

5 μ in diam, and 100 μ long; other hairs flexuous, branched or unbranched, septate, 1.5–3 μ diam, up to 500 μ or more in length. Cells of peridium dark brown, with walls somewhat thickened, semiangular, up to 12 μ long. Asci eight-spored, cylindrical-clavate, 200–250 \times 34–40 μ , broadly rounded at apices, each terminating in a stipe measuring up to 100 μ long. Paraphyses hyaline, numerous, filamentous, septate, 1–2 μ in diam. Ascospores biserial with the lower two spores uniseriate, oblong ellipsoid, obtusely rounded at the ends (rarely broadly rounded) (44–)48–54 \times (15–)16–18 μ , rarely with one cell 2 μ or less shorter, obliquely uniseptate, (at times transversely septate), nonconstricted; ranging in color from hyaline to yellow-brown finally dark brown at maturity; each ascospore surrounded by a narrow hyaline gelatinous layer which swells in water up to 15 μ or more and shows a striation continuous with the septum of the spore. Germinal slit longitudinal.

HABITAT: on horse dung.

SPECIMENS EXAMINED: UNITED STATES: California: TRTC 45711 (TYPE).

COMMENTS: The larger biserially arranged ascospores of *D. intonsa* sp. nov. will separate it from *D. limasepta*, a new species which it superficially resembles.

19. *Delitschia lachnothecium* Luck-Allen & Cain, sp. nov. Figs. 119–124

Peritheciis sparsis, in substrato immersis, subglobosis, 500–560 \times 400–450 μ , albido tomento ex pilis numerosis composito tectis. Hyphis tomenti albidis, rectis vel flexuosis, septatis, primo tenuibus, postremo parietibus praediti, junctis, 1–4 μ diam. Collo nigro, breve cylindraceo usque 140 μ . Cellulis peridii brunneis, semi-angulatis usque ad 15 μ longa et 10 μ diam. Ascis octosporis, cylindraceis, 260–300 \times 24–26 μ , ad summas late rotundatis, basi attenuatis; stipite usque ad 50 μ longa. Paraphysibus numerosis, filiformibus, septatis, hyalinis usque 2 μ diam. Ascosporis oblique uniseriatis, oblongo-ellipsoideis, 36–38(–43) \times 14–16 μ , transverse uniseptatis, nonconstrictis vel leviter constrictis; ab hyalinis ad flavo-brunneas, postremo atro-brunneis, strato mucoso hyalino involutis. Hilo germinali longitudinaliter prolato.

HOLOTYPUS: in fimo *Cynomys ludoviciani*, Wind Cave National Park, Custer Co., South Dakota, United States, 3 Sept. 1964, Cain, TRTC 41270.

ETYMOLOGY: Greek, *lachno* = soft woolly hairs and *theke* = case, referring to the character of the perithecium.

Perithecia embedded, scattered, brown, subglobose, 500–560 \times 400–450 μ , each covered with a white tomentum. Neck black, short, broad, cylindrical, up to 140 μ in length, 150–200 μ wide at apices, projecting to the surface of substratum, surrounded by a white tomentose layer. Appendages of tomentum hyphal, hyaline (white in mass), at first thin-walled, finally thick-walled, infrequently septate, often with small spurs, branched or unbranched, at apices blunt, anastomosing, 1–4 μ in diam, appendages at base of perithecia short, septate, branched, up to 6 μ in diam. Cells of peridium angular with walls slightly thickened, up to 15 μ long, and 10 μ wide. Asci eight-spored, cylindrical, 260–300 \times 24–26 μ , broadly rounded at apices, each one narrowing terminally in a stipe measuring about 50 μ long. Paraphyses hyaline, filamentous, septate, numerous, up to 2 μ in diam. Ascospores obliquely uniseriate, oblong-ellipsoid, 36–38(–43) \times 14–16 μ , broadly rounded at the ends, frequently narrowing acutely, transversely uniseptate, nonconstricted at median septum or only slightly so; at first hyaline, then yellow-brown, finally becoming dark brown, each surrounded by a hyaline gelatinous layer. Germinal slit longitudinal.

HABITAT: on prairie dog dung.

SPECIMENS EXAMINED: UNITED STATES: South Dakota: TRTC 41270 (TYPE).

COMMENTS: This species is distinguished by a conspicuous white tomentose layer which envelops the ascocarp. It differs from *D. tomentosa* in its larger asci and ascospores.

20. *Delitschia lamprorhynchia* Luck-Allen & Cain, sp. nov. Figs. 45–47

Peritheciis sparsis, in substrato immersis, piriformibus, nigris, 525 \times 600 μ . Collo brevicylindraceo circiter 210 μ diam; aurantio tomento ex pilis numerosis circum ostium composito. Hyphis tomenti septatis, flexuosis, saepe junctis, 1–3 μ diam. Cellulis peridii atro-brunneis, irregularibusque usque ad 21 μ longa circiter 12 μ diam. Asci octosporis, cylindraceis, 225–325 \times 23–36 μ , ad summas late rotundatis, stipite usque ad 50 μ longa. Paraphysibus filiformibus septatis, hyalinis usque 1 μ diam. Ascosporis oblique uniseriatis, ellipsoideis, 32 40(–44) \times 15–19 μ , transverse uniseptatis, medio

non constrictis; ab hyalinis ad rubido-brunneas, postremo nigris opacisque, strato mucoso, hyalino involutis. Hilo germinali longitudinaliter prolato.

HOLOTYPE: in fimo leporino, Wendover, Elko Co., Nevada, United States, 21 Aug. 1957, Cain, TRTC 35772.

ETYMOLOGY: Greek, *lampros* = bright and *rhynchos* = beak, referring to the brilliantly colored tomentum around the beak.

Perithecia embedded, scattered, pyriform, dark brown, almost black, $525 \times 600 \mu$. Neck short, cylindrical or conical, enlarged at ostiole to 210μ in diam and provided with an orange-colored irregular tomentose layer. Hyphae of tomentum bright orange (in mass), thick-walled, septate, rough, blunt, branched or unbranched, anastomosing, $1-3 \mu$ in diam, over 200μ long. Cells of the peridium composed of interlocking, irregular, dark cells measuring up to 21μ long and 12μ wide. Asci eight-spored, cylindrical, $225-325 \times 23-36 \mu$, broadly rounded at apices, each one terminating in a stipe measuring up to 50μ . Paraphyses hyaline, filamentous, septate, branched or unbranched, numerous, up to 1μ in diam. Ascospores obliquely uniseriate, oblong-ellipsoid, $32-40(-44) \times 15-19 \mu$, slightly narrowing toward the ends and broadly rounded, transversely uniseptate, nonconstricted at septum or slightly so; in color ranging from hyaline through yellow-brown to reddish brown, finally almost black and opaque, each ascospore surrounded by a hyaline gelatinous layer which swells greatly in water. Germinal slit generally with a curve near the median septum.

HABITAT: on rabbit dung.

SPECIMEN EXAMINED: UNITED STATES: Nevada: TRTC 35772 (TYPE).

COMMENTS: *Delitschia lamprorhynchia* is related to two other species with orange-colored tomenta, *D. xanthodera* sp. nov. and *D. chrysin* sp. nov. It can be separated from the latter two by its larger asci and ascospores.

21. *Delitschia limasepta* Luck-Allen & Cain, sp. nov. Figs. 48-51

Peritheciis sparsis, in substrato immersis, subglobosis vel piriformibus, fuscis, opacisque, $700-880 \times 640-810 \mu$, pilis praeditis. Collo nigro papilliformibus, circiter 200μ diam. Pilis flavo-brunneis, septatis, flexuosis, circiter $2-3 \mu$ diam. Ascis octosporis, cylindratis, $200-336 \times 14-17 \mu$, ad summas rotundatis, stipite circiter 50μ

longa. Paraphysibus filiformibus, septatis, hyalinis, $0.5-1.5 \mu$ diam. Ascosporis uniseriatis, ellipsoideis, $24-35(-37) \times 12-14(-16) \mu$, oblique uniseptatis, medio non constrictis; initio hyalinis, deinde flavis, postremo rubido-brunneis, strato mucoso hyalino involutis. Hilo germinali longitudinaliter prolato.

HOLOTYPE: in fimo *Erethizonis dorsati*, Costello Lake, Algonquin Park, Nipissing Dist., Ontario, Canada, 30 Aug. 1939, Cain, TRTC 36074.

ETYMOLOGY: Latin, *lima* = oblique and *septum* = wall, referring to the position of the ascospore septum.

Perithecia embedded, scattered, dark and opaque, subglobose or pyriform, $700-880 \times 640-810 \mu$, covered with hairs. Neck black, papilliform, enlarged at ostiole to 200μ in diam and provided with hairs similar to those on rest of perithecium. Hairs flexuous, septate, blunt, yellowish brown, branched or unbranched, with walls slightly thickened, up to 160μ long, about $2-3 \mu$ in diam. Cells of peridium indistinct. Asci eight-spored, cylindrical, $200-336 \times 14-17 \mu$, rounded at apices, each one tapering below in a stipe measuring about 50μ long. Paraphyses hyaline, filamentous, septate, numerous, $0.5-1.5 \mu$ in diam. Ascospores uniseriate, ellipsoid, $24-35(-37) \times 12-14(-16) \mu$, acutely rounded at the ends (rarely with one or both ends abruptly narrowed, almost apiculate), typically obliquely uniseptate (occasionally septum transverse), nonconstricted at septum; at first hyaline, then yellowish, finally dark reddish brown; each ascospore surrounded by a hyaline gelatinous layer. Germinal slit longitudinal.

HABITAT: on porcupine dung.

SPECIMEN EXAMINED: CANADA: Ontario: TRTC 36074 (TYPE).

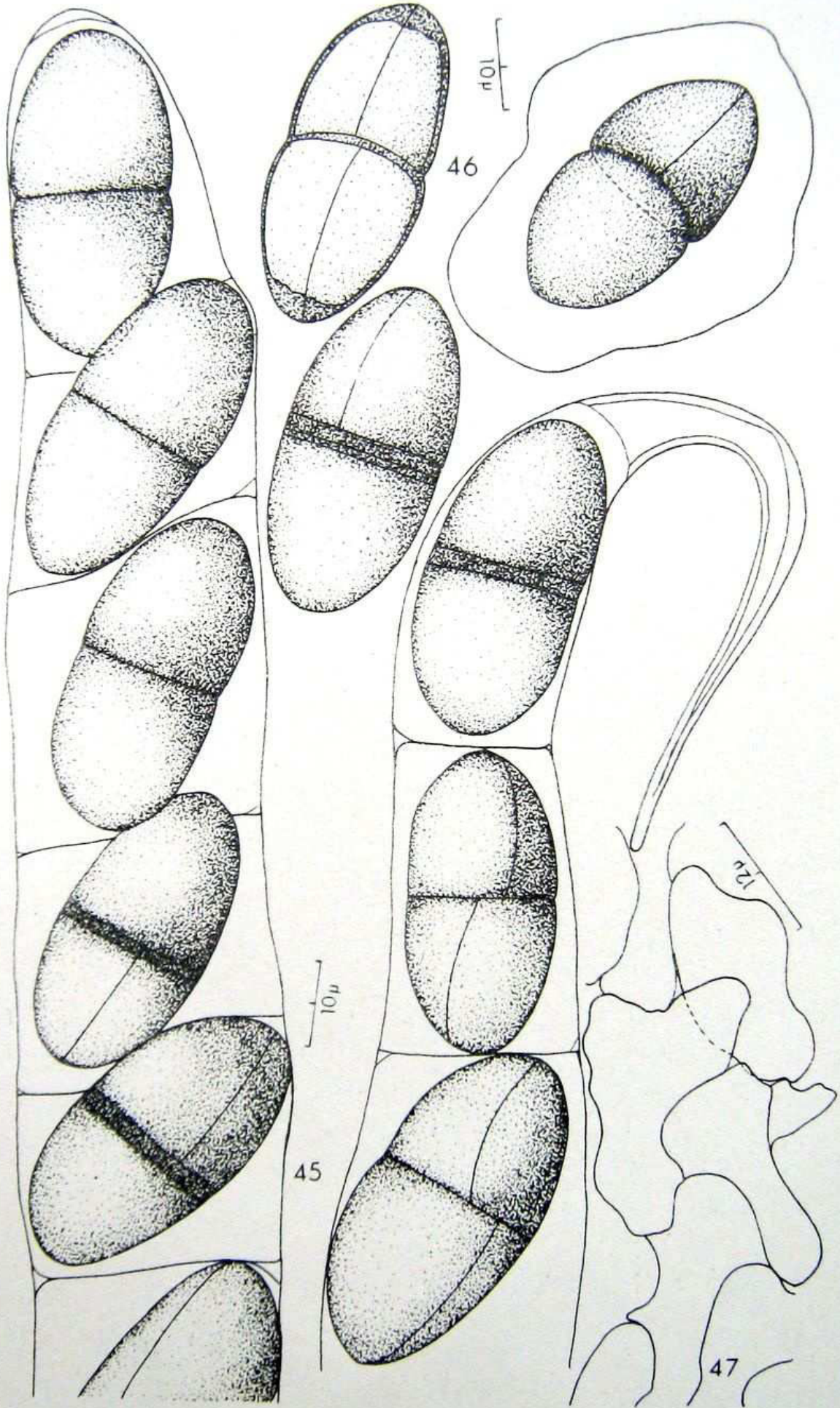
COMMENTS: This species is macrostructurally similar to *D. vulgaris* because of the hairy perithecia but it can easily be distinguished from the latter by its spore characters. In *D. vulgaris* the end cells are broadly rounded and the septum is transverse, whereas in *D. limasepta* the end cells are acutely rounded and the septum is oblique.

22. *Delitschia marchalii* Berl. & Vogl. in Sacc., Syll. Fung. Add. 1-4: 127. 1886.

Figs. 16-20, 151

≡ *Delitschia* sp. (?) Marchal, Bull. Soc. Bot. Belg. 23 (2): 1884.

Perithecia embedded, black, smooth, sub-



Lamprothyrachia