

## Some fungi imperfecti from Mt. Rainier National Park.

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Papers of the Department of Botany of the University of Michigan  
No. 964.

With plate IX.

The conidial fungi reported in this paper were found in the collections made by Dr. E. G. Simmons, on Mt. Rainier, during the summer of 1948, and this data applies to all collections cited. The perithecial stages found on this material have been reported upon in two previous papers (Wehmeyer, 1952 a, 1952 b). As mentioned in these papers for the ascus stages, there were a few species, i. e., *Heteropatella umbilicata*, *Leptostroma lupini*, *Phoma minuta* and *P. pedicularis*, which were common to both the Mt. Rainier and the Wyoming areas previously reported upon (Wehmeyer, 1946), but for the most part the species on Mt. Rainier were different from those found in Wyoming, in a similar habitat.

*Ascochyta diedickii* Staritz.

Pycnidia 250—350  $\times$  100—200  $\mu$ , on leaves or stems, but not on spots. Conidia fusoid-cylindric, 2-celled, hyaline, abruptly tapered at the ends, sometimes slightly inaequilateral; 8—10  $\times$  2—2.5  $\mu$  on *Luzula*; 14—16  $\times$  2.5—3  $\mu$ , on *Carex*.

Collections: R 1482, on *Luzula divaricata*, Eagle Peak, 5600 ft., July 6; and R 2274, on *Carex* sp., Wonderland Trail, July 11.

There have been a large number of species of *Ascochyta* described from the *Gramineae* but only a few from the *Juncaceae* and *Cyperaceae*. Most of these have smaller pycnidia than these collections and the larger spores of the collection on *Carex*. Many of these grass inhabiting forms have been placed in a collective species *A. graminicola* Sacc. (Groves, 1935; Sprague, 1950). If considered a *Diplodina*, *D. bufonia* Kab. & Bub, is very similar. *D. diedickii* is described with the smaller spores (7—10  $\times$  3  $\mu$ ) of the *Luzula* collection.

*Ascochyta garretiana* Syd.

Pycnidia flattened-globose to elongate ellipsoid, tuberculate, irregular, 200—1000  $\times$  100—150  $\mu$  thick, immersed at first, then erumpent, with an outer thick, parenchymatous rind of black-walled cells and an inner parenchymatous cortex, containing one or several conidial cavities which may become confluent. Conidia cylin-

dric, one-septate, hyaline, ends blunt, not constricted,  $16-18 \times 2.5-3 \mu$ , borne on short sterigmata from the cells lining the cavity.

Collection: *R 1928 b*, on *Penstemon tolmiei*, Burroughs Mt., 7400 ft., Aug. 20.

This collection seems to fit Sydow's (Sydow, 1905) species as described on *Orthocarpus* from Utah, except that that species is given as usually on leaves, and with smaller pycnidia. In this collection the pycnidia are definitely stromatic, and on both leaves and stems and could be considered a *Diplodina*, if that genus be recognized. This occurrence on stems may account for the difference in pycnidial structure.

*Camarosporium kriegeri* Bres. Fig. 1.

Pycnidia  $200-300 \times 150-200 \mu$ , globose to ellipsoid, somewhat elongate, scattered or clustered, immersed then erumpent; ostiole small, papillate; wall parenchymatic,  $20-30 \mu$  thick. Conidia subglobose to ellipsoid, dark yellow-brown, muriform, irregularly septate, with 2-5(6) transverse and several vertical or oblique septa, only slightly constricted at some septa,  $14-26 \times 12.5-16 \mu$ .

Collection: *R 1958 a*, on *Achillea millefolium* var. *alpicola*, Berkeley Park, 6700 ft., Aug. 16.

There are a number of species of *Camarosporium* with similar broad subglobose spores described on Composite genera. *C. Kriegeri*, as described, is most similar to this collection, but *C. Compositarum* (Cke. & Harkn.) Sacc. may be a young stage of the same fungus. *Coniothyrium fückelii* Sacc.

Pycnidia  $200-250 \mu$ , flattened-spheric, superficial on old stems; ostiole papillate-conic. Conidia globose to ellipsoid, hyaline at first, soon pale yellow-brown,  $2-3.5 \times 2-2.5 \mu$ .

Collection: *R 2294 a*, on stems (*Epilobium?*), Wonderland Trail, 3500 ft., July 11.

A large number of varieties and forms have been described within this species, including most of the small spored forms on herbaceous stems. It is supposed to be the conidial stage of *Leptosphaeria Coniothyrium*.

*Heteropatella umbilicata* (Pers.) Jaap.

Pycnidia quite variable, sometimes small, globose or flattened,  $150 \mu$  in diameter, with a widely opened radiately split mouth, but more often larger,  $300-600 \mu$  in diameter, flattened or pezizoid collapsed, and showing either a widely open, split mouth or a distinct cylindrical, neck-like ostiole with a toothed apex. Outer wall thin, of small-celled, brown, radiately arranged parenchyma; internally composed of a solid hyaline parenchymatic stroma, within which there arise cavities lined by a hymenium of short conidiophores which bud out from a smaller celled basal subhymenium and bear the



acicular conidia on a long filiform base. The conidia are at first one-celled, but become faintly two-septate. The spores measure  $14-26 \times 1-2.5 \mu$  and the appendages are  $5-26 \mu$  long.

Collections: *R 1405 b*, on dead stems, Narada Falls, 4600 ft., July 2; *R 1430 a*, and *R 2350*, on Umbellifer stems, Reflection Lake, 4865 ft., July 5; *R 1439 b*, on *Arabis drummondii*, Nisqually Glacier, 4000 ft., July 8; *R 1489 b*, on Umbellifer, stems, *R 1492 a*, on dead stems and *R 1493 a*, on *Valeriana sitchensis*, from Louise Lake, 4600 ft., July 13; *R 1611 b*, on *Pedicularis contorta*, Mazama Ridge, 5700 ft., July 21; *R 1616* and *R 1617 b*, on *Pedicularis contorta*, Van Trump Park, 5800 ft., July 25; *R 1670 a*, on *Aster foliaceus*, *R 1671 b*, on *Ligusticum purpureum*, and *R 1673 b*, on *Pedicularis contorta*, from Treeline Ridge, 6500 ft., July 30; *R 1748 a*, on *Pedicularis contorta*, and *R 2355*, on *Pedicularis* sp., Indian Henry's Hunting Ground, Aug. 2; *R 1928*, on *Penstemon tolmiei*, and *R 1929 b*, on *Artemisia tacomensis*, Burrough's Mt., 7400 ft., Aug. 20; *R 1952 c*, on *Ligusticum purpureum*, Yakima Park, Aug. 18; *R 1954 b*, on *Pedicularis latifolia*, Berkeley Park, 6000 ft., Aug. 17; *R 2352*, on dead stems, Nisqually Glacier, 4000 ft., Aug. 8; *R 2356*, on *Pedicularis* sp., Wonderland Trail, 5000 ft., Aug. 18.

This species was abundant in Wyoming and was discussed in a previous paper (Wehmeyer, 1946 b). The genus *Heteropatella* has generally been considered as the conidial stage of species of *Heterosphaeria*. In Wyoming, only one collection of *Heterosphaeria* (Wehmeyer, 1946 a) was recorded and it was not associated with a *Heteropatella*. On Mt. Rainier, this *Heteropatella* was even more abundant and variable, and in several cases was found associated with mature (*R 1675*, *R 1489*) or immature (*R 1673*, *R 2375*) apothecia of a *Heterosphaeria*, which fits very well with the descriptions of the European *Heterosphaeria patella* Grev. The asci of these apothecia were  $60-70 \times 8-11 \mu$  and the spores were one-celled, ellipsoid, cylindrical or inaequilateral and  $12.5-18 \times 3.5-5 \mu$ . The conidia of *H. patella* are commonly found in the same fruit body as the asci and it has been quoted in the literature as *Heterosphaeria patella* Bon. non Grev. and was placed as *Heteropatella bonordeni*, by Lind.

A second pycnidial stage, ***Excipulella conglutinata*** (E. & E.) comb. nov. was also commonly found associated with our *Heteropatella*, as mentioned under that species, and a parasite, *Cryptodidymosphaeria conoidea* (Niessl) Höhn. was found in the immature apothecia. In all these cases, the tissues of the pycnidium or apothecium were identical in structure.

*Leptostroma lupini* Wehm.

Collections: *R 1425 b*, on *Lupinus subalpinus*, Reflection Lake, 4865 ft., July 5; and *R 2049*, on *Pedicularis racemosa*, Paradise Park, 6000 ft., Aug. 28.

Similar in both cases to the previous description (Wehmeyer, 1946), but the spores somewhat longer ( $9-12.5 \times 0.8-1 \mu$ ) in *R 1425 a* and somewhat shorter ( $7-9 \times 1.5 \mu$ ) in *R 2049*.

**Leptothyrella graminis** sp. nov. Figs. 2 and 5.

Pycnidia  $150-300 \mu$  in diameter, flattened, dimidiate, circular to angular, superficial, gregarious, black, with no surface mycelium, easily detached, with a central circular ostiole, opening by the radiate spitting of the upper, radiate shield, which is brown and  $5-10 \mu$  thick. There is no colored lower wall, Conidia cylindric or somewhat fusoid, hyaline, one-celled, or more often with a central partition of the protoplast which appears as a faint septum,  $12.5-18 \times 1.5-2.5 \mu$ , borne on the under side of the covering shield.

Collections: *R 2193 a*, on *Festuca viridula*, Eagle Peak, 5800 ft., July 29; *R 2200 c*, and *R 2209 e*, (Type), on *Muhlenbergia filiformis*, Indian Henry's Hunting Ground, 5500 ft., Aug. 2 and July 18; *R 2204 a*, on grass leaves, Van Trump Park, 5800 ft., July 6; and *R 227 a*, on *Phleum* sp., Louise Lake, 4600 ft., July 13.

There is some question as to whether the central partition of the protoplast of the spore should be considered a septum. If the spores are considered to be one-celled, the fungus would probably fall in the genus *Acarella* Syd. (1927, p. 123), which seems to be the only genus described in this group without superficial mycelium and one-celled spores. Collection No. *R 2204 a* is immature and shows only a few conidia, which are  $7-8 \times 1.5 \mu$  and are borne on the under side of a hyaline parenchymatic cushion which fills the space between the shield and the host leaf. The fruit body is apparently formed within the cuticle.

**Leptothyrella graminis** sp. nov.

Pycnidia  $150-300 \mu$  diametro, depressa, dimidiata, orbicularia vel angulosa, superficialia, aggregata, atra, ostiolo centrali rotundato, postea stellatim dehiscentia; mycelio superficiali nullo; strato-basali nullo. Conidia cylindrica vel fusiformia, hyalina, indivisa vel vix 1-septata,  $12.5-18 \mu$  longa,  $1.5-3.5 \mu$  crassa.

Specimen typicum legit E. G. Simmons (*R 2209 e*), in caulibus *Muhlenbergia filiformis*, loco „Indian Henry' Hunting Ground“ dicto, in Monte „Rainier“, in republica Washingtonensi, alt. 5200 ped., 18. Juli, 1948.

*Phoma minuta* Wehm.

The species of *Phoma* are difficult to separate, but the collections from Rainier fell rather easily into three groups as given here. The two placed under *P. minuta* have rather broad ellipsoid spores  $3.5-5.5 \times 2-3 \mu$  as described (Wehmeyer, 1946 b) for this species, but the pycnidia are somewhat larger, more erumpent and not so flattened.

Collections: *R 1611 a*, on *Pedicularis contorta*, Mazama Ridge, 5700 ft., July 21; and *R 1613 c*, on *Lupinus subalpinus*, Van Trump Park, 6000 ft., July 25.



*Phoma pedicularis* var. **minor** var. nov.

Pycnidia 200—400  $\mu$  diameter, globose to flattened or somewhat collapsed, soon erumpent-superficial, often shiny black, with a short stout cylindric ostiole; wall thick (30—100  $\mu$ ) of coarse black parenchyma. Conidia cylindric, one-celled, hyaline,  $3.5-7 \times 1-1.5 \mu$ .

Collections: *R 1382*, on *Heracleum lanatum*, Nisqually River, 2700 ft., July 1; *R 1450*, on *Heracleum lanatum*, Nisqually Glacier Trail, 4000 ft., July 8; *R 1491 b* and *R 1492 b*, on dead stems, and *R 1493*, on *Valeriana sitchensis*, from Louise Lake, 4600 ft., July 13; *R 1590 a*, on *Valeriana sitchensis*, Mazama Ridge, 6000 ft., July 21; *R 1599 a*, (Type of var.) on *Pedicularis* sp., Mazama Ridge, 5500 ft., July 21; *R 1617 a*, on *Pedicularis contorta*, Van Trump Park, July 25; *R 1670 b*, on *Aster foliaceus*, Treeline Ridge, 6500 ft., July 30; *R 1672 c*, on *Valeriana sitchensis*, Treeline Ridge, 6500 ft., July 30; *R 1962*, on *Pedicularis contorta*, Summerland, 5500 ft., Aug. 16; *R 2343 c*, on *Lupinus subalpinus*, Reflection Lake, 4865 ft., July 5; *R 2348*, on herbaceous stems, Narada Falls, 4000 ft., July 4.

These collections are placed under *P. pedicularis* because of the cylindric, bacillar conidia and their common association with *Apiosporella alpina*, particularly on *Pedicularis*, where the pycnidia are nearly always shiny black. The conidia on Mt. Rainier, however, are consistently shorter than those found in Wyoming, where they were  $7-11.5 \times 1.5-2 \mu$ .

*Phoma pedicularis* Wehm. var. **minor** var. nov.

Conidia cylindrica, hyalina,  $3.5-7 \mu$  longa,  $1-1.5 \mu$  crassa; ceterum ut in specie. Specimen typicum legit E. G. Simmons (*R 1599 a*), ad „Mazama Ridge“, alt. 5500 ped., in Monte „Rainier“, in republica Washingtonensi, Juli 21, 1948, in caulibus *Pedicularis* sp.

**Phoma lunulatospora** sp. nov. Fig. 3.

Pycnidia thickly scattered, 100—120  $\mu$  in diameter, flattened spheric, collapsing, with a central papillate ostiole, shiny black or wrinkled, soon erumpent-superficial. Conidia fusoid, straight to inaequilateral, one-celled, hyaline,  $9-10.5 \times 1-1.5 \mu$ , held together in a slimy matrix.

Collection: *R 2354*, on herbaceous stems, Reflection Lake, 4865 ft., July 5 (Type).

This collection approaches the genus *Selenophoma* in the shape of the spores. It differs from *P. selenophomoides* Wehm. (1946 b) in the smaller spores and from *P. fusiformis* Wehm. (1946 b) in the narrower more curved spores, and from *Selenophoma exigua* Petr. (1947) in the larger pycnidia not being borne on leaf spots.

**Phoma lunulatospora** sp. nov.

Pycnidia dense dispersa, 100—120  $\mu$  diametro, depresso-globosa, collapsa, atra, nitida vel rugosa, erumpenti-superficialia: ostiolo papilliformi. Conidia fusiformia, recta vel inaequilateralia, 1-septata, hyalina, mucosoconglutinata,  $9-10.5 \mu$  longa,  $1-1.5 \mu$  crassa.

Specimen typicum legit E. G. Simmons (R 2354), in caulibus herbarum, prope „Refection Lake“, in Monte „Rainier“, in republica Washingtonensis, alt. 4865 ped., 5. Juli, 1948.

**Platycarpium caulicolum** sp. nov. Figs. 6 and 7.

Pycnidia rather thickly scattered as fusoid blackened spots on the stem surface,  $400-600 \times 200 \times 100-200 \mu$ , ellipsoid to fusoid in outline, much flattened; upper surface of dark brown, but not radiate parenchyma, blackening the stem surface. Pycnidium long remaining covered, with a scarcely visible papillate ostiole, finally irregularly and widely ruptured to expose a basal hymenium which may then resemble an acervulus. Conidia lunate, one-celled, hyaline, ends acute,  $13-18 \times 4-5 \mu$ .

Collection: R 1534, on *Anaphalis margaritacea*, Round Pass, 4000 ft., July 16.

The spores of this collection are like those of a *Selenophoma* but the pycnidium is flattened and ruptures irregularly. It is similar to the type species *P. fructigenum* but that species has reddish effuse membranous pycnidia.

**Platycarpium caulicolum** sp. nov.

Pycnidia dense dispersa, depressa, ellipsoidea,  $400-600 \mu$  longa,  $200 \mu$  lata,  $100-200 \mu$  alta, in superficie caulium maculas nigricantes, fusiformes, formantes, postea fere omnino erumpentia; strato tegente pseudo-parenchymatico, non radiato; ostiolo minuto, vix manifesto. Conidia lunata, continua, hyalina, utrinque acuta,  $13-18 \mu$  longa,  $4-5 \mu$  crassa.

Specimen typicum legit E. G. Simmons (R 1534), in caulibus *Anaphalis margaritaceae*, prope „Round Pass“, in Monte „Rainier“, in republica Washingtonensi, alt. 4000 ped., 16. Juli, 1948.

*Rhabdospora conii* Lamb. & Fautr.

Pycnidia  $300-500 \mu$  in diameter, globose to ellipsoid, immersed at first but soon erumpent-superficial, becoming collapsed or wrinkled; wall  $18-30 \mu$  thick. Conidia long filiform, hyaline, non-septate, slightly curved, sometimes slightly thicker towards one end,  $55-100 (115) \times 1 \mu$ .

Collections: R 1406 a, on *Ligusticum purpureum*, Narada Falls, 4600 ft., July 2; R 2350 a, on Umbellifer stems, Reflection Lake, 4865 ft., July 5.

These collections and those of the following species have rather large, coarse walled pycnidia, on stems, and are soon superficial in appearance and so perhaps belong in the genus *Rhabdospora*, rather than *Septoria*. Both species have long filiform spores, which are longer in this species than in *R. pleosporoides*. A third collection, No. 1485 a, on *Xerophyllum tenax*, from Eagle Peak, July 6, has identical spores but smaller pycnidia ( $200 \mu$  diameter), which with the distinct host make it seem a separate species, but the material is insufficient for a species description.



*Rhabdospora pleosporiodes* Sacc.

Pycnidia 300—700  $\mu$  in diameter, flattened-globose,, becoming somewhat sunken or collapsed, immersed at first then erumpent, ostiole short cylindrical, walls 40—100  $\mu$  thick, composed of coarse black-walled parenchyma in the outer layers and hyaline parenchyma in the inner layers. Conidia long filiform, one-celled, or faintly five-septate hyaline, both ends pointed or one end slightly broader and rounded, 25—60  $\times$  1—1.5(2)  $\mu$ .

Collections: *R 1425 a*, on *Lupinus subalpinus*, Reflection Lake, 4865 ft., July 5; *R 1444 a*, on dead stems, Nisqually Glacier Trail, 4000 ft., July 8; *R 1563*, on *Lupinus subalpinus*, Wonderland Trail, 5000 ft., July 18; *R 1601 b*, on *Lupinus lyallii*, Mazama Ridge, 5700 ft., July 21; *R 1613 a*, on *Lupinus subalpinus*, Van Trump Park, 6000 ft., July 25; *R 1750 a*, on *Lupinus subalpinus*, Indian Henry's Hunting Ground, 5500 ft., Aug. 2; *R 2343 a*, and *R 2344 a*, on *Lupinus subalpinus*, Reflection Lake, 4865 ft., July 5; *R 2347*, on dead stems, Narada Falls, 4000 ft., July 4.

These large coarse pycnidia with long filiform spores were common on stems of *Lupinus* above 4000 ft. It was at first thought that two species were represented in these collections, one with somewhat longer spores (36—60  $\mu$ ) having one end broader and more rounded and another with shorter (26—48  $\mu$ ) spores with both ends pointed, but so many intermediates occur that no good distinction can be made. This specific epithet has been used for many such forms with large pycnidia and filiform spores and probably includes several entities which are difficult of separation. The variety *drabae* Wehm. (1946), described from Wyoming, has similar spores of three different lengths, the longer of which cover the range as found in these collections.

*Septoria margaritacea* Pk.

Causing yellowed areas along the tips and sides of the leaves. Pycnidia formed on the necrotic tan portions of these areas, 140—160  $\mu$  in diameter; wall thin. Conidia long, narrow, acicular, tapered at the ends, 60—75  $\times$  3.5  $\mu$  with 6—8 faint septa.

Collection: *R 1608*, on *Anaphalis margaritacea*, moraine of carbon Glacier, 3500 ft., July 22.

This material has thicker spores and smaller pycnidia than those recorded in the original description, but it fits very well with the emended description and material cited by Sprague and Cooke (1939).

The two following collections present a situation which has been recognized by Sprague (1950; and in litt.) and often occurs on dead stems and leaves, particularly of grasses. There is often a confusing intermixture of a number of conidial forms, often with

identical fruiting structures, but with differing spore forms. This often makes it next to impossible to decide whether these forms are genetically distinct or all of one species, or to correctly apply binomials. Apparently some of these fungi form spores with a wide variation in size and septation, which may be more or less segregated in separate pycnidia, resulting in an association of such form genera as *Phoma* — *Ascochyta* — *Stagonospora* — *Septoria*, etc. The associated forms are all described under one binomial below. *Septoria Avenae* Frank Fig. 8 a.

Pycnidia 200—400  $\mu$  in diameter, immersed in the leaves as small black dots; walls composed of dark brown parenchyma. Conidia long fusoid, slightly curved, three- to four-septate, hyaline to yellow-brown in mass,  $26-35 \times 3.5-4.5 \mu$ .

Collection: *R 2189 e*, on *Sitanion hystrix*, Berkeley Park, 6000 ft., Aug. 17.

This material was sent to Dr. R. Sprague who suggested this determination; the associated stages were as follows:

*Ascochyta* sp. Fig. 8 b.

Pycnidia similar, 250  $\mu$  diameter, lighter yellow-brown. Conidia elongate, cylindrical, hyaline to greenish, mostly two-celled, sometimes three-septate,  $14-21 \times 2.5-3 \mu$ .

*Phoma* sp. Fig. 8 c.

Pycnidia as in *Ascochyta* sp., conidia cylindrical to ellipsoid, one-celled, hyaline,  $5-6 \times 2.5 \mu$ .

*Septoria riparia* Pass. Fig. 9 a.

Pycnidia 100—250  $\mu$  in diameter, thickly scattered, immersed; walls 20  $\mu$  thick. Conidia long cylindrical, filiform, slightly curved, three- to five-septate,  $45-60 \times 1.5-2 \mu$ .

Collection: *R 2287 b*, on *Carex* sp., Van Trump Park, 5700 ft., July 25.

On material submitted to him, Dr. Sprague failed to find the *Septoria* stage but did see the two associated stages mentioned below. He could not be sure of any genetic relationship, but from drawings submitted, suggested the above binominal (in litt.).

*Stagonospora* sp. Fig. 9 b.

Pycnidia similar. Conidia cylindrical-fusoid, with somewhat tapered ends, often slightly bent or curved, hyaline one-celled at first, but becoming one- to three-septate, and  $16-25 \times 2-2.5 \mu$ .

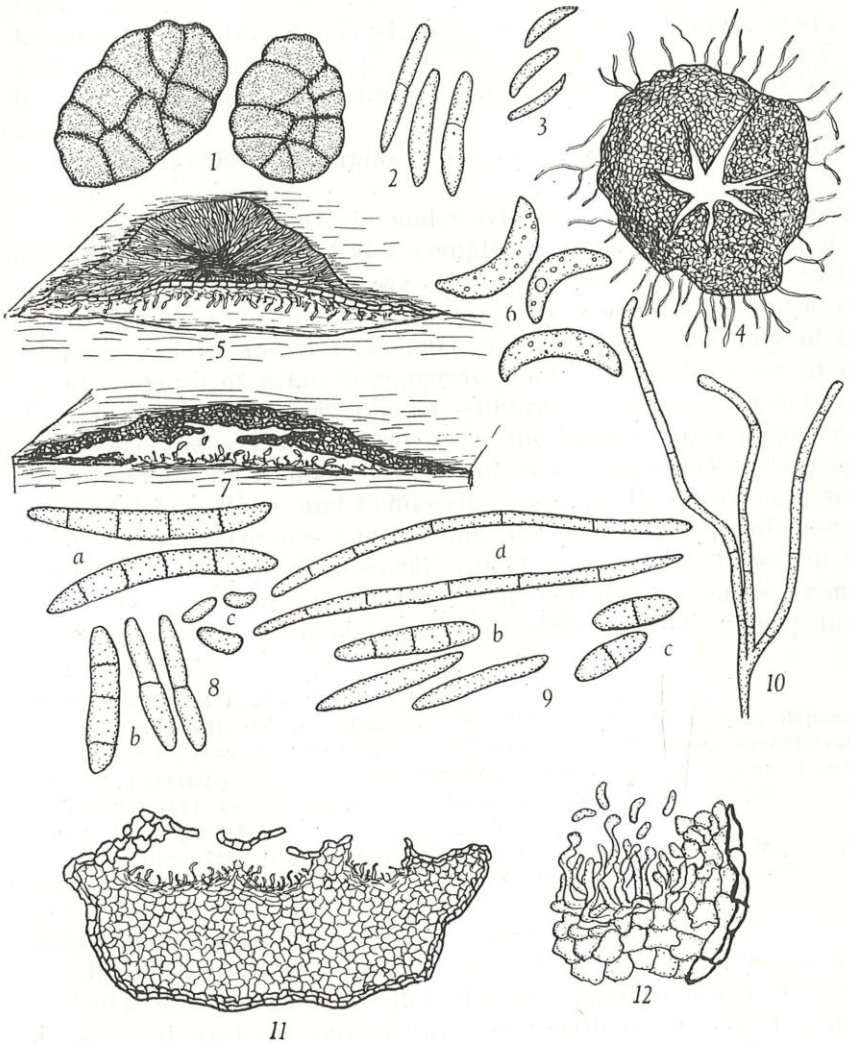
*Ascochyta* sp. Fig. 9 c.

Pycnidia similar. Conidia short cylindrical, ends rounded, hyaline, often guttulate, with a central septum and  $9-12 \times 2.5 \mu$ .

***Siroscyphellina lupini*** sp. nov. Figs. 11 and 12.

Pycnidia 600—900  $\mu$  in diameter, 300—500  $\mu$  thick, circular, flattened, disc-shaped, concave above and strongly wrinkled or





irregularly folded at maturity, black or black-brown in appearance, scattered, superficial on old stems, composed almost entirely of hyaline parenchymatic tissue, which is waxy and red-brown in section, and with a single outer layer of large, thick-walled, yellow-to red-brown parenchyma cells. In the upper surface of the hyaline parenchyma there appear shallow cavities, below the outer wall, which are lined with a hymenium of short conidophores, 5–10  $\mu$  long which bear the one-celled, hyaline, ellipsoid to bacillar to allantoid conidia, 2–3  $\times$  0.8–1  $\mu$ . The red-brown wall tissue, which is 9–10  $\mu$  thick, splits irregularly in a radiate manner above these cavities.

Collection: *R 1955 a*, on *Lupinus subalpinus*, Berkeley Park, 6700 ft., Aug. 16.

It is difficult to decide under what genus this fungus might have been described. It has a complete wall and may be more or less hemispheroid when young and might have been placed in the *Sphaeropsidales*. At maturity it is typically sunken, cup-shaped and deeply wrinkled and has the thick parenchymatic structure of the conidial stages of some discomycetes and probably belongs in the *Excipulaceae*. On the other hand, although it appears black to the naked eye, the wall is red-brown and the interior appears the same color in mass and it might have found its way into the *Nectroidaceae*.

*Dothichiza* Höhn. and *Dothiorella* Speg. are the only two genera found with descriptions approaching this fungus and similar small spores, but neither are identical with it. It seems to fit best in the genus *Siroscyphellina* Petr. (1923), although the type of that genus, *S. arundinacea*, is given as being prosenchymatic and lighter yellow-brown.

#### ***Siroscyphellina lupini* sp. nov.**

Pycnidia 600–900  $\mu$  diametro, 300–500  $\mu$  alta, rotundata, depressa, cupuliformia, rugosa, atro-brunnea vel atra, cerea, dispersa, superficialia; cellulis parenchymatosis, intus hyalinis, extus rufo-brunneis. Conidia ellipsoidea vel bacilliformia vel allantoidea, continua, hyalina, 2–3  $\mu$  longa, 0.8–1  $\mu$  crassa.

Specimen typicum legit E. G. Simmons (*R 1955 a*), in caulibus *Lupini subalpini*, loco „Berkeley Park“ dicto, in Monte „Rainier“, in republica Washingtonensi, alt. 6700 ped., 16. Aug., 1948.

#### ***Stigmopeltis graminicola* sp. nov. Figs. 4 and 10.**

Pycnidia 100–300  $\times$  50–100  $\mu$ , rather thickly scattered, subcuticular to superficial, circular; flattened, light yellow-brown, with a marginal hyaline radiating hyphal growth in the cuticle; upper shield thin membranous, prosenchymatous, somewhat radiate, splitting by an irregular radiate mouth. Conidia long filiform, hyaline, variously bent, septate at intervals of 8.5–10.5  $\mu$ , borne at the apex, or as branches of, filiform conidiphores, 35–53  $\times$  0.8–1  $\mu$ .

Collection: *R 2190 a*, on *Elymus glaucus*. Tahoma Creek, Aug. 9.



This fungus fits very nicely in the genus *Stigmopeltis* Sydow (1927, p. 127). It differs from *Schizothyrella* Thüm. only in the failure of the septate sections to fall apart.

***Stigmopeltis graminicola* sp. nov.**

Pycnidia 100—300  $\mu$  diametro, 50—100  $\mu$  alta, dense dispersa, subcuticularia vel superficialia, depressa, rotundata, pallide luteo-brunnea; hyphis marginalibus radiatis, hyalinis. Conidia filiformia, sinuosa, regulariter septata, hyalina, 35—53  $\mu$  longa, 0.8—1  $\mu$  crassa; segmentis 8.5—10  $\mu$  longis.

Specimen typicum legit E. G. Simmons (R 2190 a), in caulibus *Elymi glauci*, prope „Tahoma Creek“, in Monte „Rainier“, in republica Washingtonensi, 9. Aug., 1948.

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**Explanation of plate VIII.**

1. Conidia of *Camarosporium kriegerii* Bres. — 2. Conidia of *Leptothyrella graminis* sp. nov. — 3. Conidia of *Phoma lunulatospora* sp. nov. — 4. Pycnidium of *Stigmopeltis graminicola* sp. nov. — 5. Vertical section of pycnidium of *Leptothyrella graminis* sp. nov. — 6. Conidia of *Platycarpium caulicolum* sp. nov. — 7. Vertical section of pycnidium of *Platycarpium caulicolum* sp. nov. — 8. *Septoria* (a), *Ascochyta* (b) and *Phoma* (c) types of conidia found in association as *Septoria Avenae* Frank. — 9. *Septoria* (a), *Staganospora* (b) and *Ascochyta* (c) types of conidia found in association as *Septoria riparia* Pass. — 10. Conidial hyphae of *Stigmopeltis graminicola* sp. nov. — 11. Vertical section of pycnidium of *Siroscyphellina lupini* sp. nov. — 12. Cell detail of hymenium, stroma and wall structure of *Siroscyphellina lupini* sp. nov.

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Artikel/Article: [Some fungi imperfecti from Mt. Rainier National Park. 433-442](#)