

81315, 81316, 81317, 81318, 81327, 81328, 81335, 81344, 81345, 81390, 81391, 81392, 81394, 81415, 81416, 81479, 81524, 81603, 81713, 81820, 81821, 82165, 84154, 84165, 84180, 84193, 84194, 84228, 84245, 84246, 84251, 84275, 84424, 84456, 84458; Weber, August 25, 1973, 3895, 3896, 3897, 3918, 3925, 3956, 3957, 3965, 3990, 4123, 4158, 4180, 4225, 4233 (all MICH); MINNESOTA: Weaver 1853 (MICH); NORTH CAROLINA: Guravich 539 (MICH); VERMONT: Bigelow 12935, 13357, 13256 (all MASS).

Canada. NOVA SCOTIA: Harrison 11676, 11706 (all MICH).

130a. *Lactarius argillaceifolius* var. *megacarpus* var. nov.

Illus. Pl. 70.

Pileus 14-27 cm latus, viscidus, azonatus, luteolus vel ad marginem pallido-avellaneus. Latex albus, constans, branchias colore brunnaceotings. Lamellae adnatae, paene subdistantes, luteolae. Stipes 16-20 cm longus, 40-50 mm crassus, leviter viscidus, basi albus, apice sordide luteolus. Sporae $7.5-10.5 \times 6.5-8 \mu$. Specimen typicum in Herbarium University of Tennessee, Thiers 18556 (TENN 35424), legit prope Santa Barbara, California, 28 Jan 1967.

Pileus 14-27 cm broad, broadly depressed with the margin highly irregular and undulating, viscid, glabrous, disc near light buff to warm buff (pale yellow) becoming nearly pale avellaneous toward the margin, azonate, margin strongly incurved. Context up to 3 cm thick, whitish or off-white, unchanging upon exposure; odor not distinctive, taste decidedly acrid.

Lamellae adnate, close to subdistant, very pale at first, then near warm buff (pale yellow) with a slightly avellaneous cast, darkening with age, staining brownish, numerous tiers of lamellulae present.

Stipe 16-20 cm long, 40-50 mm thick at apex, very slightly viscid, glabrous, white at base, becoming very pale buff colored toward the apex, turgid, somewhat wrinkled, flesh white, stuffed to hollow.

Spores (from sections) $7.5-10.5 \times 6.5-8 \mu$, broadly ellipsoid, with a distinct plage with diffusely distributed amyloid material; ornamentation of low rather fine lines and ridges both short and long branched, some isolated warts present, forming a partial to broken reticulum or practically nonreticulate, prominences $0.3-0.5 \mu$ high.

Basidia $45-60 \times 9-11 \mu$, 4-spored. Pleurocystidia: macrocystidia $67-90 \times 6-10 \mu$, fusoid with pointed apex; pseudocystidia not observed. Cheilocystidia $37-60 \times 4-8 \mu$, in shape similar to pleurocystidia or with one or more constrictions toward the apex. Gill trama

lacking rosettes, lactifers colorless in KOH. Pileus trama heteromeric, incrustations present near cuticle (in Melzer's). Pileus cuticle an ixocutis (rather thick), of narrow (3-5 μ) hyphae often with incrustations in Melzer's. Stipe with rosettes in cortex; the cuticle of compactly, longitudinally arranged narrow (3-5 μ wide) hyphae, the layer somewhat refractive in KOH, a few hyphal ends projecting as caulocystidia.

Habit, habitat, and distribution.—On soil, under oak, Oregon and California.

Observations.—Var. *megacarpus* is a large agaric very similar to var. *argillaceifolius* but differing from it by, among other features, the lamellae not becoming clay color and the more reticulate pattern of the spore ornamentation. Dr. Paul Marshall Rea and Mrs. Rea, of Santa Barbara, California, collected this species in their area and we append data on their collections as follows.

Pileus 9-16 cm broad, convex-depressed becoming broadly vase-shaped, color variable on the same pattern as var. *argillaceifolius* (lilac-drab to violaceous-fulvous and where covered by debris often pale ochraceous to pallid), viscid, glabrous. Context thick, whitish, unchanging or "slightly dusky" finally, taste mild. Latex creamy, unchanging, acrid.

Lamellae narrow (up to 4 mm), decurrent when pileus is expanded, close, brownish where bruised, white at first, creamy in age.

Stipe 9-15 cm long, up to 6 cm thick, firm, hard, uneven, \pm pallid to cream color or washed lilac-drab, stained ochraceous in some.

Spores white, 7.2-10.8 \times 8-10.8 μ (Rea), 7-9 \times 6.5-7.5 μ excluding ornamentation (Smith). Pileus with an ixocutis and dextrinoid incrustations present on hyphae of cuticular region.

The spore ornamentation is exactly comparable with that of the type, but, as in a number of these *Lactarii* (see *L. kauffmanii*), one can find considerable variation in spore size from pileus to pileus depending on degree of maturity and possibly other factors. Rea's measurements compare well with the type, but ours were at the low end of the range. The question of the visciduity of the stipe is a problem here just as in var. *argillaceifolius*. The anatomy of the stipe cuticle would allow either interpretation. The taste of the latex was found to be acrid but the context mild.

In Smith 55801 from Grants Pass, Oregon, November 18, 1956, the spore ornamentation is identical with that of the type collection. A description of this material follows:

Pileus 8-15 cm broad, plano-depressed with an incurved margin, becoming shallow-vase-shaped, "drab-gray" or "pale ecru-drab," center soon developing a flesh tone (near "vinaceous-buff"), zonate (especially near the margin) or sometimes obscurely so or becoming

azonate, viscid or slimy. Context pallid, thick, firm; odor none, taste slowly burning-acrid. Latex copious, white, unchanging, staining the gills brown, taste at first mild then bitter and burning-acrid.

Lamellae bluntly adnate, pale pinkish buff, becoming near snuff-brown where bruised, close, medium broad, lamellulae numerous.

Stipe 6-10 cm long, 16-30 cm thick, pallid, dry, equal, pointed below, hollow.

Spore deposit \pm pale pinkish buff (yellowish). Spores 8-9 (10) \times 6-7.5 μ , broadly ellipsoid, with a small plage, ornamentation as bands and branches and a few lines all together forming a partial reticulum; prominences 0.2-0.4 μ high.

Basidia 45-58 \times 9-12 μ , 4-spored. Pleurocystidia: macrocystidia (54) 60-90 (114) \times 8-12 μ , shorter ones near the gill edges, ventricose-acuminate or subcylindric and mucronate, some with constrictions back from the apex. Cheilocystidia 45-70 \times 5-7 (10) μ , ventricose, apices acute, some with a needle-like apex. Gill trama of short-celled interwoven hyphae. Pileus trama heteromerous, dextrinoid debris present. Pileus cuticle a thick ixocutis (\pm 225 μ) of tangled hyphae 2-5 μ wide. Stipe cuticle a thick cutis of longitudinally arranged nongelatinous hyphae.

Habit, habitat, and distribution.—On soil, in oak-pine woods.

Observations.—It may be that future collections will demonstrate that the difference in spore ornamentation will justify recognizing var. *megacarpus* as an autonomous species; in fact we carried it as such in our manuscript throughout most of the present study, but so much variation has been found in this stirps that we feel it is essential to study the entire group from fresh specimens on which the data on all characters have been comparably documented. Our data have been accumulated over a 25-year period and are too uneven for a final analysis.

Material cited.—CALIFORNIA: Rea 144, 367, 851, 1079 (all MICH); Thiers 10992 (SFSC), 18556 (type, SFSC and TENN 35424); OREGON: Smith 55797, 55438, 55801, 55803, 55865, 55881.

130b. *Lactarius argillaceifolius* var. *dissimilis* var. nov.

Pileus 7-11 cm latus, pallide alutaceus, colore rosaceo-violaceo tinctus obscure zonatus, viscidus. Contextus albus, colore brunneo tingens, gustu acer. Latex albus, constans, lamellas et carnem colore brunnaceo tingens, gustu amarus demum acer. Lamellae fulvae, confertae, angustae. Stipes cum pileo concolor vel pallidior, siccus. Sporae 7.5-9 \times 7-8 μ . Specimen typicum in Herbarium University of Tennessee n. 29375, conservatum, legit Carolyn Lyles, Winnsboro, South Carolina, 22 Aug 1966.