Pleurotus squarrosulus* (Mont.) Sing. The type of *Lentinus multiformis* Berk. & Br. (l. c. p. 42) is shorter stemmed than *P. squarrosulus* generally is, but is probably also synonymous. This species was found in a wide area of tropical Asia; material examined by me includes the following: India (Neel-Gherries); Ceylon (numerous collections!), East Java (Indonesia), Herb. Donk, Tonkin (leg. Balansa, L 910—219—608), Malay Fed. (Leg. A. Johnston 1030), Pegu (Kurz, — L) Fiji, etc.

Lentinus exilis Klotzsch ex Sieurin & Fries, Lentini, p. 10. 1836.

The syntype from Mauritius is obviously identical, according to all characters visible, with *Pleurotus sajor-caju* (Fr.) Sing. Our determination is based on the original description given by Fries and on material from the Weitz Herbarium (L) where this same plant is determined as *Agaricus sajor-caju* by Junghuhn. *P. sajor-caju* differs from *P. squarrosulus* macroscopically enough to distinguish dried specimes almost at a glance. It has much shorter stipe and a well delimited annulus. It comes so close to *L. dactyliophorus* Lév. (cf. Sydowia 5: 462. 1951 where no subhymenium was found on non-authentic African material which does not refer to the type) that one wonders if the latter is not a variety of the former *(P. sajor-caju)*. The specimen preserved at L. Zollinger, Planta Javanica 2573, Java, Malang prov. and identical excellent material from Tonkin (det. Patouillard, leg. Balansa, Plantes de Tonkin, Oct. 1887) has spores

5.8—7 × 1.8—3.3 μ, no cystidia, but distinct pegs in the hymenium, a well developed subhymenium, and a hymenophoral trama of mellous thickwalled hyphae which are irregularly interwoven. All this shows that the true Asiatic *L. dactyliophorus* Lév. is not a *Panus* but a species extremely close to *Pleurotus sajor-caju*. South African material seen by me is very closely related to the Asiatic material but has larger and particularly longer spores and less crowded lamellae. This material has been named *Pleurotus geesterani* by me. However, there is (e. gr. in Kenya) also material with more crowded lamellae and small (7—7.7 × 1.5—2 μ) spores in Africa (Kakamega Forest Reserve, leg. Maas Geesteranus no. 6300, L) but we have also seen large spored material from tropical Africa. This shows that the relation between *L. dactyliophorus* and *P. sajor-caju* on one hand, and the relation between *L. dactyliophorus* and *P. geesterani* should still be re-examined and made the subject of a monographic study.

Cyclopleuropus campanulatus Jungh.

The species was not validly published under the generic name *Cyclopleuropus* but the type of the species exists. It comes from Buitenzorg, Junghuhn no. 100 and was distributed under Fungi Javanici no. 14 (L). It is the same as *Lentinus dactyliophorus*, i. e. a *Pleurotus*.

Lentinus brevipes Cooke, Grevillea 14: 12. 1885.

The type (K) from Perak, Malacca (K) and material from Darjeeling, India, have the irregular trama without subhymenium and oblong-subpiriform to cylindric spores which are thin-walled, smooth, hyaline, 5—6 × 2.2—3 μ, basidia 20 × 4.5 μ, no metuloids, but numerous pegs, strictly thick-walled hyphae in the trama, with clamp-connections. It is obviously a *Panus* near *P. inquinans* (Berk.) Sing., differing from the latter by its dotted and vellereous pileus.

Lentinus inquinans Berk., Hook. J. Bot. 6: 132. 1854.

This has the microscopical characters of the preceding species, only we were unable to recover spores. The type (K) from the Himalaya larger macroscopically from the preceding species in being larger and having brown hirsute hairs like *P. rudis*, accompanied by brown spines which are surrounded by dots. — Consequently, this is a good species of *Panus*.

Lentinus praerigidus Berk., l. c., seems to be very closely related to both the preceding species, differing mainly in the absence of both spines and dots, and showing merely the hirsute hairs of *P. rudis*. Type (K) seen.

Lentinus javanicus Lév., Ann. Sc. Nat. III. 5: 118. 1846.

The type (L) is a rather small single specimen collected at Tikoya,

Java, Indonesia by Zollinger no. 1081, and is now rather poor as it is in advanced state and nearly glabrous but undoubtedly identical with better material more recently collected in Ceylon, Burma, Andamas Islands, and Philippines, all studied by me. This includes the types of *Lentinus revelatus* Berk. (Hook. London J. Bot. 6: 492 (bis) 1847) and *L. infundibuliformis* Berk. & Br., J. Linn. Soc., l. c. p. 42), both from Ceylon (K). All these specimens have the following characters in common:

Pileus infundibuliform, centrally stipitate, but often some carpophore in a fascicle lateral or at least eccentric, flocculose from a veil like that of *Pleurotus squarrosulus* (Mont.) Sing., but glabrescent in age, tending to develop a fuscous brown zone in marginal region, otherwise white, often tomentose in the ground of the funnel, in age characteristically innately radially-striate-fibrillose like some tropical polypores, but this not well visible as long as the woolly-tomentose floccons cover the surface, usually extremely thin and larger than both *P. sajor-caju* and *P. squarrosulus*, e. gr. 140 mm. across. if well developed, but also medium sized, often developed a lobed margin (like *Lentinus lobatus*, — a form of *Pleurotus squarrulosulus*). Lamellae deeply decurrent, extremely crowded. Stipe more tomentose to floccose-tomentose than in *P. sajor-caju* and *P. squarrosulus*, eventually glabrescent in part and becoming longitudinally striate, usually fasciculate, and sometimes branching, characteristically elongate, e. gr. 110 × 7 mm. Spores 5 × 2.3 μ cylindric, thin-walled, hyaline, smooth; basidia 12.5—15 × 4 μ; no cystidia; hymenophoral trama very rigid-fragile, consisting of irregularly interwoven thick-walled hyphae (walls 1.7—3 μ), hyaline; subhymenium present, a relatively thin zone, not gelatinized, of very small elements, hyaline, only 5—8 μ in diameter. Material studied came from Java (type of *L. javanicus*), Ceylon (types of *L. revelatus*, *L. infundibuliformis*, both K, including an additional collection which is marked "var". and differs in being more ostreate than central-pileate but otherwise quite identical, K), Burma (K. P. Biswus no. 21, K), Andaman Isl. (S. Kurz, K), Philippines (Gabadbaran, Mindanao, 1912, Phil. Pl. distrib. by Elmer, 13686, L, and Mt. Giting-giting, Sibuyan, Magallanes, Elmer 12362, — L).

This species is close to both *P. sajor-caju* (Fr.) Sing. and *P. squarrosulus* (Mont.) Sing., particularly to the latter, and should be known as *Pleurotus javanicus* (Lév.) Sing.

Lentinus badius Berk.

The type, although not in perfect condition (K) shows clearly enough the essential characters of the species often referred to as *Lentinus velutinus* Fr., but correctly named *Panus badius* (Berk.) Sing. There are only minor differences (relative density of lamellae, thickness of pileus, the length of the velutinous hairs of the stipe and their even-

or unevenness, etc.) between this and the types of authentic specimens of the following species: *Lentinus velutinus* Fr.; *L. blepharodes* B. & C.; *L. leprieurii* Mont.; *L. fallax* Speg.; *L. tephroleucus* Lév.; *L. dichrous* Lév.; *L. zonatus* Lév.; *L. zonifer* Berk. & B.; *L. nepalensis* Berk.; *L. fuscus* Berk.; *L. egregius* Mass.; *L. fuscupurpureus* Kalchbr.; L. *fastuosus* Kalchbr. & Mc Ow.; *L. similis* B. & Br. The species often but not always forms pseudosclerotia, and often, but not always is flushed with violet when quite fresh. Thick-wall ed cystidia are sometimes found in the hymenium of older specimens, but not constantly so, and these are, although thick-walled, not of the type obeservd in *Panus rudis*.

Lentinus connatus Berk., London J. Bot. 1: 145. 1842.

There is abundet meterial at K, but I was unabie to find the type. All the material from tropical Asia is the same as *Pleurotus javanicus* (Lév.) Sing., but the type is supposed to come from America (Surinam) and cannot possibly be the same species. This must be considered a *nomen dubium*, at least for the time being.

Hiatula boninensis Berk. & Curt.

The Kew tape has ellipsoid, amyloid spores 7—8.5 × 4.7—5.5 μ and amyloid trama. It is therefore a *Mycena*.

Pleurotellus patelloides Orton, Trans. Brit. Myc. Soc. 43: 341. 1960.

The type (K) is in good condition. The following additional observations could be made: Spores pseudoamyloid; cystidia not pseudoamyloid; "end-cells" (hairs) of the covering of the pileus of the *Crinipellis*-type, thick-walled, and strictly pseudoamyloid. Stipe rudiment not connected with substratum, small, but distinct.

This is undoubtedly a synonym of *Chaetocalathus craterellus* (Dur. & Lév.) Sing. It is the first time, this species has been found in England, and the genus is new for England.

Omphalia swanetica Sing., Beih. Bot. Centralbl. 48: Abt. II: 530. 1931.

The type (W) shows the following anatomical characters:

Spores 7—8.5 × 3.8—5.3—(7) μ, most frequently about 7—7.5 × × 4—4.5 μ, ellipsoid, with or without a suprahilar applanation or depression, with homogenous (although, in the Melzer often seemingly heterogeneously punctate because of uneven inner wall surface and granular contents) wall distinctly amyloid in an outer layer; basidia 4-spored, very few 2-spored or 3-spored, 29—30 × 7—7.5 μ, sterigmata 5—6 μ long; cystidia, none, or very few on sides of lamellae and very scattered near (up to 20 μ away from) the edges as cheilocystidia,

constantly filiform with obtuse tip and with strongly thickend base, hyaline, 20—70 × 2.5—5.5 μ, mostly about 3.5 μ in diameter, swollen base 8—16 μ in diameter; hymenophoral trama regular, of filamentous hyphae; cuticular layer of pileus consisting of broad hyphae, some short (e. gr. 30 × 22 μ, but rarely so). with a fuliginous pigment which in some hyphae is undissolved, in others dissolved, this layer beset with dermatocystidia which are either subisodiametric and vesiculose, pedicellate or not, or also more elongate, tapering into a conical or subfilamentous apex from a ventricose-vesiculose base, or ampullaceous, the elongated elements 36—50 × 12—17 μ, apex below about 10 μ broad, apex at tip about 3 μ broad, acuminate to obtuse; dermatocystidia of the apex of the stipe e. gr. 48 × 18 μ, ventricose-mucronate and slightly thick-walled, or with a thick-walled knod-like tip; all hyphae with clamp connections, some distinctly pseudoamyloid (in strands), hyphous-filamentous in trama of pileus and stipe, more distinctly pseudoamyloid in the cortical region of the stipe and near the cuticular layer of the pileus.

This is a *Hydropus* with a partially pseudoamyloid trama. The new combination **Hydropus swaneticus** (Sing.) Sing. is here proposed.

The species was rediscovered by Vasilieva in the Western Caucasus (see Utsh. Zap. Kaz. Gos. Univ. 105; 99 (1); 51, no 482. 1939).

Collybia hymenocephala A. H. Smith, Pap. Mich. Acad. Sc. 26: 61. 1941.

Fresh authentic material (leg. Singer at Cheboygan, Mich. no. N 400, — F) compared with the type (MICH) and confirmed by A. H. Smith was studied.

Pileus "madura" (Maerz & Paul), center sometimes reaching "antique bronze", glabrous hygrophanus, sordid-cream-gray-pallid when faded, slightly and shortly transparently striate on margin, very obtusely umbonate or subumbilicate, 15—27 mm. — Lamellae pale gray, adnate to sinuate, adnexed, about 3 mm. broad, with entire edge or somewhat wavy, intermixed with lamellulae, smaller lamellulae sometimes crisp or lamellae with lateral veins, medium close to subdistant, in age some somewhat decurrent — Stipe silvery gray, slighly sericeous-striped, hollow, equal or slightla tapering downwards, 20—35 × 1.5—3.5 mm. — Context white in pileus, grayish in stipe, with a sordid watery line above the lamellae, odor very slight, farinaceous, taste farinaceous. — Spores amyloid, 6.2—7 × 5 μ, broadly ellipsoid, smooth farinaceous. — Spores amyloid, 6.2—7 × 5 μ, broadly ellipsoid, smooth, with honogeneous wall; basidia 25—28.5 × 7.5 μ, 4-spored; pleurocystidia and cheilocystidia, none seen; dermatocystidia on stipe clavate, 22—23 × 5.3 μ, hyaline, scattered; epicutis a subhymeniform layer of clavate-subvesiculose broadly rounded elements

about 27—28—(60) × 20—37 μ, dermatocystidia, none or poorly differentiated; hyphae with clamp connections, not strongly inflated anywhere, inamyloid to very vaguely pseudoamyloid in parts, not gelatinized anywhere. — Chemical character: Context with phenol dusky vinaceous gray. — On the ground in moist place near trees.

This redescription coincides in all essential details with the original description and shows that this species belongs in *Dermoloma*. Since Smith includes this genus in his concept of *Mycena* sensu largo he was fully justified to transfer it to *Mycena*. The new combination **Dermoloma hymenocephalum** (A. H. Smith) Sing. is here proposed.

Agaricus cycnopotami(a) Berk., J. Linn. Soc., Bot. 18: 389. 1881.

This was published as *Agaricus (Acetabularia)* and transferred to *Locellina* by Saccardo. It comes from the Swan River in Australia and is in good condition (K). The name, as shown on the label was intended to be "*cycnopotami*", not *cycnopotamia* (which is an error). The spores are 6—8 × 4.5—6.5 μ, with rather thin smooth inamyloid wall which is homogenous and pale stramineous brownish. These spores are clearly of the type characteristic for the Pluteeae, and the species is undoubtedly a *Volvariella*.

Locellina californica Earle, Bull. N. Y. Bot. Gard. 3: 299. 1904.

The type (leg. Baker & Copeland March 11, 1902, no. 382 of C. F. Baker, Pacific Slope Fungi, — NY, K) is well preserved. It shows the following characters:

Macroscopically, this seems similar to *Volvariella speciosa* var. *gloiocephala* and *V. cnemidophora*, and, indeed keys out in Shaffer's monograph, with the former, differing however, in color, size of the stipe and the tomentum of the stipe. Microscopically, we have noted the following data: Spores 13.3—16.3 × 8.5—9.5 μ, ellipsoid to ovoid, smooth, stramineous-flesh-color; basidia 48—52 × 14—15 μ, 4-spored; cystidia vesiculose-pedicellate to clavate-ventricose (ventricosity in upper third), broadly rounded above, hyaline, both on sides and edges of the lamellae rather numerous, 55—65 × 18—24 μ, with thin, smooth walls; subhymenium cellular; trama of the hymenophore inverse; epicutis of pileus of repent hyphae, a thin upper layer being somewhat gelatinous, hypodermium not gelatinous, hyaline, no pigment visible in sections of the dried material; hyphae without clamp connections. These data suggest that this species also differs from *V. speciosa* var. *gloiocephala* in the shape of the cystidia, less markedly but still clearly in the size of the spores, and in the less marked gelatinous zone of the epicutis. This species must therefore be considered a good species of *Volvariella*.

Crepidotus hibernianus Pearson & Dennis in Pearson, Trans. Brit. Myc. Soc. 32: 268. 1949.

The type from Killarney, Eire, on *Tilia europaea*, leg. Dennis & Pearson (K) has the following microscopical characters: Spores 9.5—13.3 × 6.5—8 µ, without a distinct germ pore and rarely subtruncate, smooth, rusty ochraceous brown, short ellipsoid to ellipsoid, with distinctly double, very firm wall, quite smooth; basidia 22—26 × × (5)—6—6.5 µ, clavate to ventricose-subampullaceous, hyaline, (1)—2-spored; pleurocystidia, none; cheiloscytidia hyaline or brown, 31—51 × 5—7.7 µ, mostly clavate, fewer filamentous, some clavate-subcapitate; hyphae of cuticular layer bright fulvous-ochraceous-brown, incrusted by pigment, filamentous and repent, exuding everywhere a sulphur yellow soluble pigment in KOH, with clamp connections.

The aspect and the anatomical characters indicate that this species is not a *Crepidotus*, but a *Pleuroflammula*. It must be transferred to that genus. It is very closely related to *P. flammeus* (Murr.) Sing. and identical with what I have once determined, from dried material, as *P. flammea*, form with bisporous basidia, from Tristan da Cunha (see Singer, Results Norweg. Scient. Exped. Tristan da Cunha 1937—1938 38: 17—18. 1955). This is an apparently Atlantic species which, in the North reaches Southern Ireland, and in the South Tristan da Cunha.

This genus *(Pleuroflammula)*, well represented in North and South America, and also in the foot hills of the Himalaya (*Agaricus emerici* Berk. ined., — K!) is new for Europe.

Crepidotus subtilis Orton, Trans. Brit. Myc. Soc. 43: 221. 1960.

The type (K) has been studied by this author and found to be in very close agreement with the descriptive data given by Orton. This is one of the microspecies distinguishable in the stirps *Variabilis*, and very closely related to *C. submollis*, *C. pubescens*, *C. amygdalosporus*.

Agaricus hypnophilus Pers. ex Berk. J. E. Smith 5 (2): 15. 1836.

The type, collected by Captain Carmichael at Apton, England, (K), has hyaline to pale melleous spores, 4.5—7.8 × 2.3—3.2 µ, smooth and not angular even in polar view; basidia 4-spored, 17 × 4.7—6.3 µ, hyphae without clamp connections.

Since Persoon's *(Agaricus) Hypnophilus* Pers., *Mycol. Eur.* 3: 28. 1828, pl. 24, fig. 5 is not represented by a determinable type (L), and had been published as a provisorium with uncertein status ("Duo hi fungilli Agarico *variabili* colore et habitu conveniunt exceptis lamellis, quae non in maturitate decolorantur, an forte a causa quadam exteriore? Hinc eos nondum ut species propias distinguere voluerim . . .") we take Berkeley's species as the first validly published

one, and consider his specimens on which he based his description, as the holotype of the species.

The data given above show that this was correctly interpreted by Fayod. The correct name of the species is therefore *Pleurotellus hypnophilus* (Pers. ex Berk.) Fayod, and *P. herbarum* (Peck) Sing. becomes a synonym of it. If Berkeley's reference to Persoon were interpreted to mean that Persoon's description (respectively specimen) were the holotype of the species, *A. hypnophilus* would become a nomen dubium and *P. herbarum* would have be re-instated.

Index of the species analysed in „Type Studies on Agarics I-IV".