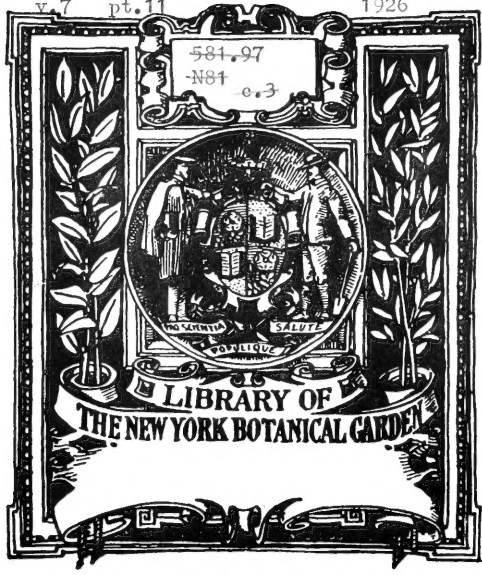


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NORTH AMERICAN FLORA

(UREDINALES)

ADDITIONS AND CORRECTIONS (continued)



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XII
v. 7
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1. *Skierka Holwayi* Arth. Am. Jour. Bot. 5: 433. 1918.

O. Pycnia amphigenous, solitary or few in small groups, noticeable, reddish-brown, discoidal, 416-448 μ in diameter by 96-128 μ high; ostiolar filaments apparently wanting.

II. Uredinia chiefly epiphyllous, in groups 1-5 mm. across, round, 0.1-0.2 mm. in diameter, covered by the greatly thickened epidermis, flask-shaped in cross-section, the dehiscence by a small pore, the spores extruded in filaments and for a time cohering, soon falling apart and giving the spots a pulverulent, cinnamon-brown appearance; urediniospores when dry or in alcohol oblong-fusiform or ellipsoid-fusiform, 19-26 by 43-60 μ , acuminate and beaked above; wall golden-brown, 2.5-3 μ thick, 7-9 μ above, very finely and inconspicuously verrucose, in water the outer layer paler, swelling up to 7-10 μ and 10-15 μ above, appearing smooth, the pores obscure, probably 2, equatorial.

III. Telia hypophyllous, opposite the uredinia and similar to them; teliospores oblong-fusiform, 12-19 by 35-50 μ exclusive of the acute or filiform beak, the narrowed base with a distinct hilum, cohering in columns 4-5 mm. long and 80-150 μ in diameter; wall colorless or slightly yellowish, smooth, the inner layer 1 μ thick, the outer layer not noticeable in alcohol or dry, swelling in water 3-9 μ and disintegrating, with the apex filiform, up to 100 μ , and likewise disintegrating; pedicel wholly deciduous, leaving a noticeable hilum.

ON SAPINDACEAE:

Thouinidium decandrum Radlk., Guatemala; Honduras; Salvador.

TYPE LOCALITY: Agua Caliente, Dept. Guatemala, Guatemala, on *Thouinidium* sp.

DISTRIBUTION: Central America.

25d. *CTENODERMA* Sydow, Ann. Myc. 17: 102. 1920.

Cycle of development includes pycnia and telia, both subepidermal.

Pycnia hemispheric or globoid, with ostiolar filaments.

Telia deep-seated within the tissues of the host, opening by a pore, without paraphyses. Teliospores one-celled, arising from a flat hymenium, breaking from pedicel to show the hilum; wall colorless, tuberculate and winged, the outer layer hygroscopic, becoming mucilaginous, the pores indistinct, but probably one and apical in each spore.

Type species, *Uredo cristata* Speg. (on *Sapindaceae*).

1. *Ctenoderma cristatum* (Speg.) Sydow, Ann. Myc. 17: 102. 1920.

Uredo cristata Speg. Anal. Soc. Ci. Argent. 17: 119. 1884.

Uromyces Cupaniae Arth. & Johnston, Mem. Torrey Club 17: 131. 1918.

O. Pycnia amphigenous, thickly scattered among the telia over dark-colored, hypertrophied and bullate areas 2-8 mm. across, noticeable, dark-brown, globoid in section, 80-130 μ in diameter by 65-125 μ high; ostiolar filaments compact, 30-40 μ long.

III. Telia amphigenous, scattered over dark-colored bullate areas 2-8 mm. across, strongly punctate, deep-seated in the tissues of the host, opening by a pore; teliospores oblong-obovoid or fusiform, 16-29 by 40-58 μ , narrowed below, rounded or somewhat narrowed above, more or less winged; wall colorless or nearly so, tuberculate along the ridges, especially above, the inner layer 1-2 μ thick, the outer layer hygroscopic, swelling to 5-15 μ thick; pedicel wholly deciduous, leaving a noticeable hilum.

ON SAPINDACEAE:

Cupania macrophylla A. Rich., Cuba.

TYPE LOCALITY: Villa Rica, Paraguay, on *Sapindaceae* [now determined as *Cupania* sp.].

DISTRIBUTION: Western Cuba; also in South America.

25e. *SPHENOSPORA* Dietel, E. & P. Nat. Pfl. 1^{**}: 70. 1897.

Cycle of development imperfectly known; only uredinia and telia recognized, both subepidermal, but subepidermal pycnia may occur.

Uredinia erumpent, definite, without paraphyses. Urediniospores borne singly on pedicels; wall colored, echinulate, the pores indistinct.

Telia erumpent, somewhat indefinite, waxy. Teliospores two-celled, by a vertical

septum; wall colorless or nearly so, thin, smooth, the pores indistinct, but probably one in each cell and apical.

Type species, *Diorchidium pallidum* Wint. (on leaves of a climbing plant, now believed to be *Smilax* sp.).

1. *Sphenospora yurimaguasensis* (P. Henn.) H. S. Jackson,
Mycologia 18: 153. 1926.

Uredo yurimaguasensis P. Henn. Hedwigia 43: 164. 1904.
Sphenospora smilacina Sydow, Ann. Myc. 23: 318. 1925.

O. Pycnia unknown.

II. Uredinia chiefly hypophyllous, on effused yellowish spots, solitary or gregarious, often circinating about a central sorus, irregularly roundish or elongate, 0.2–0.5 mm. across, soon naked, often by a longitudinal rupture, somewhat pulvinate, golden-yellow or light cinnamon-brown, ruptured epidermis conspicuous; urediniospores globoid or obovoid, 20–26 by 26–30 μ ; wall cinnamon-brown, 1.5–2.5 μ thick, closely and strongly echinulate, the pores indistinct, 2, approximately equatorial.

III. Telia hypophyllous, crowded or confluent in groups 1.5–4 mm. across, often circinating about a uredinium, early naked, very waxy, reddish- or honey-yellow, ruptured epidermis noticeable; teliospores oblong-fusiform, 12–15 by 27–31 μ , obtuse or somewhat truncate above and below; wall nearly or quite colorless, uniformly thin, about 1 μ , smooth; pedicel colorless, once to once and a half length of spore.

ON SMILACEAE:

Smilax sp., Guatemala; Costa Rica.

TYPE LOCALITY: Yurimaguas, Peru, on *Smilax* sp.

DISTRIBUTION: Central America; also in South America.

25f. *CHACONIA* Juel, Bihang Sv. Vet.-Akad. Handl. 23¹⁰: 12. 1897.

Cycle of development includes subepidermal telia, and possibly pycnia.

Telia erumpent, definite, pulvinate, without paraphyses; teliospores sessile, arising singly or in groups from a more or less enlarged cell of the hymenium, one-celled, oblong; wall colorless, thin, smooth, the pores obscure, but with germination from the apex.

Type species, *Chaconia alutacea* Juel (on *Calliandra* sp., error for *Pithecolobium divaricatum*).

1. *Chaconia* (?) *texensis* Arthur sp. nov.

O. Pycnia unknown, probably not formed.

III. Telia chiefly hypophyllous, gregarious or more or less scattered, prominent, round, 0.1–0.7 mm. in diameter, early naked, pulvinate, velvety or somewhat waxy, pale cinnamon-brown, ruptured epidermis inconspicuous; teliospores oblong or obovate-oblong, 13–20 by 40–80 μ , rounded or obtuse above and below; wall colorless, thin, about 1 μ , smooth.

ON LORANTHACEAE:

Phoradendron macrophyllum (Engelm.) Cockerell (*P. flavescens macrophyllum* Engelm.), Texas.

Type collected at Austin, Texas, on *Phoradendron macrophyllum*, May 8, 1901, W. H. Long 947.

25g. *GYMNOTELIUM* Sydow, Ann. Myc. 19: 170. 1921.

Cycle of development includes pycnia, aecia, uredinia, and telia, with distinct alternating phases; heteroecious. Pycnia and other sori subepidermal.

Pycnia globoid or somewhat conoidal, honey-yellow becoming brownish, with ostiolar filaments.

Aecia erumpent, cupulate. Peridium colorless, dehiscent by apical rupture, the margins erose, erect or spreading; peridial cells more or less overlapping, the outer wall thick, smooth, the inner wall thinner, verrucose. Aeciospores globoid or broadly ellipsoid; wall colored, verrucose, with several moderately distinct pores.

Uredinia erumpent, definite, without peridium or paraphyses. Urediniospores borne singly on pedicels, globoid; wall colored, verrucose, the pores 2, equatorial.

Telia erumpent, definite. Teliospores 2-celled; wall colored, smooth, the pores one or two in each cell; pedicel hyaline, with thick walls.

Type species, *Uredo nootkatensis* Trel. (on *Chamaecyparis nootkatensis*).

1. *Gymnotelium nootkatense* (Trel.) Sydow, Ann. Myc. 19: 170. 1921.

Uredo nootkatensis Trel. Harriman Alaska Exp. Crypt. 36. 1904.

Aecidium Sorbi Arth. Bull. Torrey Club 33: 521. 1906.

Gymnosporangium Sorbi Kern, Bull. N. Y. Bot. Gard. 7: 438. 1911.

Uredo Chamaecyparidis-nutkaensis Tubeuf, Nat. Zeits. Forst.-Landw. 2: 91. 1914.

Gymnosporangium nootkatense Arth. Am. Jour. Bot. 3: 44. 1915.

O and I. Pycnia and aecia as described at pages 190-191, under *Gymnosporangium Sorbi*.

ON MALACEAE:

Malus rivularis (Dougl.) Roem. (*Pyrus diversifolia* Dougl.), Alaska, Washington; British Columbia.

Pyrus betulaeifolia Bunge, Alaska.

Sorbus occidentalis (S. Wats.) Greene, Alaska, Washington; British Columbia.

Sorbus sitchensis Roem., Alaska, Oregon, Washington.

II. Uredinia foliicolous, on yellow spots covering the whole leaf, round, 0.5 mm. in diameter, soon naked, bright-orange fading to pale-yellow, prominently pulvinate, somewhat pulverulent, ruptured epidermis generally noticeable; urediniospores globose or obovate-globoid, 28-32 μ in diameter; wall pale-yellow becoming colorless, moderately thick, 3-4 μ , finely and closely verrucose, appearing radiately striate, the pores 2, equatorial; pedicels colorless, somewhat persistent.

III. Telia not seen; teliospores in the uredinial sori usually 2-celled, sometimes 3- or 4-celled, ellipsoid, obovate-ellipsoid, or elongate-ellipsoid, 23-29 by 42-48 μ , rounded or narrowed above, narrowed below, slightly or not constricted at septum; wall pale lemon-yellow, uniformly thin, 1-1.5 μ , smooth, the pores one in each cell near the septum; pedicel colorless, evenly thick, 5-7 μ , once to twice length of spore.

ON JUNIPERACEAE:

Chamaecyparis nootkatensis (Lamb.) Spach, Alaska, Oregon, Washington.

TYPE LOCALITY: Hot Springs, Baranof Island, Alaska, on *Chamaecyparis nootkatensis*.

DISTRIBUTION: Southeastern Alaska to northern Oregon.

ILLUSTRATIONS: Am. Jour. Bot. 3: 42; Bull. N. Y. Bot. Gard. 7: 438. f. 3; pl. 152, f. 38; Sydow, Monog. Ured. 3: pl. 1, f. 2.

EXSICCATI: Barth. N. Am. Ured. 1309, 1310.

188. GYMNOSPORANGIUM.

Add the synonym: *Puccinia* Micheli; Adans. Fam. Pl. 2: 8. 1763.

Conclude the first paragraph of the description with the words: or the telia subcuticular in some species.

188. In the key.

Omit the fourth line, the species being transferred to the genus *Gymnotelium*, and substitute:

Aeciospores large (24-34 μ), the wall thick (2-3 μ). 24. *G. myricatum*.

Replace line 20 by:

Peridial cells spinulose.

Aeciospores larger (22-31 μ), the wall cinnamon-brown. 7. *G. exiguum*.

Aeciospores smaller (17-23 μ), the wall dingy-yellow. 21. *G. Photiniae*.

189. In the aecial key.

Replace line 5 by:

Peridial cells densely rugose. 12. *G. tubulatum*.

Peridial cells faintly and sparsely rugose. 10. *G. Kernianum*.

Replace "21. *G. japonicum*" by "3a. *G. koreense*."

Replace "22. *G. transformans*" by "3. *G. transformans*."

189. In the telial key.

Replace line 5 by:

Pedicels of teliospores terete.

Teliospore-wall uniform, 1.5–2 μ .

Teliospore-wall thicker above, 3–5 μ .

3. *G. transformans*.

3a. *G. koreaense*.

Insert after line 8 a coordinate line as follows:

Telia truncate or wedge-shaped, chestnut-brown.

5. *G. Harknessianum*.

For "24. *G. Ellisii*" read "24. *G. myricatum*."

190. In the key.

Replace line 3 by:

Teliospores moderately small (42–55 μ).

Teliospores ellipsoid or oval (22–27 μ broad), the wall 2–3 μ thick.

Teliospores oblong-ellipsoid (16–22 μ broad), the wall 1–2 μ thick.

19a. *G. Cupressi*.

20. *G. effusum*.

For "24. *G. Ellisii*" read "24. *G. myricatum*."

Replace line 14 by:

Telia thin, irregularly flattened, light chestnut-brown.

Teliospores ellipsoid (21–26 \times 39–58 μ), the wall 1.5–2.5 μ thick.

Teliospores narrowly ellipsoid (18–22 \times 50–65 μ), the wall 1–1.5 μ thick.

12. *G. tubulosum*.

28. *G. Nelsoni*.

190. *Gymnosporangium Blasdaleanum*.

Omit the third synonym: *Aecidium Pourthiaee*.

Omit, under Malaceae, the fifth species, and add:

Choenomeles japonica (Thunb.) Lindl. (*Cydonia japonica* Pers., *Pyrus japonica* Thunb.), Oregon.

Cydonia vulgaris (L.) Pers. (*Pyrus vulgaris* L.), Oregon.

Malus baccata (L.) Desf. (*Pyrus baccata* L.), Oregon.

Malus ioensis (Wood) Britton (*Pyrus ioensis* L. H. Bailey), Oregon.

Malus Malus (L.) Britton (*Pyrus Malus* L.), Oregon.

Malus rivularis (Dougl.) Roemer (*Pyrus rivularis* Dougl., *P. diversifolia* Bong.), Oregon.

Pyrus communis L., Oregon.

Sorbus Aucuparia L., Oregon.

Sorbus hybrida L., Oregon.

Add the illustrations: *Phytopathology* 4: pl. 12; Sydow, *Monog. Ured.* 3: pl. 1, f. 1.

Add the exsiccata: Barth. *N. Am. Ured.* 2412, 3111.

190. *Gymnosporangium Sorbi*.

Becomes a synonym of *Gymnotelium nootkatense* (page 735).

191. *Gymnosporangium fraternum*.

Reduce this name to synonymy, and substitute: *Gymnosporangium transformans* (as given on page 202).

Add the synonyms: *Roestelia transformans* Ellis; Peck, *Bull. Torrey Club* 5: 3. 1874.

Gymnosporangium biseptatum foliocolum Farl.; Ellis, *N. Am. Fungi* 1479, hyponym.

1885. *Aecidium transformans* Paz.; Rab.-Paz. *Fungi Eur.* 4238. 1901.

O and I. For description of pycnia and aecia see page 202, under *G. transformans*.

In the description of the teliospores the size should read "16–29 by 39–48 μ ," and the description of the pores should be extended to read "or sometimes 1 in each cell, and apical."

Under type locality, change the host to read "*Pyrus arbutifolia*."

Change the last word in the distribution from "New Jersey" to "Delaware."

Add the illustrations: *Bull. N. Y. Bot. Gard.* 7: 463, f. 25; *Bot. Gaz.* 49: pl. 21, f. 7; Sydow, *Monog. Ured.* 3: pl. 3, f. 28.

Add the exsiccata: Ellis, *N. Am. Fungi* 1088; Ellis & Ev. *Fungi Columb.* 1076; Rab.-Paz. *Fungi Eur.* 4238; Roum. *Fungi Sel.* 4533; Seym. & Earle, *Econ. Fungi* 247, 247a; Thaxter, *Rel. Farl.* 223a, c; Thüm. *Myc. Univ.* 1029.

191. Insert:

- 3a. *Gymnosporangium koreaense* (P. Henn.) H. S. Jackson, Jour. Agric. Res. 5: 1006. 1916.

Roestelia koreaensis P. Henn. in Warb. Monsunia 1: 5. 1899.
Tremella koreaensis Arth. Proc. Ind. Acad. 1900: 136. 1901.
Gymnosporangium asiaticum Miyabe, Bot. Mag. Tokyo 17: 34, hyponym. 1903.
Gymnosporangium Haraeianum Sydow, Ann. Myc. 10: 405. 1912.
Gymnosporangium chinense Long, Jour. Agric. Res. 1: 353. 1914.

O. Pycnia epiphyllous, on slightly discolored spots, in groups 1-3 mm. across, punctiform, orange-yellow becoming brownish; pycniospores small, fusiform.

I. Aecia hypophyllous, on somewhat thickened brownish spots, in crowded groups 1-7 mm. across, cylindrical, slender, 0.2-0.4 mm. in diameter, 2-3 mm. high; peridium soon becoming irregularly lacerate and cancellate often to base, erect or somewhat spreading, often irregularly torn at the end; peridial cells seen in both face and side views broadly lanceolate, or in face view oval and in side view oblong, 23-35 by 60-90 μ , coarsely rugose on inner and side walls, the ridges much higher on side walls and extending entirely across, the outer wall 1.5-2 μ thick, the inner wall and side walls 5-7 μ thick; aeciospores globoid, 18-23 μ in diameter; wall pale cinnamon-brown, moderately thick, 1.5-2 μ , finely and closely verrucose, the pores several.

ON MALVACEAE:

Pyrus sinensis Lindl. (*P. japonica* Auth. not Thunb.), California, Oregon.

III. Telia foliicolous, scattered or aggregate and sometimes confluent, causing only slight hypertrophy, pulvinate, 0.5-1 mm. across, forming reddish-brown, gelatinous masses, becoming dark-brown; teliospores 2-celled, ellipsoid, 16-23 by 35-50 μ , rounded or narrowed at both ends, slightly or not constricted at septum; wall pale cinnamon-brown, 1.5-2 μ thick, thinner and paler in spores near center of telium, the pores 2 in each cell near the septum, or sometimes one of the pores in the upper cell near apex, smooth; pedicel hyaline, cylindrical, uniform, 3-5 μ in diameter, moderately long.

ON JUNIPERACEAE:

Juniperus chinensis L., Connecticut, Oregon, Washington.

TYPE LOCALITY: Korea, on *Pyrus* sp. [probably *P. sinensis*].

DISTRIBUTION: Sparingly sporadic on the Atlantic and Pacific coasts of the United States on plants cultivated for ornament; also in Japan and eastern Asia.

ILLUSTRATIONS: Bull. N. Y. Bot. Gard. 7: 460. f. 22, exclusive of teliospore; Sydow, Monog. Ured. 3: pl. 1, f. 8; Zeits. Pflanzenkr. 10: pl. 2; Jour. Agric. Res. 5: pl. 78, 79.

191. *Gymnosporangium inconspicuum*.

Among the hosts under Malvaceae change "New Mexico" to "Utah" after *Amelanchier utahensis*, and add:

Amelanchier Bakeri Greene, Arizona, Colorado, New Mexico.

Amelanchier prunifolia Greene, Utah.

Peraphyllum ramosissimum Nutt., Colorado.

Add the illustration: Sydow, Monog. Ured. 3: pl. 1, f. 3.

192. *Gymnosporangium Harknessianum*.

Substitute for "III. Telia unknown":

III. Telia foliicolous, from an annual mycelium, scattered, truncate or wedge-shaped, 1-1.5 mm. high, chestnut-brown; teliospores 2-celled, narrowly ellipsoid, 16-22 by 45-72 μ , rounded or somewhat narrowed both above and below, slightly or not constricted at septum; wall pale cinnamon-brown, rather thin, about 1.5 μ , uniform, the pores 2 in each cell, near the septum; pedicel hyaline, cylindrical, 4-6 μ in diameter, long.

ON JUNIPERACEAE:

Juniperus occidentalis Hook., California, Oregon.

Change the distribution to read: Central Oregon to northern California.

193. *Gymnosporangium Davisii*.

Add the exsiccati: Thaxter, Rel. Farl. 223b.

193. *Gymnosporangium juvenescens*.

Add the hosts, under Malaceae:

Amelanchier Bakeri Greene, Utah.
Amelanchier canadensis (L.) Medic. (*A. Botryapium* DC.), Wisconsin.
Amelanchier Jonesiana C. Schneid., Utah.
Amelanchier mormonica C. Schneid., Arizona, New Mexico.
Amelanchier spicata (Lam.) C. Koch, Wisconsin.

Add the host, under Juniperaceae: *Juniperus horizontalis* Moench (*J. prostrata* Pers., *Sabina horizontalis* Rydb.), Montana, North Dakota, Wisconsin, Wyoming; Saskatchewan.

Add the exsiccati: Barth. Fungi Columb. 4541, 4632, 4730; Barth. N. Am. Ured. 1116, 1717, 1813, 2017, 2619, 3112, 3431; Brenckle, Fungi Dak. 278, 359, 359a; Ellis & Ev. Fungi Columb. 761; and omit: Ellis & Ev. Fungi Columb. 1676.

194. *Gymnosporangium Kernianum*.

Replace the first three lines under the name by:

O. Pycnia epiphyllous, in crowded groups 1-3 mm. across, on somewhat larger yellowish spots, punctiform, conspicuous, honey-yellow becoming brown, in section globoid, 50-70 μ in diameter; ostiolar filaments agglutinate, 30-45 μ long.

I. Aecia hypophyllous, gregarious, inconspicuous, few on slightly thickened spots 2-5 mm. across, cylindric, somewhat attenuate above, 2-2.5 mm. or more high, 0.2-0.4 mm. in diameter; peridium rupturing tardily at apex, becoming somewhat lacerate; peridial cells oblong in side view, 23-30 by 75-110 μ , considerably overlapping and articulate, the outer wall rather thin, 2-2.5 μ , smooth, the inner wall much thicker, 9-12 μ , faintly and sparsely rugose; aeciospores angularly globoid or short-oblong, 21-26 by 26-32 μ ; wall cinnamon-brown, 2.5-3.5 μ thick, finely and inconspicuously verrucose, the pores prominent, 8-10, scattered.

ON MALACEAE:

Amelanchier alnifolia Nutt., Oregon.
Amelanchier oreophila A. Nelson, Arizona, Colorado.
Pyrus communis L., Arizona.

Add the hosts, under Juniperaceae:

Juniperus occidentalis Hook., California, Oregon.
Juniperus pachyphloea Torr. (*Sabina pachyphloea* Ant.), Arizona, New Mexico.

Change the distribution to read: New Mexico and Arizona northward to southern Idaho and eastern Oregon.

Add the illustration: Sydow, Monog. Ured. 3: pl. 1, f. 14.

Add: EXSICCATI: Barth. N. Am. Ured. 1613, 1718.

194. *Gymnosporangium trachysorum*.

Add the host, under Malaceae: *Crataegus monogyna* Jacq. (*C. Oxyacantha* Auth. not L.), Pennsylvania.

195. *Gymnosporangium tubulatum*.

Add the host, under Malaceae: *Crataegus chrysocarpa* Ashe (*C. sheridana* A. Nelson), Wyoming.

Replace the line pertaining to telia by:

III. Telia caulicolous, from a perennial mycelium, appearing on irregular globoid galls 2-10 mm. or more in diameter, mostly wedge-shaped, often irregular, comparatively thin, about 3-4 mm. high, often confluent at the bases, chestnut-brown; teliospores 2-celled, ellipsoid, 21-26 by 39-58 μ , usually narrowed both above and below, slightly or not constricted at septum; wall cinnamon-brown, 1.5-2.5 μ thick, smooth, the pores 2 in each cell, near the septum; pedicel hyaline, cylindric, uniform, 5-6 μ in diameter, very long.

ON JUNIPERACEAE:

Juniperus horizontalis Moench (*J. prostrata* Pers.), Wyoming.
Juniperus scopulorum Sarg. (*Sabina scopulorum* Rydb.), Idaho, Montana, Washington, Wyoming.

Change the distribution to read: Black Hills, South Dakota, westward to easternmost Washington and Oregon.

Add: ILLUSTRATION: Sydow, Monog. Ured. 3: *pl. 2, f. 17*. EXSICCATI: Barth. Fungi Columb. 4423; Barth. N. Am. Ured. 1614, 1615, 1719, 1720, 2019, 3113.

195. *Gymnosporangium Botryapites*.

Insert, in the description of the telia, after the word caulicolous "or sometimes appearing foliicolous."

Add the illustrations: Sydow, Monog. Ured. 3: *pl. 2, f. 18*; Zeits. Pflanzenkr. 5: 416. *f. 216*.

Add the exsiccati: Barth. Fungi Columb. 4026; Thaxter, Rel. Farl. 219a, b.

196. *Gymnosporangium Nidus-avis*.

In the description of the teliospores change the reading to: "teliospores 2-celled, ellipsoid, 16-23 by 39-55 μ , or oblong-ellipsoid, 13-18 by 37-58 μ "; and also: "the pores one in a cell, apical, or two in a cell, one apical and one near septum in upper cell, both near septum in lower cell."

Add the exsiccati: Barth. N. Am. Ured. 910; Ellis, N. Am. Fungi 222; Thaxter, Rel. Farl. 227a, b.

197. *Gymnosporangium germinale*.

Add the synonym: *Aecidium Purpusiorum* P. Henn. Hedwigia Beibl. 42: 189. 1903.

Add the hosts, under Malaceae:

Amelanchier alnifolia Nutt., Montana, Wyoming; British Columbia.

Amelanchier spicata (Lam.) C. Koch, Michigan.

Crataegus chrysoarpa Ashe (*C. sheridana* A. Nelson), Wyoming.

Crataegus coccinea L. (*C. modesta* Sarg.), Massachusetts, Mississippi, Pennsylvania.

Crataegus Douglasii Lindl. (*C. brevispina* Dougl.), Montana.

Crataegus Holmesiana Ashe (*C. tenuifolia* Britton), Maine, Massachusetts.

Crataegus mexicana Moc. & Sessé, Mexico (state).

Add the illustrations: Bull. Penn. Exp. Sta. 160: *f. 9^B, 10*; Sydow, Monog. Ured. 3: *pl. 2, f. 21*; Bull. Cornell Exp. Sta. 80: *f. 10, 11*; Ann. Rep. Conn. Exp. Sta. 31-32: *pl. 20b*; Bull. Iowa Exp. Sta. 84: *f. 4, 5f*; Ann. Rep. N. J. Exp. Sta. 13: 308, *f. 10, 309, f. 11*; Ann. Rep. N. Y. State Mus. 25: *pl. 1, f. 10-12*.

Add the exsiccati: Barth. Fungi Columb. 4027, 4028; Barth. N. Am. Ured. 805. 3419, 3420; Thaxter, Rel. Farl. 221a-c.

198. *Gymnosporangium cornutum*.

Add to the hosts, under Malaceae: *Sorbus sitchensis* Roem., Washington.

Add the exsiccati: Barth. Fungi Columb. 4928; Barth. N. Am. Ured. 1412, 3417, 3418; Thaxter, Rel. Farl. 225a, b.

199. *Gymnosporangium exterum*.

Add the host, under Rosaceae: *Porteranthus trifolius* (L.) Britton (*Gillenia trifoliata* Moench, *Spiraea trifoliata* L.), Virginia.

199. *Gymnosporangium juniperinum*.

Add the illustrations: Centr. Bakt. 9: *f. 1, 3¹⁻⁸*; Zeits. Pflanzenkr. 1: 112. *f. 2*; 113. *f. 3¹⁻⁸*; Briosi & Cavara, Funghi Paras. 163; Beitr. Krypt. Schweiz 1¹: 87; Fl. Ibér. Ured. 2: *f. 90-92*.

Add: EXSICCATI: Barth. N. Am. Ured. 1413, 3430.

200. *Gymnosporangium gracilens*.

Add the host, under Hydrangeaceae: *Fendlera falcata* Thornber, New Mexico.

Add: EXSICCATI: Barth. N. Am. Ured. 3422, 3423, 3424; Garrett, Fungi Utah. 204.

201. Insert:

- 19a. *Gymnosporangium Cupressi* Long & Goodding; Long, Bot. Gaz.
72: 39. 1921.

O and I. Pycnia and aecia unknown.

III. Telia caulicolous, from a perennial mycelium, appearing on twigs, branches, and trunks, causing fusiform or globoid swellings 1-90 cm. long by 0.5-30 cm. thick, usually breaking forth irregularly and often transversely on the smaller branches and twigs, and in irregular rows in deep longitudinal fissures of the bark on the larger branches and trunks, more or less wedge-shaped, often irregular and somewhat crenate at top, before gelatinization 2-10 mm. broad by 4-6 mm. tall, dark chestnut-brown, becoming cinnamon-brown after expansion; teliospores 2-celled, oval or ellipsoid, 22-27 by 43-50 μ , rounded at each end, not or slightly constricted at septum; wall light cinnamon-brown, 2-3 μ thick, the pores 2 in each cell near the septum, smooth (some spores more slender, with thinner, paler walls); pedicel cylindrical, colorless.

ON JUNIPERACEAE:

Cupressus arizonica Greene, Arizona.

TYPE LOCALITY: Snebly Hill, 3.5 miles from Sedona, Arizona, on *Cupressus arizonica*.

DISTRIBUTION: Central Arizona.

201. *Gymnosporangium effusum*.

* Add the illustration: Sydow, Monog. Ured. 3: pl. 2, f. 24.

Add: EXSICCATI: Barth, N. Am. Ured. 1716.

201. *Gymnosporangium japonicum*.

Reduce this name to synonymy, and substitute: *Gymnosporangium Photiniae* (P. Henn.) Kern, Bull. N. Y. Bot. Gard. 7: 443. 1911.

. Omit the two synonyms, which belong under *G. koreaensis*.

Add the synonyms: *Roestelia Photiniae* P. Henn. Hedwigia 33: 231. 1894. *Aecidium Pourthiaee* Sydow, Mém. Herb. Boiss. 4: 3. 1900. *Roestelia Pourthiaee* Miyabe, Bot. Mag. Tokyo 17: 35. 1903. *Gymnosporangium spiniferum* Sydow, Ann. Myc. 10: 78. 1912.

Change the description of the pycnia from "numerous, crowded in roundish groups 1-3 mm. across" to "few, crowded in roundish groups 0.5-1.5 mm. across."

Change the description of the aecia to read as follows:

I. Aecia hypophyllous, gregarious, numerous, in crowded groups on thickened spots, cylindrical, 0.2-0.4 mm. in diameter by 3-4 mm. high; peridium rupturing at apex, remaining tubular, becoming somewhat cancellate in upper part; peridial cells seen in both side and face views, oblong in side view, 23-29 by 61-93 μ , lanceolate in face view, 25-35 μ broad, the outer wall rather thin, 2-3 μ , the inner and side walls rather thick, 5-7 μ , densely and rather sharply subspinulose; aeciospores broadly ellipsoid or globoid, 17-18 by 19-23 μ ; wall dingy yellow, moderately thick, 2.5-3.5 μ , evenly and moderately verrucose.

Change the host under Malaceae to read: *Photinia villosa* DC. (*P. laevis* DC., *Pourthiaea villosa* Decaisne) in Japan and eastern China; not recorded from America.

Change the type locality to read: Yokohama, Japan, on *Photinia laevis*.

Change the distribution to read: Sparingly sporadic on the Atlantic and Pacific coasts of the United States on plants cultivated for ornament; also in Japan and eastern China.

Change the illustrations to read: Zeits. Pflanzenkr. 10: pl. 1; Bull. N. Y. Bot. Gard. 7: 443. f. 9; 460. f. 22, exclusive of peridial cell.

202. *Gymnosporangium transformans*.

Omit all pertaining to this species, the data being incorporated with *Gymnosporangium fratrum* (page 736).

202. *Gymnosporangium clavariaeforme*.

Add the hosts, under Malaceae:

Amelanchier florida Lindl., Utah.
Pyrus communis L., South Carolina.

Add the illustrations: Sydow, Monog. Ured. 3: pl. 3, f. 29; Centr. Bakt. 9: f. 2, 3⁹⁻¹⁸; Zeits. Pflanzenkr. 1: 111. f. 1, 113, f. 3⁹⁻¹⁸; Fl. Ital. Crypt. Ured. f. 75; E. & P. Nat. Pfl. 1^{1**}: f. 31F, G; Ber. Deuts. Bot. Ges. 12: pl. 5, f. 8; Briosi & Cavara, Funghi Paras. 39; Malpighi, Anat. Plant. (1675) pl. 77; Micheli, Nov. Pl. Gen. (1729) pl. 92, f. 1A, C-F; Fl. Ibér. Ured. 2: f. 85-87.

Add the exsiccati: Barth. Fungi Columb. 4927; Barth. N. Am. Ured. 1715, 3416; Garrett, Fungi Utah. 203; Rav. Fungi Car. 5: 96; Thaxter, Rel. Farl.² 220a, b.

203. *Gymnosporangium Ellisii*.

Reduce this name to synonymy, and substitute: *Gymnosporangium myricatum* (Schw.) Fromme, Mycologia 6: 229. 1914.

Add the synonyms: *Caeoma* (*Aecidium*) *myricatum* Schw. Trans. Am. Phil. Soc. II. 4: 294. 1832. *Aecidium myricatum* Schw. Trans. Am. Phil. Soc. II. 4: 309. 1832.

Replace the line pertaining to pycnia and aecia by:

O. Pycnia epiphyllous, gregarious, in crowded circular groups 2-5 mm. in diameter, on blackened areas, orange-yellow, globose in vertical section, 140-190 μ in diameter; ostiolar filaments 30-80 μ long.

I. Aecia hypophyllous, fructicolous and caulicolous, in crowded groups, on discolored hypertrophied areas, cupulate, 0.2-0.3 mm. in diameter; peridium yellowish, fragile, becoming lacerate to the base, slightly recurved; peridial cells oblong, 26-29 by 32-39 μ , overlapping, the outer wall thick, 7-10 μ , smooth, transversely striate, the inner wall much thinner, 2-3 μ , closely and prominently verrucose; aeciospores globoid or oblong, 24-30 by 27-34 μ ; wall pale-yellow or colorless, 2-3 μ thick, closely and strongly verrucose, the pores 6-8, scattered.

ON MYRICACEAE:

Comptonia peregrina (L.) Coulter (*C. asplenifolia* Gaertn.), New Jersey.
Myrica carolinensis Mill., Connecticut, Massachusetts, New Jersey.
Myrica cerifera L., Delaware, New Jersey, New York.

Change the type locality to read: New York, on *Myrica cerifera*.

Add the illustrations: E. & P. Nat. Pfl. 1^{1**}: f. 31H, J; Ber. Deuts. Bot. Ges. 17: pl. 12, f. 12-15; Sydow, Monog. Ured. 3: pl. 3, f. 31.

Add the exsiccati: Barth. Fungi Columb. 4001; Ellis, N. Am. Fungi 230; Ellis & Ev. Fungi Columb. 62; Thaxter, Rel. Farl. 222; Thüm. Myc. Univ. 1224.

204. *Gymnosporangium Betheli*.

Add the host, under Juniperaceae: *Juniperus occidentalis* Hook., Oregon.

Add the illustration: Sydow, Monog. Ured. 3: pl. 3, f. 32.

Add the exsiccati: Barth. Fungi Columb. 4630; Barth. N. Am. Ured. 804, 1114, 1714, 2515, 3110, 3317; Brenckle, Fungi Dak. 331, 980; Garrett, Fungi Utah. 227.

204. *Gymnosporangium globosum*.

Add the synonym: *Roestelia globosa* Thaxter; Seym. & Patt. in Deane, Fl. Metrop. Park Comm. 138. 1896.

Add the hosts, under Malaceae:

Crataegus leiophylla Sarg. (*C. Maineana* Sarg.), New York.
Crataegus macrosperma Ashe, New York.
Crataegus monogyna Jacq. (*C. Oxyacantha* Auth. not L.), Massachusetts.
Crataegus viridis L., Oklahoma.
Malus angustifolia (Ait.) Michx. (*Pyrus angustifolia* Ait.), South Carolina.
Malus glaucescens Rehder, Indiana.

Add the host, under Juniperaceae: *Juniperus horizontalis* Moench (*J. prostrata* Pers.), North Dakota.

Add the illustrations: Ann. Rep. Conn. Exp. Sta. 27: pl. 8, f. 2, pl. 11, f. c.

Add the exsiccati: Barth. Fungi Columb. 4029, 4929, 5025; Barth. N. Am. Ured. 408, 508, 606, 1308, 2322, 2413, 2913, 3018, 3421; Brenckle, Fungi Dak. 332; Ellis, N. Am. Fungi 1085a, c, d; Thaxter, Rel. Farl. 224a-c; Seym. & Earle, Econ. Fungi 230x, in part; Sydow, Ured. 2437.

207. *Gymnosporangium Nelsoni*.

Add the hosts, under Malaceae:

Amelanchier Bakeri Greene, Arizona, Colorado.

Amelanchier florida Lindl. (*A. elliptica* A. Nelson), Colorado, Nevada.

Amelanchier mormonica C. Schneid., Colorado, Utah.

Amelanchier utahensis Koehne, Colorado.

Crataegus chrysoarpa Ashe (*C. sheridana* A. Nelson), Wyoming.

Malus rivularis (Dougl.) Roem. (*Pyrus diversifolia* Dougl.), Washington; Alaska.

Sorbus scopulina Greene (*S. sambucifolia* A. Gray, not Cham. & Schlecht.), Montana, Wyoming.

Sorbus sitchensis Roem., Montana.

Add the hosts, under Juniperaceae:

Juniperus horizontalis Moench (*J. prostrata* Pers.), Montana, South Dakota.

Juniperus occidentalis Hook., Oregon.

Add the exsiccati: Barth. N. Am. Ured. 510, 1117, 1913, 2018, 2620, 3212, 3319, 3433, 3434, 3435; Brenckle, Fungi Dak. 332a; Ellis & Ev. Fungi Columb. 1292.

208. *Gymnosporangium corniculans*.

Add the host, under Malaceae: *Amelanchier alnifolia* Nutt., Saskatchewan.

Add the exsiccati: Barth. Fungi Columb. 1827.

208. *Gymnosporangium floriforme*.

Add the exsiccati: Barth. N. Am. Ured. 2721.

209. *Gymnosporangium Juniperi-virginianae*.

Add the host, under Juniperaceae: *Juniperus scopulorum* Sarg. (*Sabina scopulorum* Rydb.), Colorado, Nebraska.

Add the illustrations: Rep. Comm. Agr. U. S. 1888: Veg. Path. pl. 11, 12; Bull. Ala. Exp. Sta. 132: pl. 2, f. 3, 4; Ann. Rep. Neb. Exp. Sta. 22: Heald pl. 1-9.

Add the exsiccati: Barth. Fungi Columb. 3629, 4540, 4631, 4823, 5026; Barth. N. Am. Ured. 212, 310, 509, 607, 608, 1115, 1612, 3318; Brenckle, Fungi Dak. 358; Ellis, N. Am. Fungi 1086d; Thaxter, Rel. Farl. 226; Seym. & Earle, Econ. Fungi 226a, b, 227b; Sydow, Ured. 2438.

211. **ERIOSPORANGIUM.**

217. **ARGOMYCES.**

219. **POLIOMA.**

219. **NIGREDO.**

The last synonym should read: *Puccinella* Fuckel, Jahrb. Ver. Nat. Nass. 15: 18. 1861.

Add the synonyms: *Nielsenia* Sydow, Ann. Myc. 19: 171. 1921. *Ontoteliium* Sydow, Ann. Myc. 19: 174. 1921. *Capitularia* Sydow, Ann. Myc. 20: 123. 1922.

220. In the aecial key.

Replace line 5 by:

Host belonging to family Euphorbiaceae.

Aeciospore-wall thin, 1 μ .

Aeciospore-wall thicker, 1-2 μ .

69. *N. prominens*.

69a. *N. dictyosperma*.

In line 19, for "*Lilii*" read "*Holwayi*."

Insert after line 19:

Host belonging to family Amaryllidaceae.

40a. *N. affinis*.

Insert after line 20:

Host belonging to family Loranthaceae.

Aeciospores ellipsoid (18-23 \times 24-27 μ).

Aeciospores oblong (23-27 \times 26-35 μ).

42a. *N. ornatispes*.

42b. *N. socia*.

Replace line 22 by:

Aeciospores small, mostly under $20\ \mu$ in diameter.
Aeciospore-wall $1\ \mu$ thick.
Aeciospore-wall $1-1.5\ \mu$ thick.

43. *N. Polygoni*.
43a. *N. fuscata*.

Replace line 24 by:

Host belonging to family Chenopodiaceae.
Aeciospores globose ($19-24 \times 23-26\ \mu$).
Aeciospores ellipsoid ($18-20 \times 24-27\ \mu$).

45. *N. Betae*.
45a. *N. Chenopodii-fruticosi*.

Replace line 25 by:

Host belonging to family Caryophyllaceae.
Aecia associated with smooth teliospores.
Aecia associated with verrucose teliospores.

48. *N. Silenes*.
48a. *N. Suksdorfii*.
48b. *N. bifrons*.

Host belonging to family Ranunculaceae.

Insert after line 36:

Host belonging to family Geraniaceae.

67a. *N. Geranii*.

Insert after line 37:

Host belonging to family Euphorbiaceae.

69b. *N. Janiphae*.

Replace line 39 by:

Host belonging to family Armeriaceae.
Aeciospores $18-23 \times 20-28\ \mu$.
Aeciospores $16-20 \times 18-26\ \mu$.

73. *N. Limonii*.
73a. *N. Armeriae*.

Replace lines 44 and 45 by:

Host belonging to genus Salmea.
Host belonging to genus Senecio.
Host belonging to genus Leucosyris.
Host belonging to genus Polymnia.
Host belonging to genus Melanthera.
Peridium cupulate.
Peridium rudimentary.
Host belonging to genus Perymenium or Zexmenia.

81a. *N. Salmeae*.
81b. *N. senecionicola*.
81c. *N. compacta*.
81d. *N. Polymniae*.
82. *N. Martinii*.
82a. *N. columbiana*.
83. *N. cucullata*.

Insert after line 47:

Host belonging to family Alliaceae.
Aeciospores $20-24\ \mu$ in greatest diameter.
Aeciospores $21-26\ \mu$ in greatest diameter.

10. *N. Sporoboli*.
14. *N. Hordei*.

Replace line 50 by:

Host belonging to family Ranunculaceae.
With *Alopecurus* as alternate host.
With *Poa* as alternate host.
With *Dactylis* as alternate host.
Host belonging to family Euphorbiaceae.
Host belonging to genus *Croton*, *Crotonopsis*, or *Stillingia*.
Host belonging to genus *Tithymalus*.

12. *N. Alopecuri*.
16. *N. Poae*.
16a. *N. Dactylidis*.
4. *N. graminicola*.
56. *N. occidentalis*.

Insert after line 57:

Host belonging to family Rubiaceae.

7. *N. seditiosa*.

Insert after line 59:

Host belonging to genus *Eupatorium* or *Stevia*.

18. *N. Aegopogonis*.

221. In the key.

In line 4, for "major" read "ignobilis."

Replace line 5 by:

Urediniospore-wall verrucose.
Urediniospore-pores scattered.
Urediniospore-pores equatorial.

7. *N. seditiosa*.
7b. *N. Archeriana*.

Replace lines 7 and 8 by:

Teliospore-wall slightly thicker above.
Teliospore-wall much thicker above.

5. *N. leptoderma*.

- In line 13, for "*Sporoboli*" read "*aliicola*."
 Replace lines 24 and 25 by:
 Teliospore-wall chestnut-brown; pedicel colorless.
 Teliospores 26-32 μ long. 14. *N. hordeina*.
 Teliospores 29-40 μ long. 14a. *N. Beckmanniae*.
- Replace lines 28 and 29 by:
 Teliospore-wall light golden-brown; pedicel as long as spore or less.
 Host belonging to genus *Poa*. 16. *N. Poae*.
 Host belonging to genus *Dactylis*. 16a. *N. Dactylidis*.
- Replace lines 33 and 34 by:
 Teliospore-wall thin (1-1.5 μ).
 Teliospore-wall uniformly thin. 12a. *N. Jacksonii*.
 Teliospore-wall much thicker above (5-7 μ). 18. *N. Aegopogonis*.
- Replace line 40 by:
 Teliospore-wall evenly thick.
 Urediniospore-wall golden-yellow. 7a. *N. Aristidae*.
 Urediniospore-wall dark cinnamon-brown. 15. *N. mystica*.
- In line 71, for "*Lilii*" read "*Hokwayi*."
 Insert after line 71:
 Host belonging to family Amaryllidaceae. 40a. *N. affinis*.
 Insert after line 77:
 Host belonging to family Loranthaceae.
 Urediniospores ellipsoid, 26-33 μ long. 42a. *N. ornatipes*.
 Urediniospores ellipsoid, 35-50 μ long. 42c. *N. euphlebica*.
 Urediniospores mostly fusiform, 37-55 μ long. 42b. *N. socia*.
222. In the key.
 Replace line 1 by:
 Urediniospores verrucose; pores 4, equatorial.
 Teliospores smooth. 43. *N. Polygoni*.
 Teliospores striately verrucose. 43a. *N. Rickeriana*.
- Replace line 3 by:
 Host belonging to family Chenopodiaceae.
 Teliospore-pedicel shorter than spore, deciduous. 45. *N. Betae*.
 Teliospore-pedicel twice length of spore, persistent. 45a. *N. Chenopodii-fruticosi*.
- Replace line 6 by:
 Teliospore-wall slightly or not thickened above; pedicel fragile.
 Urediniospore-wall thick (2.5-3 μ). 47. *N. caryophyllina*.
 Urediniospore-wall thin (1.5-2 μ).
 Urediniospore-wall echinulate. 47a. *N. verruculosa*.
 Urediniospore-wall verrucose. 48a. *N. Suksdorfii*.
- Insert after line 7:
 Host belonging to family Ranunculaceae. 48b. *N. bifrons*.
- Insert after line 33:
 Teliospores striately verrucose. 58a. *N. decorata*.
- Insert in line 45, after "equatorial": "or superequatorial."
 In line 50, for "pores 3" read "pores 2."
 In line 51, for "pores 4" read "pores 3 (or 4)," and for "*Dolichi*" read "*Dolicholi*."
 Insert after line 51:
 Host belonging to family Geraniaceae. 67a. *N. Geranii*.
- Replace line 53 by:
 Host belonging to family Euphorbiaceae.
 Teliospore-wall solid.
 Teliospore-wall thin, moderately verrucose. 69. *N. prominens*.
 Teliospore-wall thick, coarsely verrucose. 69a. *N. dictyosperma*.
 Teliospore-wall laminate, thick.
 Pedicel with small collar next to spore. 69b. *N. Janiphae*.
 Pedicel strongly bulbous next to spore. 69c. *N. globosa*.

Replace line 57 by:

Host belonging to family Armeriaceae.

Telia compact; pedicel of teliospore persistent.

Telia pulverulent; pedicel of teliospore deciduous.

73. *N. Limonii*.

73a. *N. Armeriae*.

Insert after line 68:

Teliospore-wall smooth.

Telia pulvinate; pedicel of teliospore persistent.

Teliospores large, 30–42 μ long.

Teliospores smaller, 26–36 μ long.

Urediniospores globoid, 21–26 μ in diameter.

Urediniospores ellipsoid, 26–28 μ long.

Telia pulverulent; pedicel of teliospore deciduous.

Teliospores large, 18–23 \times 35–50 μ .

Teliospores smaller, 12–20 \times 22–34 μ .

81a. *N. compacta*.

81b. *N. Polymniae*.

81c. *N. senecionicola*.

81d. *N. Salmeae*.

82a. *N. columbiana*.

Teliospore-wall verrucose.

222. *Nigredo Sparganii*.

Add the exsiccati: Barth. Fungi Columb. 3896; Barth. N. Am. Ured. 998.

223. *Nigredo pedatata*.

Under Violaceae, change the locality for *Viola lanceolata* L. from Delaware to New Jersey.

Add the hosts, under Violaceae:

Viola cucullata Ait., West Virginia.

Viola papilionacea Pursh, North Carolina.

Viola striata Ait., North Carolina.

Viola tricolor L., Connecticut.

Add the hosts, under Poaceae:

Andropogon scoparius Michx. (*Schizachyrium scoparium* Nash), New Jersey, North Carolina.

Andropogon ternarius Michx. (*A. argyraeus* Schult.), Florida.

Insert: ILLUSTRATION: Sydow, Monog. Ured. 2: pl. 11, f. 152.

Add the exsiccati: Barth. N. Am. Ured. 1789, 2580, 2994.

224. *Nigredo Clignyi*.

Add the synonym: *Puccinella Clignyi* Sydow, Ann. Myc. 20: 123. 1922.

Add the host: *Andropogon brevifolius* Sw., Cuba.

Add: ILLUSTRATION: Sydow, Monog. Ured. 2: pl. 12, f. 154.

224. *Nigredo graminicola*.

Add the synonyms: *Aecidium crotonopsidis* Burrill, Bot. Gaz. 9: 190. 1884. *Aecidium splendens* Wint. in Rab.-Wint. Fungi Eur. 3224. 1885. *Aecidium Stillingiae* Tracy & Earle, Bull. Torrey Club 26: 493. 1899. *Puccinella graminicola* Sydow, Ann. Myc. 20: 123. 1922.

Substitute in place of the line pertaining to pycnia and aecia:

O. Pycnia chiefly epiphyllous, in small groups, on discolored spots, inconspicuous, honey-yellow becoming brownish, in section globoid or flask-shaped, 80–100 μ broad by 100–130 μ high; ostiolar filaments up to 50 μ long.

I. Aecia hypophyllous, numerous, aggregate and often concentric in groups 5–15 mm. across, on much larger discolored spots, short-cylindric or cupulate, 0.3–0.4 mm. in diameter; peridium whitish, the margin erose; peridial cells short-rhomboidal, 15–18 by 20–28 μ , mainly abutted, slightly overlapping on the outer border, the outer wall 6–9 μ thick, faintly transverse-striate, smooth, the inner wall much thinner, 3–4 μ , strongly verrucose; aeciospores globoid, or broadly ellipsoid, 16–20 by 20–26 μ ; wall colorless, thin, 1.5–2 μ , finely verrucose.

ON EUPHORBIACEAE:

Croton monanthogynus Michx., Illinois, Missouri.

Crotonopsis linearis Michx., Illinois.

Sebastiania ligustrina (Michx.) Muell.-Arg. (*Stillingia ligustrina* Michx.), Mississippi.

Stillingia angustifolia (Torr.) S. Wats., Florida.

Stillingia sylvatica L., Oklahoma.

Add the host, under Poaceae: *Panicum altum* Hitchc. & Chase, Florida.

Add the exsiccati: Barth. Fungi Columb. 3993; Barth. N. Am. Ured. 2092; Ellis & Ev. Fungi Columb. 547; Ellis & Ev. N. Am. Fungi 1824; Rab.-Wint. Fungi Eur. 3224; Roum. Fungi Gall. 3860.

224. **Nigredo leptoderma.**

Add the synonyms: *Uredo Panici* Arth. Bull. Torrey Club 29: 231. 1902. Not *Nigredo Panici* Arth. 1906. *Uredo Setariae-italicae* Dietel, Bot. Jahrb. 32: 632. 1903. *Uromyces Setariae-italicae* Yoshino, Bot. Mag. Tokyo 20: 247. 1906. *Uromyces nitro-yensis* Rangel, Arch. Mus. Nac. Rio de Janeiro 18: 160. 1916. *Uredo Panici-maximi* Rangel, Arch. Mus. Nac. Rio de Janeiro 18: 160. 1916.

Add the hosts:

Lasiacis divaricata (L.) Hitchc. (*Panicum divaricatum* L.), Mona Island; Porto Rico.
Lasiacis ligulata Hitchc. & Chase, Porto Rico.
Lasiacis ruscifolia (H.B.K.) Hitchc. (*Panicum Liebmannianum* Fourn.), Guatemala.
Lasiacis Sloanei (Griseb.) Hitchc. (*Panicum Sloanei* Griseb.), Porto Rico.
Lasiacis sorghoidea (Desv.) Hitchc. & Chase (*Panicum sorghoideum* Desv., *P. lanatum* Sw., *Lasiacis Swartziana* Hitchc.), Jamaica, Porto Rico, St. Croix.
Panicum amarulum Hitchc. & Chase, Florida, Virginia.
Panicum amarum Ell., Florida.
Panicum fasciculatum Sw., Panama.
Panicum maximum Jacq., Florida.
Panicum parvifolium Lam., Porto Rico.

Insert: ILLUSTRATION: Arch. Mus. Nac. Rio de Janeiro 18: pl. 5, f. 3-15, pl. 6, f. 3, 4.

Add the exsiccati: Barth. N. Am. Ured. 857.

225. **Nigredo major.**

Reduce this name to synonymy, and substitute: **Nigredo ignobilis** (Sydow) Arthur.

Add the synonyms: *Uredo ignobilis* Sydow, Ann. Myc. 4: 444. 1906. *Uromyces ignobilis* Arth. Mycologia 7: 181. 1915.

Add the hosts:

Leptochloa domingensis (Jacq.) Trin., Cuba.
Muhlenbergia Reverchonii Vasey, Texas.
Sporobolus indicus (L.) R. Br., Panama; Cuba; Porto Rico.
Sporobolus virginicus (L.) Kunth, Porto Rico.

Change the type locality to read: Pusa, India, on *Sporobolus diandrus*.

Change the distribution to read: Southern Texas to Panama, and in the West Indies; also in South America and India.

225. **Nigredo seditiosa.**

Add the synonym: *?Accidium oldenlandianum* Ellis & Tracy, Jour. Myc. 7: 43. 1891.

Add the hosts, under Plantaginaceae:

Plantago heterophylla Nutt., Oklahoma.
Plantago rhodosperma Decaisne, Texas.

Insert after the hosts on Plantaginaceae:

ON RUBIACEAE:

?Houstonia minima Beck, Texas.
?Houstonia minor (Michx.) Britton (*H. patens* Ell.), Alabama, Texas.
?Houstonia purpurea L., Mississippi.

Add the hosts, under Poaceae:

Aristida Curtisii (A. Gray) Nash, Oklahoma.
Aristida desmantha Trin. & Rupr., Oklahoma.
Aristida longespicca Poir. (*A. gracilis* Ell.), Arkansas, Indiana, New Jersey.
Aristida longiseta Steud., Colorado.
Aristida micrantha (Vasey) Nash, Texas.
Aristida ramosissima Engelm., Indiana.
Aristida tuberculosa Nutt., New York.

Add the illustration: Sydow, Monog. Ured. 2: pl. 12, f. 157.

Add the exsiccati: Barth. Fungi Columb. 4196, 4596; Barth. N. Am. Ured. 995, 996, 1797, 3396.

226. Insert:

7a. **Nigredo Aristidae** (Ellis & Ev.) Arthur.

Uromyces Aristidae Ellis & Ev. Jour. Myc. 3: 56. 1887.

Puccinia ? *Scribneriana* Arth. Bull. Torrey Club 46: 109. 1919.

O and I. Pycnia and aecia unknown.

II. Uredinia epiphyllous, intercostal, crowded and sometimes confluent, linear, 0.5–2 mm. long, pulverulent, chestnut-brown, ruptured epidermis inconspicuous; paraphyses numerous, erect or variously bent and incurved, capitate or clavate-capitate, with narrow neck and linear pedicel, 15–24 by 39–64 μ , the wall smooth, golden-yellow, 3–6 μ thick at apex, about 2 μ thick below; urediniospores globoid or ellipsoid, 23–29 by 27–35 μ ; wall dark cinnamon-brown, thick, 3–3.5 μ , moderately and rather strongly verrucose-echinulate, the pores 6–8, scattered.

III. Telia epiphyllous, intercostal, linear, 2–4 mm. long, early naked, blackish-brown, ruptured epidermis inconspicuous; teliospores globoid or broadly obovoid, 18–26 by 23–26 μ , rounded above and usually below; wall chestnut-brown, 2–3 μ thick, thicker above, 5–7 μ , at first smooth, at maturity becoming tessellate or even tuberculate above; pedicel slender, colorless, thrice length of spore or longer.

ON POACEAE:

Aristida arizonica Vasey, New Mexico.

TYPE LOCALITY: [Sante F  ], New Mexico, on *Aristida* [arizonica].

DISTRIBUTION: Northern New Mexico.

7b. **Nigredo Archeriana** (Arth. & Fromme) Arthur.

Uromyces Archerianus Arth. & Fromme, Torrey 15: 261. 1915.

O and I. Pycnia and aecia unknown.

II. Uredinia not seen; urediniospores from telial sori globoid or broadly ellipsoid, 19–23 by 21–26 μ ; wall golden- to cinnamon-brown, moderately thick, 2–3 μ , finely and inconspicuously verrucose, the pores usually obscure, 2, equatorial.

III. Telia hypophyllous, prominent, oblong or linear, 0.5–10 mm. or more long, early naked, pulvinate, blackish-brown; teliospores globoid or broadly ellipsoid, 18–26 by 25–32 μ , rounded above and below; wall dark chestnut-brown, 1.5–2 μ thick, much thicker above, 7–9 μ , smooth; pedicel yellowish or colorless, firm, 3–4 μ thick, once to twice length of spore.

ON POACEAE:

Chloris elegans H.B.K., New Mexico.

TYPE LOCALITY: Mesilla Park, New Mexico, on *Chloris elegans*.

DISTRIBUTION: Known only from the type locality.

226. **Nigredo minima**.

Add the synonym: *Puccinella minima* Sydow, Ann. Myc. 20: 123. 1922.

Add the illustration: Sydow, Monog. Ured. 2: pl. 13, f. 166.

226. **Nigredo Halstedii**.

Add the synonyms: *Uromyces ovalis* Dietel, Bot. Jahrb. 37: 97. 1905. *Ontoteliium digitatum* Sydow, Ann. Myc. 19: 174. 1921.

Add the illustrations: Sydow, Monog. Ured. 2: pl. 12, f. 164; Jour. Coll. Agr. Hokkaido Univ. 11: pl. 9, f. 9.

Add the exsiccati: Barth. N. Am. Ured. 1092.

227. **Nigredo Sporoboli**.

Reduce this name to synonymy, and substitute: **Nigredo alliicola** (Wint.) Arthur.

Add the synonyms: *Aecidium alliicolum* Wint. in Rab.-Wint. Fungi Eur. 3317. 1885. *Puccinella Sporoboli* Sydow, Ann. Myc. 20: 123. 1922.

Substitute for the line pertaining to pycnia and aecia:

O. Pycnia amphigenous and caulicolous, scattered among the aecia, numerous, inconspicuous, honey-yellow, globoid or flask-shaped, 60–190 μ broad by 90–150 μ high; ostiolar filaments agglutinate, 30–50 μ long.

I. Aecia amphigenous and caulicolous, in orbicular or elongate groups 5-15 mm. across, cupulate or short-cylindric, small, 0.2-0.4 mm. in diameter; peridium yellowish, the margin erect, erose; peridial cells rhomboidal, 20-24 by 24-30 μ , considerably overlapping, the outer wall colorless, transversely striate, 10-14 μ thick, smooth, the inner wall much thinner, 3-4 μ , closely and coarsely verrucose; aeciospores angularly oblong or broadly ellipsoid, 18-23 by 24-30 μ ; wall colorless, 1-2 μ thick, very finely and obscurely verrucose, appearing smooth when wet.

ON ALLIACEAE:

Allium canadense L., Missouri, Nebraska.
Allium mutabile Michx., Kansas.
Allium reticulatum Don, Kansas, Nebraska, South Dakota.
Allium stellatum Ker, Kansas.

Add the host, under Poaceae: *Sporobolus vaginaeflorus* Torr. (*Vilfa vaginaeflora* Torr.), Kansas.

Change the type locality to read: [Perryville, Missouri], on "*Allium stellatum*," error for *A. canadense*.

Insert: ILLUSTRATION: Sydow, Monog. Ured. 2: pl. 14, f. 174.

Add the exsiccati: Barth. Fungi Columb. 2202, 2401; Barth. N. Am. Ured. 300, 397, 502, 1498, 2700, 3000; Ellis & Ev. Fungi Columb. 1070; Rab.-Wint. Fungi Eur. 3317.

227. **Nigredo Eragrostidis.**

Add the synonyms: *Nielsenia Eragrostidis* Sydow, Ann. Myc. 19: 171. 1921. *Puccinella Eragrostidis* Sydow, Ann. Myc. 20: 123. 1922.

Add the hosts:

Eragrostis capillaris Nees, Texas.
Eragrostis ciliaris (L.) Link, Porto Rico.
Eragrostis lugens Nees, Arizona.
Eragrostis major Host (*E. megastachya* Link), Mexico (state).

Insert: ILLUSTRATION: Sydow, Monog. Ured. 2: pl. 12, f. 161.

Add the exsiccati: Barth. N. Am. Ured. 384, 1589.

227. **Nigredo Alopecuri.**

Add the synonym: *Nielsenia Alopecuri* Sydow, Ann. Myc. 19: 171. 1921.

Substitute for the line pertaining to pycnia and aecia:

O. Pycnia chiefly epiphyllous, few, punctiform, inconspicuous, honey-yellow, globoid, 75-125 μ in diameter; ostiolar filaments short.

I. Aecia chiefly hypophyllous, in more or less circular groups 3-8 mm. across, on somewhat discolored areas, cupulate, small, 0.2-0.3 mm. in diameter; peridium yellowish, the margin erose; peridial cells rhomboidal, 18-21 by 16-35 μ , abutted or slightly overlapping, the outer wall 6-8 μ thick, smooth, the inner wall 2-4 μ thick, verrucose; aeciospores oblong or ellipsoid, 13-18 by 19-23 μ ; wall colorless, thin, 1 μ , very closely and finely verrucose.

ON RANUNCULACEAE:

Ranunculus Macounii Britton, Manitoba, Saskatchewan.
Ranunculus scleratus L. (*R. eremogenes* Greene), Colorado; Manitoba.

Add the illustration: Jour. Coll. Agr. Hokkaido Univ. 11: pl. 9, f. 8.

Add the exsiccati: Barth. Fungi Columb. 4885; Barth. N. Am. Ured. 1583, 1684.

228. Insert:

12a. **Nigredo Jacksonii** (Arth. & Fromme) Arthur.

Uromyces Jacksonii Arth. & Fromme, Torreyia 15: 260. 1915.

O and I. Pycnia and aecia unknown.

II. Uredinia amphigenous and caulicolous, scattered, bullate, oblong or linear, 0.3-1 mm. long, tardily dehiscent by slit in the epidermis, yellow; paraphyses none; urediniospores globoid or broadly ellipsoid, 21-27 by 24-30 μ ; wall pale-yellow, moderately thin, 1.5-2 μ , finely echinulate, the pores 6-8, scattered.

III. Telia similar to the uredinia, long covered by the epidermis, blackish-brown; teliospores angularly globose or ellipsoid, 19–25 by 20–30 μ ; wall light chestnut-brown, uniformly 1.5 μ thick, smooth; pedicel colorless, about half length of spore, delicate.

ON POACEAE:

Agrostis alba maritima (Lam.) G. Meyer (*A. maritima* Lam.), Oregon.

Agrostis Hallii Vasey, Oregon.

Agrostis pallens Trin., California.

Deschampsia caespitosa (L.) Beauv. (*Aira caespitosa* L., *A. alpina* L.), California, Oregon.

Deschampsia elongata (Hook.) Munro (*Aira elongata* Hook.), Oregon, Washington.

Hordeum jubatum L., Oregon.

Hordeum nodosum L., California, Oregon, Washington.

Scribneria Bolanderi (Thurb.) Hack., Oregon.

TYPE LOCALITY: Corvallis, Oregon, on *Deschampsia elongata*.

DISTRIBUTION: Pacific coast from northern Washington to central California.

EXSICCATI: Barth. Fungi Columb. 4460, 4495, 4992; Barth. N. Am. Ured. 1237, 1989, 3389.

228. *Nigredo amphidyma*.

Insert: ILLUSTRATION: Sydow, Monog. Ured. 2: pl. 12, f. 163.

228. *Nigredo Hordei*.

Reduce this name to synonymy, and substitute: *Nigredo hordeina* Arthur.

Insert, after the first synonym: Not *U. Hordei* Nielsen. 1875.

Add the synonym: *Nielsenia Hordei* Sydow, Ann. Myc. 19: 171. 1921.

Replace the line pertaining to pycnia and aecia by:

O. Pycnia amphigenous, in small groups or among the aecia, honey-yellow, becoming brownish, globose in section, 90–100 μ in diameter; ostiolar filaments short.

I. Aecia amphigenous, in circular or elliptic groups 2–5 mm. across, on pale unthickened spots, cupulate, about 0.5 mm. in diameter, the overarching epidermis prominent; peridium colorless, fragile, the margin eroded and slightly recurved; peridial cells oblong or rhomboidal, 16–23 by 26–34 μ , somewhat overlapping, the outer wall thick, 6–8 μ , transversely striate, smooth, the inner wall thinner, 3–4 μ , verrucose; aeciospores angularly globose or ellipsoid, 19–21 by 21–26 μ ; wall pale-yellow or colorless, 1.5–2.5 μ thick, closely and minutely verrucose.

ON ALLIACEAE:

Nothoscordium bivalve (L.) Britton (*Ornithogalum bivalve* L., *Allium striatum* Jacq.), Oklahoma, Texas.

Omit from the localities of hosts under Poaceae "California" after *Hordeum nodosum* and insert "Colorado, Utah."

Add the exsiccati: Barth. N. Am. Ured. 387, 1693, 1889, 2191, 2491, 2992, 3285, 3385.

228. Insert:

14a. *Nigredo Beckmanniae* (H. S. Jackson) Arthur.

Uromyces Beckmanniae H. S. Jackson, Brooklyn Bot. Gard. Mem. 1: 274. 1918.

O and I. Pycnia and aecia unknown.

II. Uredinia amphigenous, scattered, elliptic, 0.5–0.8 mm. long, soon naked, pulverulent, cinnamon-brown, ruptured epidermis noticeable; urediniospores globose or broadly ellipsoid, 19–24 by 23–29 μ ; wall colorless or pale-yellow, 2–2.5 μ thick, finely verrucose-echinulate, the pores 8–10, scattered.

III. Telia amphigenous and caulicolous, scattered or crowded, oblong, 0.4–.07 mm. across, often confluent to form crusts or lines, tardily naked, blackish-brown; teliospores obovoid or ellipsoid, angular, 20–26 by 29–40 μ , rounded or angular above, narrowed below; wall chestnut-brown, 1–2 μ thick, 3–6 μ above, smooth but showing distinct longitudinal lines; pedicel colorless or slightly tinted next to spore, about as long as spore, usually breaking away.

ON POACEAE:

Beckmannia erucaeformis (L.) Host, Oregon.

TYPE LOCALITY: Oak Creek (near Corvallis), Oregon, on *Beckmannia erucaeformis*.

DISTRIBUTION: Western Oregon.

228. *Nigredo mystica*.

Change the description of the teliospore-wall from "finely and inconspicuously verrucose" to "smooth, appearing granular when dry."

Add the host, under Poaceae: *Hordeum nodosum* L., Utah, Washington.

Add the exsiccati: Barth. Fungi Columb. 4191, 4192; Barth. N. Am. Ured. 693, 793, 1494.

229. *Nigredo Poae*.

Add the synonym: *Nielsenia Poae* Sydow, Ann. Myc. 19: 171. 1921.

Add the host: *Poa pratensis* L., Vermont; Alberta.

Add the illustration: Grove, Brit. Rust. Fungi f. 78, 79; Fl. Ibér. Ured. 2: f. 3.

229. Insert:

16a. *Nigredo Dactylidis* (G. Otth) Arthur.

Uromyces Dactylidis G. Otth, Mitt. Nat. Ges. Bern 1861: 85. 1861.

Uromyces graminum Cooke, Handb. Brit. Fungi 520. 1871.

O. Pycnia chiefly epiphyllous, few, in small groups, on yellowish spots, honey-yellow, flattened-globose, 100 μ high by 130 μ wide; ostiolar filaments 60–70 μ long, agglutinate to form a short column.

I. Aecia hypophyllous, gregarious, in crowded groups 1–3 mm. across, on somewhat larger discolored spots, cupulate, short, 0.2–0.4 mm. in diameter; peridium whitish, the margin somewhat recurved, finely lacerate; peridial cells rhombic or rhomboidal, 20–22 by 24–30 μ , abutted or slightly overlapping, the outer wall 7–10 μ thick, smooth, the inner wall 3–5 μ , closely and finely verrucose; aeciospores oblong or broadly ellipsoid, 15–18 by 20–24 μ ; wall colorless, thin, 1 μ , very minutely and obscurely verrucose.

ON RANUNCULACEAE:

Ranunculus spp. in Europe, not yet found in North America.

II. Uredinia amphigenous, scattered, small, oval or oblong, 0.1–0.3 mm. long, rather tardily naked, pulverulent, golden-brown, ruptured epidermis noticeable; urediniospores globose or broadly ellipsoid, 20–26 by 24–29 μ ; wall yellowish, moderately thin, 1.5–2 μ , finely and moderately echinulate, the pores 6–8, scattered.

III. Telia chiefly hypophyllous, scattered or somewhat in lines, oblong or linear, small, 0.2–1 mm. long, long covered by the epidermis, blackish; teliospores obovoid, 15–20 by 20–30 μ , rounded above, somewhat narrowed below; wall golden-brown, 1–1.5 μ thick, slightly thicker above, 2–3 μ , smooth; pedicel golden-yellow, as long as spore or less.

Recent studies indicate that *Nigredo Poae* (page 229), *N. Alopecuri* (page 227), and *N. Dactylidis* are better considered as races of one variable species, which is correlated with *Dicaeoma Clematidis* (DC.) Arth. (page 333), and that they should eventually be united with it under one name. The three *Nigredo* races are not combined at this time partly to avoid inconvenient changes and partly to further emphasize the character of their relationship.

ON POACEAE:

Dactylis glomerata L., North Carolina, Virginia.

TYPE LOCALITY: [Switzerland,] on *Dactylis glomerata*.

DISTRIBUTION: Two localities in the Blue Ridge Mountains; also in Europe.

ILLUSTRATION: Grove, Brit. Rust. Fungi f. 77; Fl. Ibér. Ured. 2: f. 2.

229. *Nigredo Epicampis*.

Add the host: *Epicampes rigens* Benth., Arizona.

Add the illustration: Sydow, Monog. Ured. 2: pl. 12, f. 160.

230. *Nigredo Aegopogonis*.

Add the synonyms: *Aecidium roseum* Dietel & Holway, Bot. Gaz. 24: 31. 1897.

Puccinella Aegopogonis Sydow, Ann. Myc. 20: 123. 1922.

Replace the line pertaining to pycnia and aecia by:

O. Pycnia epiphyllous, numerous, crowded in groups 0.5–2 mm. across, on yellow spots with roseate border 5–20 mm. across, conspicuous, golden-yellow, becoming brownish, globose or flask-shaped in section, 120–140 μ broad; ostiolar filaments 40 μ long or more.

I. Aecia hypophyllous, in irregular groups 2-10 mm. across, opposite the pycnia, often in circles, cupulate, 0.1-0.2 mm. in diameter; peridium light-yellow, the margin somewhat recurved, erose; peridial cells rhombic or rhomboidal, 19-24 by 30-42 μ , usually seen in face view, overlapping, the outer wall transversely striate, 5-7 μ thick, smooth, the inner wall thinner, 3-4 μ thick, finely and closely verrucose; aeciospores globose or ellipsoid, 16-26 by 22-33 μ ; wall colorless, 1.5-2 μ thick, much thicker above, 5-8 μ , closely and finely verrucose.

ON CARDUACEAE:

- Eupatorium deltoideum* Jacq., Oaxaca.
Eupatorium glabratum H.B.K., Hidalgo, Mexico (state).
Eupatorium lubiflorum Benth., Michoacan.
Eupatorium sp., Jalisco, Morelos.
Stevia rhombifolia H.B.K., Hidalgo, Oaxaca.

Add: ILLUSTRATION: Sydow, Monog. Ured. 2: pl. 12, f. 151. EXSICCATI: Barth. N. Am. Ured. 1366.

230. Nigredo Peckiana.

Add the synonym: *Puccinella Peckiana* Sydow, Ann. Myc. 20: 123. 1922.

Substitute for the host, under Chenopodiaceae, "*Salicornia ambigua*": *Salicornia pacifica* Standley (*S. ambigua* Michx.), California, Washington; British Columbia.

Insert: ILLUSTRATION: Sydow, Monog. Ured. 2: pl. 12, f. 161.

Add the exsiccati: Barth. Fungi Columb. 4497; Barth. N. Am. Ured. 796, 1995, 2496, 3096.

231. Nigredo Polemonii.

Add the synonyms: *Aecidium magnatum* Arth. Bull. Torrey Club 28: 664. 1901. *Uromyces Polemonii* Barth. N. Am. Ured. 597. 1913. *Uromyces Steironematis* Arth. Mycologia 9: 311. 1917. *Uromyces magnatus* Arth. Mycologia 9: 311. 1917. *Uromyces acuminatus magnatus* J. J. Davis, Trans. Wis. Acad. 7: 410. 1922. *Uromyces acuminatus Steironematis* J. J. Davis, Trans. Wis. Acad. 7: 410. 1922. *Uromyces acuminatus Polemonii* J. J. Davis, Trans. Wis. Acad. 7: 411. 1922.

Insert after the description of the aecia the hosts:

ON CONVALLARIACEAE:

- Polygonatum commutatum* (R. & S.) Dietr. (*P. giganteum* Dietr., *Salomonina commutata* Britton), Illinois, Iowa, Minnesota, Nebraska, North Dakota, South Dakota.
Vagnera racemosa (L.) Morong (*Smilacina racemosa* Desf.), Colorado, Minnesota, Wisconsin.
Vagnera stellata (L.) Morong (*Smilacina stellata* Desf.), Colorado, Illinois, Indiana, Montana, Nebraska, New York, North Dakota, South Dakota.

Add the host, under Caryophyllaceae: *Tissa salina* (Presl) Greene (*T. marina* Britton, *Spergularia salina* Presl), California.

Add the hosts, under Primulaceae:

- Dodecaltheon Meadia* L., Nebraska.
Dodecaltheon thornense Lunell, North Dakota.

Add the hosts, under Polemoniaceae:

- Gilia spicata* Nutt., Colorado.
Phlox maculata L., Indiana.

Add the illustration: Sydow, Monog. Ured. 2: pl. 14, f. 172.

Add the exsiccati: Barth. Fungi Columb. 3995, 4095, 4162, 4393, 4467, 4764; Barth. N. Am. Ured. 284, 597, 661, 797, 1074, 1170, 1269, 1294, 2293, 2695, 2696; Brenckle, Fungi Dak. 1, 226, 259; D. Griff. W. Am. Fungi 243; Thaxter, Rel. Parl. 300; Sydow, Ured. 2298, 2401.

232. Nigredo Eleocharidis.

Add the exsiccati: Barth. N. Am. Ured. 784, 885, 985; Vesterg. Micr. Rar. Sci. 1661.

232. Nigredo Rhynchosporae.

Change the second synonym to read: *Uromyces rhynchosporicola* P. Henn.

Omit from the hosts the two following names (assigned to *Dicaeoma angustatoides*, page 352): *Rynchospora aurea* and *R. cyperoides*; also omit the following name (assigned to *Dicaeoma consobrinum*, page 352): *Rynchospora polyphylla*.

Add the hosts:

Rynchospora gracilentia A. Gray, District of Columbia.
Rynchospora setacea (Berg.) Boeckl., Porto Rico.

Add to the distribution: "also in South America."

Add the illustration: Jour. Coll. Agr. Hokkaido Univ. 11: pl. 9, f. 6.

Add the exsiccati: Barth. N. Am. Ured. 2396, 2596, 2699; Thaxter, Rel. Farl. 298; Sydow, Ured. 2405.

233. **Nigredo Scleriae.**

Add the hosts:

Scleria canescens Boeckl., Porto Rico.
Scleria lithosperma (L.) Sw., Cuba.

233. **Nigredo Scirpi.**

Add the synonyms: *Uromyces* ? *americanus* Speg. Anal. Mus. Nac. Buenos Aires 19: 310. 1909. *Aecidium Hydrocotylinum* Speg. Anal. Mus. Nac. Buenos Aires 19: 321. 1909.

Add the hosts, under Ammiaceae:

Hydrocotyle australis Coult. & Rose, Texas.
Hydrocotyle umbellata L., Delaware, Florida, Massachusetts.
Hydrocotyle verticillata Thunb. (*H. interrupta* Muhl.), Louisiana.

Omit from the hosts all pertaining to *Glaux maritima* (now assigned to *Dicaeoma Distichlidis*, page 317).

Add the hosts, under Cyperaceae:

Scirpus californicus (C. Meyer) Britton, California.
Scirpus Fernaldi Bicknell, New York.

Insert: ILLUSTRATION: Grove, Brit. Rust Fungi f. 76; Fl. Ibér. Ured. 2: f. 1.

Add the exsiccati: Barth. Fungi Columb. 3996, 4195, 4997; Barth. N. Am. Ured. 498, 896, 897, 1796, 1898, 3098, 3499; Brenckle, Fungi Dak. 179, 374; Thaxter, Rel. Farl. 299; Sydow, Ured. 2505; Vesterg. Micr. Rar. Sel. 1587.

234. **Nigredo minuta.**

Add the hosts:

Carex intumescens Rudge, Wisconsin.
Carex muskingumensis Schw., Michigan.

Insert: ILLUSTRATION: Sydow, Monog. Ured. 2: pl. 11, f. 148.

Add the exsiccati: Barth. N. Am. Ured. 893.

234. **Nigredo valens.**

Add the synonym: *Puccinella valens* Sydow, Ann. Myc. 20: 123. 1922.

235. **Nigredo perigynia.**

Add the synonyms: *Puccinella perigynia* Sydow, Ann. Myc. 20: 123. 1922. *Uromyces perigynius altiporus* J. J. Davis, Trans. Wis. Acad. 21: 299. 1924.

In the description of the pycnia, for "globoid, small, 60-80 μ in diameter," read: flattened-globoid, 110-150 μ broad by 80-100 μ high.

Add the hosts, under Carduaceae:

Ratibida columnifera (Nutt.) Wooton & Standley (*R. columnaris* D. Don, *Lepachys columnaris* T. & G.), North Dakota.
Rudbeckia laciniata L. (*R. ampla* A. Nelson), Indiana, Iowa, Missouri, Montana, Nebraska, North Dakota, Pennsylvania, South Dakota, Wisconsin, Wyoming.
Rudbeckia triloba L., Delaware.

Append to the description of the uredinia "or sometimes subpolar."

Omit, under Cyperaceae, after *Carex deflexa*: Indiana, Massachusetts, Nova Scotia.

Add the hosts, under Cyperaceae:

- Carex abbreviata* Prescott, North Dakota.
Carex arctata Boott, New York.
Carex Asa-Grayi L. H. Bailey (*C. Grayi* Carey), Indiana, Wisconsin.
Carex athrostachya Olney, Oregon, Washington.
Carex communis L. H. Bailey, Maine.
Carex lanuginosa Michx., Pennsylvania.
Carex nigro-marginata Schw., Nova Scotia.
Carex normalis Mackenzie (*C. mirabilis* Dewey), District of Columbia.
Carex pennsylvanica Lam., Maine; Nova Scotia.
Carex sparganoides Muhl., Minnesota.
Carex stipata Muhl., New York.
Carex varia Muhl., Indiana, Maine, Massachusetts, New York, Wisconsin; Nova Scotia.
Carex virescens Muhl., New York.

Insert: ILLUSTRATION: *Rhodora* 12: 125, f. 1.

Add the exsiccati: Barth. N. Am. Ured. 701, 1094; Brenckle, Fungi Dak. 513; Ellis, N. Am. Fungi 1018a; Sydow, Ured. 97.

235. **Nigredo uniporula.**

Add the synonym: *Puccinella uniporula* Sydow, Ann. Myc. 20: 123. 1922.

236. **Nigredo Caladii.**

Add the host: *Arisaema Stewardsonii* Britton, New York.

Add to the line for the type locality: error for *Arum virginicum*.

Add the exsiccati: Barth. Fungi Columb. 3991, 4186, 4296, 4888; Barth. N. Am. Ured. 588, 589, 681, 882, 983, 1090, 1386, 1486, 1487, 1586, 1587, 1687, 1785, 2984; Brenckle, Fungi Dak. 480; Thaxter, Rel. Farl. 288a, b.

237. **Nigredo pyriformis.**

Add the exsiccati: Barth. Fungi Columb. 4096; Barth. N. Am. Ured. 598, 699, 2698.

237. **Nigredo Commelinae.**

Add the synonym: *Uredo Miyochiana* Dietel, in Sydow, Ured. 1348, hyponym. 1899.

Change Florida to Texas after the host *Commelina erecta*, and omit from the hosts: *C. virginica*, and *Commelina* sp.; the localities for the former to be placed after *C. angustifolia*, and for the latter after *C. elegans*.

Add the hosts:

- Commelina longicaulis* Jacq., Costa Rica; Cuba; Jamaica.
Commelinantia Pringlei (S. Wats.) Tharp (*Tradescantia Pringlei* S. Wats.), Nuevo León.
Tradescantia cumanensis Kunth, Guatemala.

238. **Nigredo Pontederiae.**

Insert: ILLUSTRATION: Sydow, Monog. Ured. 2: pl. 11, f. 147.

238. **Nigredo Junci.**

Correct the citations of two of the synonyms to read: *Puccinella truncata* Fuckel, Jahrb. Ver. Nat. Nass. 15: 18. 1861. *Puccinella Junci* Fuckel, Jahrb. Nass. Ver. Nat. 23-24: 60. 1870.

Add the synonyms: *Aecidium Bahiae* Berk. & Curt.; Berk. Grevillea 3: 60. 1874. *Aecidium compositarum Inulae* Rab. Deutschl. Krypt.-Fl. 1: 16. 1844.

Add the hosts, under Carduaceae:

- Arnica cana* Greene, California.
Arnica mollis Hook., Montana.
Arnica stricta A. Nelson, Wyoming.
Aster macrophyllus L., Ontario.
Cirsium foliosum (Hook.) DC., Wyoming.
Cirsium undulatum (Nutt.) Spreng. (*Carduus undulatus* Nutt.), Alberta.
Eriophyllum stachadifolium (Spreng.) Greene (*Bahia stachadifolia* DC.), California.
Grindelia robusta Nutt., California.
Helianthus annuus L., Nebraska.
Helianthus decapetalus L., Nebraska.
Helianthus divaricatus L., New York, Virginia.
Helianthus Maximiliani Schrad., Nebraska, North Dakota.

Helianthus Nuttallii T. & G., Wyoming.
Helianthus occidentalis Riddell, Iowa.
Helianthus Parishii A. Gray, California.
Helianthus petiolaris Nutt., Oklahoma.
Helianthus scaberrimus Ell. (*H. rigidus* Desf.), Nebraska, South Dakota.
Helianthus strumosus L., Illinois, Missouri, Wisconsin.
Helianthus subtuberosus Bourgeau, Alberta.
Helianthus trachelifolius Mill., Kansas.
Helianthus tuberosus L. (*H. tuberosus subcanescens* A. Gray), Nebraska, North Dakota;
 Manitoba.
Heliopsis helianthoides (L.) Sweet (*H. laevis* Pers.), Indiana, Missouri.

Add the hosts, under Juncaceae:

Juncus ater Rydb., Alberta.
Juncus Lescurii elatus S. Wats., California, Oregon.
Juncus Mertensianus Bong., Idaho.
Juncus palens Meyer, California.
Juncus Torreyi Coville (*J. nodosus megacephalus* Torr.), California, Nebraska.
Juncus xiphioides E. Meyer, California.

Add the illustration: Grove, Brit. Rust Fungi f. 75; Fl. Ibér. Ured. 2: f. 4.

Add the exsiccati: Barth. Fungi Columb. 2961, 3759, 3941, 4696, 4993; Barth. N. Am. Ured. 392, 790, 791, 1050, 1291, 1292, 1347, 1493, 1697, 1788, 1990, 2492, 2493, 2694, 3093, 3288, 3494; Brenckle, Fungi Dak. 45a, 350; Rab.-Wint.-Paz. Fungi Eur. 3835a; Sydow, Ured. 1394.

239. *Nigredo Silphii*.

Add the host, under Carduaceae: *Aster macrophyllus* L., Wisconsin.

Add the hosts, under Juncaceae:

Juncus acuminatus Michx., Alabama.
Juncus georgianus Coville, Georgia.
Juncus occidentalis (Coville) Wiegand, Oregon.

Add the exsiccati: Barth. Fungi Columb. 3792; Barth. N. Am. Ured. 599, 898, 997, 1198, 2098, 2199, 2299, 2397, 2499, 2598, 2599, 2799, 2998, 3099, 3500; Thaxter, Rel. Farl. 295; correct Barth. Fungi Columb. "9394" to read 2394.

239. *Nigredo Junci-effusi*.

Add the hosts, under Juncaceae:

Juncus Bolanderi Engelm., Oregon, Washington.
Juncus falcatus E. Meyer, California.
Juncus Mertensianus Bong., Oregon.

Add the exsiccati: Barth. Fungi Columb. 4791, 5095; Barth. N. Am. Ured. 689, 1391, 1595, 1991, 2889; Thaxter, Rel. Farl. 294.

240. *Nigredo Zyadeni*.

Add the hosts:

?*Anticlea chlorantha* (Richards.) Rydb. (*Zyadenus glaucus* Nutt.), Iowa.
Toxicoscordion gramineum Rydb. (*Zyadenus gramineus* Rydb., *Z. intermedius* Rydb.), Wyoming; Alberta.
Toxicoscordion venenosum (S. Wats.) Rydb. (*Zyadenus venenosus* S. Wats.), Montana, Washington, Wyoming.

Insert: ILLUSTRATION: Sydow, Monog. Ured. 2: pl. 2, f. 34.

Add the exsiccati: Barth. N. Am. Ured. 1798, 3297; Garrett, Fungi Utah. 250.

241. *Nigredo aemula*.

Add the exsiccati: Barth. N. Am. Ured. 3085.

241. *Nigredo bicolor*.

Omit the first host.

Add the host: *Allium* sp., Maine.

Add the exsiccati: Barth. N. Am. Ured. 1685; Thaxter, Rel. Farl. 290a, b.

242. *Nigredo Lili*.

Reduce this name to synonymy, and substitute: *Nigredo Holwayi* (Lagerh.) Arthur.

Insert after the first synonym: Not *U. Lili* J. Kunze, 1873.

Omit *Lilium pardalinum* from the hosts; the material on which the record was made is found to be *L. columbianum*. To this latter name should be added as a synonym: (*L. parviflorum* Holz.).

Change the type locality to read: Ann. Arbor, Michigan, on *Lilium superbum*.

Add the illustration: Jour. Coll. Agr. Hokkaido Univ. 11: pl. 9, f. 4.

Add the exsiccati: Barth. N. Am. Ured. 889, 1289, 1387, 2190; Ellis, N. Am. Fungi 228.

242. Insert:

40a. *Nigredo affinis* (Wint.) Arthur.

Uromyces affinis Wint. Hedwigia 24: 259. 1885.

Caomurus affinis Kuntze, Rev. Gen. 3²: 449. 1898.

Doassansia Hypoxidis Bres. in Rab.-Paz. Fungi Eur. 4201. 1901.

Uredo Hypoxidis P. Henn. Hedwigia Beibl. 40: 173. 1901.

Uromycopsis affinis Arth. Résult. Sci. Congr. Bot. Vienne 345. 1906.

Uredo globulosa Arth. Mycologia 8: 22. 1916.

O. Pycnia unknown.

I. Aecia amphigenous, numerous, in more or less elongate groups, short-cylindric or cupulate, 0.2-0.6 mm. in diameter; peridium white, becoming brownish-yellow, erect, about 0.2 mm. high, the margin incised; peridial cells rectangular, 19-24 by 32-35 μ , somewhat overlapping, the walls about 7-10 μ thick, the outer wall transversely striate, smooth, the inner wall finely verrucose; aeciospores angularly globoid or broadly ellipsoid, 15-21 by 19-24 μ ; wall colorless or slightly yellowish, 1-2 μ thick, minutely and closely verrucose.

II. Uredinia chiefly hypophyllous, scattered or aggregate, on well-defined purplish-black spots 0.5-1 mm. across, bullate, tardily opening by a central pore; urediniospores globoid, broadly ellipsoid, or obovoid, 15-19 by 18-26 μ ; wall light cinnamon-brown or nearly colorless, moderately thin, about 1.5 μ thick, finely and closely echinulate, the pores usually indistinct, 3, slightly superequatorial.

III. Telia amphigenous, scattered or aggregate, sometimes coalescing, round or oblong, 0.2-0.6 mm. in length, bullate, tardily naked, pulverulent, chestnut-brown, ruptured epidermis conspicuous; teliospores oblong or obovate, often irregular, 14-20 by 22-32 μ , rounded or obtuse at both ends; wall cinnamon-brown, moderately thin, 1.5-2 μ , thickened above by a semi-hyaline umbo, 4-5 μ , smooth; pedicel fragile, colorless, once or once and a half length of spore, usually broken away.

ON AMARYLLIDACEAE:

Hypoxis decumbens L., Oaxaca; Porto Rico.

Hypoxis hirsuta (L.) Coville (*H. erecta* L.), Connecticut, Mississippi, Missouri, New York.

Hypoxis juncea Smith, Florida.

TYPE LOCALITY: Perryville, Missouri, on *Hypoxis erecta*.

DISTRIBUTION: Local from Connecticut and Missouri southward through Mexico and the West Indies; also in South America.

ILLUSTRATION: Mém. Soc. Neuch. Sci. Nat. 5: 582. f. 87.

EXSICCATI: Barth. N. Am. Ured. 1683; Ellis & Ev. N. Am. Fungi 1868; Rab.-Wint. Fungi Eur. 3307.

242. *Nigredo houstoniata*.

Add the host, under Rubiaceae: *Houstonia longifolia* Gaertn. (*H. purpurea longifolia* A. Gray), New York, Pennsylvania, West Virginia, Wisconsin; Saskatchewan.

Add the exsiccati: Barth. N. Am. Ured. 3090; Ellis & Ev. Fungi Columb. 497, 1078; Thaxter, Rel. Farl. 292.

243. Insert:

42a. *Nigredo ornatipes* Arthur.

Uromyces ornatipes Arth. Bull. Torrey Club 42: 586. 1915.

O. Pycnia unknown.

I. Aecia scattered about the slightly swollen but not discolored stem for 5-10 mm. in length, cylindric, 0.5-0.8 mm. high; peridium colorless, delicate, the margin erect,

erose or lacerate; peridial cells rhomboidal, 18-21 by 26-32 μ , overlapping, the outer wall 3-4 μ thick, smooth, the inner wall 5-7 μ thick, verrucose; aeciospores angularly globoid or ellipsoid, 18-23 by 24-27 μ ; wall colorless, 1.5-2 μ thick, sometimes with appearance of being thicker, very inconspicuously verrucose.

II. Uredinia few, soon naked, round, 0.5 mm. or less in diameter, soon naked, chestnut-brown, pulverulent, ruptured epidermis noticeable; urediniospores ellipsoid, 21-24 by 26-33 μ ; wall golden-brown, 1.5-2.5 μ thick, sparsely verrucose, the pores obscure, apparently 4 and equatorial.

III. Telia associated with aecia, rising somewhat above surface of host, soon naked, round, 0.3-0.5 mm. in diameter, blackish-brown; teliospores ellipsoid, 21-26 by 27-32 μ , rounded above and below; wall dark chocolate-brown, often opaque, 2-2.5 μ thick, thicker above, 5-7 μ , longitudinally rugose, appearing indistinctly striate when wet; pedicel colorless, joined to the spore by a tinted collar, solid, smooth, 7-9 μ in diameter above, increasing to 10-13 μ in diameter in lower part, transversely rugose, once to twice length of spore.

ON LORANTHACEAE:

Phrygilanthus Sonorae (S. Wats.) Rose & Daniels (*Loranthus Sonorae* S. Wats.), Lower California.

TYPE LOCALITY: Cape San Lucas, Lower California, Mexico, on *Phrygilanthus Sonorae*.
DISTRIBUTION: Known only from the type locality.

42b. *Nigredo socia* (Arth. & Holway) Arthur.

Uromyces socius Arth. & Holway, Am. Jour. Bot. 5: 437. 1918.

O. Pycnia unknown.

I. Aecia chiefly hypophyllous, crowded upon distended bladder-like areas 3-20 mm. across, short-cylindric, 0.4-0.8 mm. in diameter, about 0.4 mm. high; peridium erect, the margin erose; peridial cells rectangular or rhombic in side view, 23-26 by 35-45 μ , abutted or slightly overlapping, the outer wall 4-8 μ thick, transversely striate, smooth, the inner wall 7-10 μ thick, coarsely verrucose; aeciospores ellipsoid or oblong, 23-27 by 26-35 μ ; wall colorless, 2-3 μ thick, closely and finely verrucose.

II. Uredinia mostly hypophyllous, crowded in small circinating groups 1-4 mm. across, early naked, cinnamon-brown, pulverulent, ruptured epidermis evident; urediniospores fusiform or fusiform-ellipsoid, 16-26 by 37-55 μ ; wall golden-brown, 1.5-2.5 μ thick, moderately echinulate, the pores distinct, 4, equatorial.

III. Telia amphigenous, crowded in small circinating groups 1-4 mm. across, ellipsoid or oblong, 0.3-0.8 mm. long, compact, blackish, ruptured epidermis conspicuous; teliospores ellipsoid, obovoid, or oblong-obovoid, 18-24 by 29-35 μ , rounded at both ends or somewhat narrowed below; wall dark chestnut-brown, 2-3 μ thick, thicker above, 5-9 μ , longitudinally verrucose-rugose in more or less broken lines 1-3 μ apart; pedicel colorless, verrucosely roughened, as long as spore.

ON LORANTHACEAE:

Loranthus crassipes Oliver, Guatemala.

Siruthanthus densiflorus (Benth.) Mart., Guatemala.

TYPE LOCALITY: Antigua, Sacatépquez, Guatemala, on *Loranthus* sp.
DISTRIBUTION: Guatemala.

42c. *Nigredo* (?) *euphlebica* (Sydow) Arthur.

Uromyces euphlebicus Sydow, Ann. Myc. 18: 154. 1920.

O and I. Pycnia and aecia unknown.

II. Uredinia amphigenous, in orbicular groups 2-4 mm. across, often concentric, irregularly roundish or oblong, large, 0.5-1 mm. in shortest diameter, often uniting to form circles, tardily naked, cinnamon-brown, somewhat pulverulent, ruptured epidermis overarching; urediniospores ellipsoid or oblong-ellipsoid, 20-25 by 35-50 μ ; wall golden-brown, 2-3 μ thick, moderately echinulate, the pores 4, equatorial.

III. Telia similar to the uredinia, dark chocolate-brown; teliospores irregularly oblong, 19-23 by 34-50 μ ; wall chestnut-brown, 2-2.5 μ thick, paler and thicker above, 7-10 μ , longitudinally striate, the striae 3 μ apart and usually continuous and distinct; pedicel colorless, half length of spore or broken away.

ON LORANTHACEAE:

Phoradendron sp., Jalisco.TYPE LOCALITY: Chapala, Mexico, on *Phoradendron* sp.

DISTRIBUTION: Known only from the type locality.

243. *Nigredo Polygoni*.

The citation for *Uromyces Polygoni* Fuckel should read: Jahrb. Nass. Ver. Nat. 23-24: 64. 1870.

Add the synonyms: *Uredo flexuosa* Strauss, Ann. Wett. Ges. 2: 96. 1810. *Aecidium Aviculariae* Kunze, in Ficinus, Fl. Dresd. 2: 129. 1823. *Aecidium rubellatum Aviculariae* Rab. Deutschl. Krypt.-Fl. 1: 16. 1844. *Uredo longipes* Lasch, in Klotzsch, Herb. Myc. 893. 1846. *Uredo clavigera* Lasch, in Klotzsch, Herb. Myc. 1295. 1849. *Uromyces Polygoni-avicularis* Ramsb. Trans. Brit. Myc. Soc. 4: 335. 1914.

Add the host: *Polygonum neglectum* Besser, Alaska.

Add the illustrations: Ann. Wett. Ges. 2: pl. 11, f. 14; Grove, Brit. Rust Fungi f. 69; Jour. Coll. Agr. Hokkaido Univ. 11: pl. 8, f. 22; Fl. Ibér. Ured. 2: f. 16.

Omit from the exsiccati: Rab.-Wint. Fungi Eur. 3628a.

Add the exsiccati: Barth. Fungi Columb. 3097, 4193, 4498, 4499, 4792, 4894; Barth. N. Am. Ured. 394, 494, 894, 991, 1095, 1196, 1295, 1792, 2195, 2295, 2296, 2394, 2497, 2996, 3390, 3391; Brenckle, Fungi Dak. 133, 133a; Garrett, Fungi Utah. 245.

244. Insert:

43a. *Nigredo Rickeriana* Arthur.

Uromyces Rickerianus Arth. Bull. Torrey Club 29: 227. 1902.

Uromycopsis Rickerianus Arth. Résult. Sci. Congr. Bot. Vienne 345. 1906.

Uromyces fuscatus Arth. Bull. Torrey Club 45: 142. 1918.

Pucciniola Rickerianus Arth. N. Am. Flora 7: 443. 1921.

O. Pycnia unknown.

I. Aecia amphigenous, in dense groups 3-5 mm. across, short-cylindric or cupulate, small, 0.2-0.3 mm. in diameter; peridium colorless, the margin erect or somewhat recurved, coarsely and deeply lacerate; peridial cells rhomboidal, 13-19 by 28-37 μ , considerably overlapping, the outer wall 7-9 μ thick, finely transversely striate, smooth, the inner wall 2.5-3.5 μ thick, moderately verrucose; aeciospores globose, 16-22 μ in diameter; wall colorless, 1-1.5 μ thick, finely and closely verrucose, often appearing smooth when wet.

II. Uredinia amphigenous, scattered, round, 0.3-0.8 mm. across, elevated, early naked, pulverulent, dark cinnamon-brown, ruptured epidermis conspicuous; urediniospores globose or broadly ellipsoid, 18-24 by 22-29 μ ; wall cinnamon-brown, 2-3 μ thick, closely and finely verrucose, the pores 3 or 4, approximately equatorial.

III. Telia amphigenous, scattered, round or irregular, 0.5-2 mm. across, often confluent, early naked, prominent, dark chestnut-brown, ruptured epidermis evident; teliospores globose or broadly ellipsoid, 18-23 by 23-28 μ , rounded at both ends; wall chestnut-brown, 2-2.5 μ thick, slightly thicker above, 3-5 μ , moderately verrucose in longitudinal lines; pedicel colorless, as long as spore, fragile, usually broken off short.

ON POLYGONACEAE:

Rumex paucifolius Nutt. (*R. Geyeri* Trel.), Idaho, Utah.

TYPE LOCALITY: Teton Pass, Wyoming, on *Rumex Geyeri*.

DISTRIBUTION: Idaho to northern Utah.

EXSICCATI: Barth. N. Am. Ured. 3296; Garrett, Fungi Utah. 244.

244. *Nigredo intricata*.

Add the hosts:

Eriogonum biumbellatum Rydb., Utah.

Eriogonum divergens Small, Arizona.

Eriogonum gracile Benth., California.

Eriogonum Jamesii Benth., New Mexico.

Eriogonum ovalifolium Nutt., Wyoming.

Eriogonum Piperi Greene, Idaho, Montana.

Eriogonum proliferum T. & G., Nevada.

Eriogonum saxatile S. Wats., California.

Eriogonum sulphureum Greene, Oregon.

Eriogonum ursinum S. Wats., California.

Eriogonum Wrightii Torr., Arizona, California.

Oxytheca dendroidea Nutt., California.

Insert: **ILLUSTRATION:** Sydow, Monog. Ured. 2: *pl. 8, f. 117, 118.*

Add the exsiccati: Barth. Fungi Columb. 3790, 4790, 4893; Barth. N. Am. Ured. 487, 682, 683, 785, 890, 1093, 1290, 1388, 1389, 1594, 1695, 1696, 1890, 1891, 1988, 3091, 3189, 3287, 3387, 3388; Brenckle, Fungi Dak. 406; Ellis & Ev. Fungi Columb. 480b, 650.

245. **Nigredo Betae.**

Add the host: *Beta cicla* L., California.

Add the illustrations: E. & P. Nat. Pfl. 11**:*f. 37 C, D*; Grove, Brit. Rust Fungi *f. 65*; Fl. Ibér. Ured. 2: *f. 15.*

Add the exsiccati: Barth. Fungi Columb. 4886; Barth. N. Am. Ured. 1285, 2089.

245. Insert:

45a. **Nigredo Chenopodii-fruticosi** (DC.) Arthur.

Aecidium Chenopodii-fruticosi DC. Fl. Fr. 6: 92. 1815.

Caecoma chenopodiatum Link, in Willd. Sp. Pl. 6: 45. 1825.

Uredo Chenopodii Spreng. Syst. Veg. 4: 574. 1827.

Aecidium Schoberiae Auersw. in Willkomm. Fl. Hisp. 537. 1852.

Uromyces giganteus Speg. Dec. Myc. Ital. 30. 1879.

Uromyces giganteus erythraeus Trotter, Ann. Myc. 2: 360. 1880.

Aecidium Suaedae Thüm. Flora 63: 479. 1880.

Uromyces Chenopodii Schroet. in Kunze, Fungi Sel. 214. 1880.

Uromyces Suaedae Jacz. Bull. Soc. Myc. Fr. 9: 47. 1893.

Capitularia Chenopodii Sydow, Ann. Myc. 20: 123. 1922.

O. Pycnia amphigenous, numerous, gregarious, prominent, honey-yellow, in section globose or flask-shaped, 125-190 μ broad by 160-190 μ high; ostiolar filaments united into a short column.

I. Aecia amphigenous, surrounding the pycnia in groups 2-3 mm. across, cupulate, 0.2-0.3 mm. in diameter; peridium colorless or yellowish, the margin lacerate; peridial cells rhomboidal, 20-24 by 30-34 μ , slightly overlapping, the outer wall 10-14 μ thick, transversely striate, smooth, the inner wall much thinner, 2-2.5 μ , finely verrucose; aeciospores broadly ellipsoid, 18-20 by 24-27 μ ; wall colorless, thin, 1-1.5 μ , minutely and inconspicuously verrucose.

II. Uredinia amphigenous and caulescent, numerous, scattered or gregarious, sometimes crowded or confluent over large areas, roundish, 0.3-0.8 mm. in diameter or larger on stems, early naked, chestnut-brown, pulverulent, ruptured epidermis conspicuous; urediniospores ellipsoid or obovoid, 18-22 by 26-32 μ ; wall cinnamon-brown, 1.5-2.5 μ thick, finely and moderately echinulate, the pores obscure, apparently 6-8, scattered.

III. Telia on the leaves distributed like the uredinia, on the stems often producing fusiform swellings, elongate, large, 5-30 mm. long, pulvinate, blackish-brown; teliospores globose or obovoid, 23-26 by 27-35 μ , rounded above, rounded or somewhat narrowed below; wall chestnut-brown, thin, 1.5-2 μ , thicker above, 3-6 μ , smooth; pedicel colorless, persistent, twice length of spore or longer.

ON CHENOPODIACEAE:

Dondia brevifolia Standley, California.

Dondia californica (S. Wats.) A. Heller (*Suaeda californica* S. Wats.), California.

Dondia occidentalis (S. Wats.) A. Heller (*Schoberia occidentalis* S. Wats.), Arizona,

Idaho.

Dondia ramosissima Standley, California.

Dondia suffrutescens (S. Wats.) A. Heller (*Suaeda suffrutescens* S. Wats.), Texas.

Dondia taxifolia Standley, California.

Dondia Torreynana (S. Wats.) Standley (*Suaeda Torreynana* S. Wats.), California,

Wyoming.

TYPE LOCALITY: Montpellier, France, on *Chenopodium fruticosum*.

DISTRIBUTION: Wyoming to northern Idaho, southward to western Texas and southern

California; also in Europe and northern Africa.

ILLUSTRATIONS: Grove, Brit. Rust Fungi *f. 64*; Bull. Soc. Myc. Fr. 9: *pl. 3, f. 5*; Ann.

Myc. 2: 359, 360; Fl. Ibér. Ured. 2: *f. 13, 14.*

EXSICCATI: Barth. Fungi Columb. 4090; Barth. N. Am. Ured. 883, 1688, 1887.

246. **Nigredo (?) Celosiae.**

Replace list of hosts by:

Iresine Calea (Ibáñez) Standley (*I. latifolia* Benth. & Hook.), Oaxaca, Pueblo; Costa

Rica; Guatemala.

Iresine Celosia L. (*I. canescens* Humb. & Bonpl., *I. paniculata* Kuntze, not Poir., *Celo-*

sia paniculata L.), Morelos; Cuba; Porto Rico; Jamaica.

Omit the host: *Iresine Pringlei*, an erroneous determination.

Add the exsiccati: Barth. Fungi Columb. 4889; Barth. N. Am. Ured. 1488.

246. *Nigredo caryophyllina*.

Add the synonym: *Uromyces sinensis* Speg. Dec. Myc. Ital. 69. 1879.

Add the illustrations: Verh. Nat. Ver. Brünn 10: pl. 3, f. 9; Grove, Brit. Rust Fungi f. 61; Ann. Rep. N. J. Exp. Sta. 13: 279, f. 1; Jour. Coll. Agr. Hokkaido Univ. 11: pl. 8, f. 19; Fl. Ibér. Ured. 2: f. 47, 48.

Add the exsiccati: Barth. N. Am. Ured. 287, 1588, 3380, 3489; Thaxter, Rel. Farl. 291.

247. Insert:

47a. *Nigredo verruculosa* (Schroet.) Arth. Bull. Torrey Club 51: 59. 1924.

Uredo Lychnidis Schroet. Abh. Schles. Ges. 48: 30, hyponym. 1870.

Uromyces verruculosus Schroet. Jahrb. Schles. Ges. 50: 140. 1873.

Uromyces Schroeterii De-Toni, in Sacc. Syll. Fung. 7: 551. 1888.

Uromyces Lychnidis Lagerh. Bol. Soc. Brot. 8: 7. 1890.

O and I. Pycnia and acelia unknown; but probably occurring on *Euphorbia* sp.

II. Uredinia hypophyllous, scattered or sometimes aggregate, round, 0.3–0.6 mm. in diameter, early naked, cinnamon-brown, pulverulent, ruptured epidermis evident; urediniospores globoid or broadly ellipsoid, 18–22 by 19–26 μ ; wall cinnamon-brown, 1.5–2 μ thick, closely echinulate, the pores 3–5, scattered, usually in upper part of spore or sometimes equatorial.

III. Telia sparingly produced, scattered or in small groups, small, soon naked, blackish-brown, pulverulent; teliospores globoid or broadly obovoid, 17–22 by 18–25 μ ; wall dark chestnut-brown, slightly thickened at apex by a small papilla, minutely reticulate-verrucose; pedicel colorless, fragile, deciduous.

ON CARYOPHYLLACEAE:

Lychnis alba Mill. (*Melandrium album* Garcke), Michigan, New York.

TYPE LOCALITY: Silesia, on *Melandrium album*.

DISTRIBUTION: Northern part of the southern peninsula of Michigan; also in Europe.

247. *Nigredo Silenes*.

The citation for *Uromyces Silenes* Fuckel should read: Jahrb. Nass. Ver. Nat. 23–24: 61. 1870.

Add the synonym: *Capitularia inaequalia* Sydow, Ann. Myc. 20: 123. 1922.

Add the hosts:

Arenaria glabrescens (S. Wats.) Howell, Utah.

Silene Douglasii Hook., California.

Silene Lemmonii S. Wats., California.

Silene noctiflora L., Pennsylvania.

Silene occidentalis S. Wats., California.

Add the illustration: Jour. Coll. Agr. Hokkaido Univ. 11: pl. 8, f. 21.

247. Insert:

48a. *Nigredo Suksdorfii* (Dietel & Holway) Arth. Bull. Torrey Club 51: 58. 1924.

Uromyces Suksdorfii Dietel & Holway; Dietel, Erythea 3: 77. My 1895.

Uromyces Lychnidis Tracy & Earle; M. E. Jones, Proc. Calif. Acad. II. 5: 729. O 1895. Not U. *Lychnidis* Lagerh. 1890.

Uromycopsis Lychnidis Arth. Résult. Sci. Congr. Bot. Vienne 345. 1906.

Uromycopsis Suksdorfii Arth. Résult. Sci. Congr. Bot. Vienne 345. 1906.

Uromyces Betheli Arth. Bull. Torrey Club 51: 58. 1924.

Pucciniola Betheli Arth. Bull. Torrey Club 51: 59. 1924.

O. Pycnia unknown.

I. Aecia hypophyllous, irregularly grouped, usually on discolored spots, cupulate, 0.1–0.4 mm. in diameter; peridium colorless or pale-yellow, the margin lacerate, recurved; peridial cells rhomboidal, 13–18 by 19–30 μ , somewhat overlapping, the outer wall 7–9 μ thick, transversely striate, smooth, the inner wall much thinner, 2–3 μ , evenly verrucose; aeciospores angularly globoid, 13–18 by 19–24 μ ; wall colorless, 1.5 μ thick, inconspicuously verrucose.

II. Uredinia chiefly epiphyllous, few, scattered, early naked, compact, golden-yellow, ruptured epidermis inconspicuous; urediniospores globose, 18–23 by 19–26 μ ; wall golden-yellow, 1.5–2 μ thick, very closely and evenly verrucose, the pores 3 or 4, approximately equatorial.

III. Telia chiefly epiphyllous, numerous, scattered, roundish, 0.2–0.8 mm. across, rather tardily naked, blackish-brown, pulverulent, ruptured epidermis conspicuous; teliospores broadly ellipsoid or obovoid, 18–24 by 23–32 μ ; wall cinnamon- or chestnut-brown, 3–3.5 μ thick, slightly thicker above, 4–6 μ , rather coarsely verrucose in close longitudinal lines; pedicel slightly tinted, shorter than the spore, fragile.

ON CARYOPHYLLACEAE:

Silene Hallii S. Wats., Colorado, New Mexico.

Silene occidentalis S. Wats., California.

Silene oregana S. Wats., Idaho, Washington.

Silene Scouleri Hook., Washington.

Silene verecunda S. Wats., California.

Wahlgbergella Drummondii (Hook.) Rydb. (*Silene Drummondii* Hook., *Lychnis Drummondii* S. Wats.), Utah.

TYPE LOCALITY: West Klickitat County, Washington, on *Silene oregana*.

DISTRIBUTION: Northern New Mexico to southern Washington.

ILLUSTRATION: Sydow, Monog. Ured. 2: pl. 7, f. 109.

EXSICCATI: Sydow, Ured. 1860.

48b. *Nigredo bifrons* (DC.) Arthur.

Aecidium bifrons DC. Fl. Fr. 2: 246. 1805.

Uromyces Aconiti Fuckel, Jahrb. Nass. Ver. Nat. 23–24: 61. 1870.

Uromyces Aconiti-Lycotoni Wint. in Rab. Krypt.-Fl. 1^o: 153. 1881.

Caomurus bifrons Kuntze, Rev. Gen. 3^o: 449. 1898.

Uromyopsis Aconiti-Lycotoni Arth. Résult. Sci. Congr. Bot. Vienne 345. 1906.

O. Pycnia amphigenous, numerous, in groups 1–2 mm. across, conspicuous, flattened-globose, 95–110 μ broad by 65–80 μ high; ostiolar filaments about 50 μ long, only slightly projecting above the ostiole.

I. Aecia hypophyllous, crowded in groups 2–7 mm. across, cupulate, 0.2–0.3 mm. in diameter; peridium pale-yellow, the margin recurved, erose; peridial cells rhomboidal, 16–23 by 26–35 μ , overlapping, the outer wall 9–11 μ thick, transversely striate, smooth, the inner wall much thinner, 4–5 μ , closely and rather coarsely verrucose; aeciospores angularly ellipsoid, 16–21 by 23–34 μ ; wall colorless, 1.5–2 μ thick, closely and finely verrucose.

II. Uredinia not seen, rarely produced; urediniospores in the telial sori ellipsoid or globose, 17–23 by 22–29 μ ; wall pale-yellow or nearly colorless, 1–2 μ thick, minutely and striately verrucose, the pores obscure.

III. Telia epiphyllous, numerous, scattered or in irregular groups of considerable size, roundish, 0.2–0.5 mm. in diameter, tardily naked, chocolate-brown, pulverulent, ruptured epidermis noticeable; teliospores broadly ellipsoid or obovoid, 18–27 by 23–35 μ ; wall cinnamon-brown, 1.5–2 μ thick, thicker above, 3–4 μ , smooth; pedicel colorless, once length of spore or less, fragile.

ON RANUNCULACEAE:

Aconitum columbianum Nutt., California, Colorado, Utah, Wyoming.

TYPE LOCALITY: Jura, France, on *Aconitum Lycotoni*.

DISTRIBUTION: Central Colorado to northern California.

ILLUSTRATION: Beitr. Krypt. Schweiz 2^o: f. 13; Jour. Coll. Agr. Hokkaido Univ. 11: pl. 8, f. 18; Fl. Ibér. Ured. 2: f. 51.

EXSICCATI: Barth. N. Am. Ured. 85; Ellis & Ev. Fungi Columb. 1892; Ellis & Ev. N. Am. Fungi 2212, 2410; Sydow, Ured. 1751, 1901.

247. *Nigredo Lespedezae-procumbentis*.

Add the synonyms: *Uromyces macrosporus* Berk. & Curt.; Peck, Ann. Rep. N. Y. State Mus. 23: 58, synonym. 1872. *Trichobasis macrospora* Berk. & Curt.; Thüm. Myc. Univ. 1528, as synonym. 1880.

Add the illustration: Jour. Coll. Agr. Hokkaido Univ. 11: pl. 7, f. 10–14.

Add the exsiccati: Barth. Fungi Columb. 3994, 4697; Barth. N. Am. Ured. 490, 491, 792, 891, 892, 990, 1892, 2193, 2291, 2292, 2391, 2392, 2494, 2495, 2590, 2591, 2592, 2593, 2793, 2794, 2890, 2891, 2993, 3094, 3095, 3190, 3289, 3290; Ellis & Ev. Fungi Columb. 59, 255; Thaxter, Rel. Farl. 296.

248. *Nigredo Hedysari-paniculati*.

Omit the synonym: *Aecidium Desmodii* P. Henn.

Omit from the hosts: *Meibomia* sp.; also "Mexico (state)" after *M. elegans*.

Add the hosts:

Meibomia angustifolia (H.B.K.) Kuntze (*Desmodium angustifolium* DC.), Guatemala.
Meibomia axillaris (Sw.) Kuntze (*Desmodium axillare* DC.), Porto Rico.
Meibomia Barclayi (Benth.) Rose & Standley (*Desmodium Barclayi* Benth.), Salvador.
Meibomia callilepis (Hemsl.) Kuntze (*Desmodium callilepis* Hemsl.), Mexico (state).
Meibomia Conzattii (Greenm.) Standley (*Desmodium Conzattii* Greenm.), Oaxaca.
Meibomia Giesbreghtii (Hemsl.) Kuntze (*Desmodium Giesbreghtii* Hemsl.), Oaxaca.
Meibomia jaliscana (S. Wats.) Standley (*Desmodium jaliscanum* S. Wats.), Michoacán.
Meibomia longifolia (T. & G.) Vail (*Desmodium longifolium* Nutt.), Mississippi.
Meibomia orbicularis (Schlecht.) Kuntze (*Desmodium orbiculare* Schlecht.), Guatemala.
Meibomia prehensilis (Schlecht.) Kuntze (*Desmodium prehensile* Schlecht.), Morelos.
Meibomia purpurea (Mill.) Vail (*Desmodium tortuosum* Auth.), Jalisco; Cuba; Porto Rico.
Meibomia rhombifolia (Ell.) Vail (*Desmodium rhombifolium* DC.), Alabama, Georgia.
Meibomia Scorpium (Sw.) Kuntze (*Desmodium Scorpium* Desv.), Florida; Guatemala; Salvador; Panama; Cuba; Porto Rico.
Meibomia tenuipes Blake, Guatemala.
Meibomia umbrosa Britton, Porto Rico.
Meibomia uncinata (DC.) Kuntze (*Desmodium uncinatum* DC.), Mexico (state), Oaxaca.

Insert: ILLUSTRATION: Sydow, Monog. Ured. 2: pl. 4, f. 63.

Add the exsiccati: Barth. Fungi Columb. 4189, 4297, 4298, 4592, 4692, 4693, 4789; Barth. N. Am. Ured. 386, 687, 988, 989, 1192, 1193, 1194, 1690, 1787, 2093, 2094, 2189, 2287, 2288, 2386, 2387, 2489, 2490, 2585, 2586, 2587, 2790, 2791, 2792, 2883, 2884, 2885, 2886, 2887, 2990, 2991, 3184, 3185, 3283, 3284, 3384, 3491.

250. *Nigredo mexicana*.

Omit the host, "*Meibomia* sp.," and add:

Meibomia hirsuta (Mart. & Gal.) Kuntze (*Desmodium hirsutum* Mart. & Gal.), Morelos.
Meibomia procumbens (Mill.) Britton (*Desmodium spiralis* Auth.), Hidalgo, Jalisco, Mexico (state), San Luis Potosí.
Meibomia uncinata (DC.) Kuntze (*Desmodium uncinatum* DC.), Costa Rica.

Add: ILLUSTRATION: Sydow, Monog. Ured. 2: pl. 4, f. 66. EXSICCATI: Barth. N. Am. Ured. 692.

250. *Nigredo Indigoferae*.

Add the host: *Indigofera miniata* Ortega, Florida.

Add: ILLUSTRATION: Sydow, Monog. Ured. 2: pl. 4, f. 69. EXSICCATI: Barth. N. Am. Ured. 3188.

251. *Nigredo Fabae*.

The citation for *Uromyces Viciae* Fuckel should read: Jahrb. Nass. Ver. Nat. 23-24: 62. 1870.

Add the hosts:

Lathyrus Nuttallii S. Wats., Oregon.
Lathyrus obovatus (Torr.) T. G. White, Oregon, Washington.
Lathyrus palustris L., Michigan, Washington, Wisconsin.
Pisum sativum L., Minnesota; Manitoba.
Vicia angustifolia L., British Columbia.
Vicia californica Greene, California.
Vicia caroliniana Walt., Wisconsin.
Vicia meliloloides Wootton & Standley, Arizona.
Vicia oregana Nutt., Alberta.
Vicia sativa L., Montana, Washington.
Vicia truncata Nutt., Oregon.

Add the illustrations: Fl. Ital. Crypt. Ured. f. 42b; Grove, Brit. Rust Fungi f. 49-52; Jour. Coll. Agr. Hokkaido Univ. 11: pl. 8, f. 4-11; Fl. Ibér. Ured. 2: f. 31.

Add the exsiccati: Barth. Fungi Columb. 4092, 4494; Barth. N. Am. Ured. 289, 592, 593, 684, 786, 787, 788, 886, 986, 1287, 2788, 3282, 3382, 3383; Brenckle, Fungi Dak. 372.

252. **Nigredo Lupini.**

Omit from the hosts: *Lupinus mexicanus* and *L. uncinatus*, the latter being erroneously determined and both belonging under *Pucciniola montana* Arth., page 446.

Add the hosts:

- Lupinus aduncus* Greene, Colorado.
- Lupinus amplus* Greene, Colorado.
- Lupinus Bridgesii* (S. Wats.) Greene, California.
- Lupinus leucophyllus* Dougl., Washington.
- Lupinus Suksdorfii* B. L. Robinson, Washington.
- Lupinus sulphureus* Dougl., Washington.

Omit from the exsiccati: Sydow, Ured. 1961, which belongs under *Pucciniola montana*.

Add the exsiccati: Barth. N. Am. Ured. 293, 393, 492, 690, 691, 1293, 1392, 1393, 1596, 1993; Ellis & Ev. Fungi Columb. 1180.

252. **Nigredo occidentalis.**

Substitute for the line pertaining to pycnia and aecia:

O. Pycnia chiefly hypophyllous, sparsely scattered over surface of leaf, punctiform, honey-yellow becoming brownish, noticeable, in section globose or flask-shaped, 110–150 μ broad; ostiolar filaments agglutinate into a short column.

I. Aecia hypophyllous, evenly scattered over surface of leaf, short-cylindric; peridium colorless, the margin erect or slightly recurved, irregularly lacerate; peridial cells rhomboidal, 12–18 by 18–26 μ , slightly overlapping, the outer wall 7–10 μ thick, transversely striate, smooth, the inner wall 2–3 μ thick, verrucose; aeciospores angularly globose or ellipsoid, 16–20 by 20–24 μ ; wall colorless, 1.5–2 μ thick, finely verrucose.

ON EUPHORBIACEAE:

- Tithymalus chamaesula* (Boiss.) Wooton & Standley (*Euphorbia chamaesula* Boiss.), New Mexico.
- Tithymalus luridus* (Engelm.) Wooton & Standley (*Euphorbia lurida* Engelm.), New Mexico.
- Tithymalus robustus* (Engelm.) Small (*Euphorbia robusta* Engelm.), Arizona, Colorado, Montana, Nevada, Utah.

In the description of the teliospores change the dimensions to read "15–22 by 19–30 μ ."

Add the hosts, under Fabaceae:

- Lupinus ammophilus* Greene, New Mexico.
- Lupinus arboreus* Sims, California.
- Lupinus argenteus* Pursh, Colorado.
- Lupinus Bakeri* Greene, Colorado.
- Lupinus caespitosus* Nutt., Colorado.
- Lupinus Palmeri* S. Wats., Arizona.
- Lupinus pusillus* Pursh, Colorado.

Add the exsiccati: Barth. Fungi Columb. 4094; Barth. N. Am. Ured. 795, 1395, 2194; Clements, Crypt. Form. Colo. 594; Ellis & Ev. N. Am. Fungi 2215.

253. **Nigredo substriata.**

Add the hosts:

- Lupinus aduncus* Greene, New Mexico.
- Lupinus Palmeri* S. Wats., Arizona.

Add the exsiccati: Barth. Fungi Columb. 3793; Barth. N. Am. Ured. 1000, 1700.

253. **Nigredo punctata.**

Add the hosts:

- Aragallus deflexus* (Pall.) A. Heller (*Oxytropis deflexa* DC.), New Mexico.
- Aragallus podocarpus* (A. Gray) Greene (*Oxytropis podocarpa* A. Gray), Idaho.
- Aragallus spicatus* (Hook.) Rydb. (*Oxytropis campestris spicata* Hook.), Montana.
- Astragalus aboriginorum* Richards. (*Atelophragma aboriginum* Rydb.), Montana.
- Astragalus caespitosus* A. Gray (*Homalobus caespitosus* Nutt.), North Dakota.
- Astragalus flexuosus* Dougl. (*Homalobus flexuosus* Rydb.), Colorado.
- Astragalus goniatus* Nutt. (*A. hypoglottis* Richards, not L.), Montana.
- Astragalus guatemalensis* Hemsl., Guatemala.
- Astragalus Hosackiae* Greene, Arizona.
- Astragalus humistratus* A. Gray (*Tium humistratum* Rydb.), Utah.
- Astragalus leucophyllus* T. & G., California.

Astragalus Lindheimeri Engelm. (*Hamosa Lindheimeri* Rydb.), Texas.
Astragalus Nuttallianus DC. (*Hamosa Nuttalliana* Rydb.), Texas.
Astragalus plattensis Nutt. (*Geoprumnon plattense* Rydb.), Nebraska.
Astragalus Sonorae A. Gray, Utah.
Astragalus tridactylus A. Gray (*Orophaca tridactylus* Rydb.), Wyoming.
Astragalus triphyllus Pursh (*Orophaca caespitosa* Britton), Montana, North Dakota.
Astragalus Wooloni Sheldon, Arizona, New Mexico.
Kentrophyta impensa (Sheldon) Rydb. (*Astragalus viridis impensus* Sheldon), Utah.

Add the exsiccati: Barth. Fungi Columb. 3895, 4793, 4996, 5096; Barth. N. Am. Ured. 698, 1189, 1284, 1599, 1699, 1795, 1896, 1897, 1998, 2097, 2498, 3195, 3295; Brenckle, Fungi Dak. 178, 373, 389; Garrett, Fungi Utah. 249.

254. Insert:

58a. *Nigredo* (?) *decorata* (Sydow) Arthur.

Uromyces decoratus Sydow, Ann. Myc. 5: 491. 1907.

O and I. Pycnia and aecia unknown.

II. Uredinia hypophyllous, scattered, roundish, 0.2-0.5 mm. in diameter, soon naked, appanate, cinnamon-brown, pulverulent, ruptured epidermis evident; urediniospores globose or broadly ellipsoid, 18-23 by 23-25 μ ; wall light cinnamon-brown, 1.5-2 μ thick, sparsely and inconspicuously echinulate, the pores 4-6, scattered.

III. Telia similar to the uredinia, blackish; teliospores broadly ellipsoid or oblong, 14-20 by 20-28 μ , rounded or obtuse above, rounded or narrowed below; wall chestnut-brown, 1.5-2 μ thick, with hyaline papilla over pore at apex, striately verrucose; pedicel colorless, slender, fragile, as long as spore or shorter, partially deciduous.

ON FABACEAE:

Crotalaria vitellina Ker, Costa Rica.

TYPE LOCALITY: Samalkota, Madras, India, on *Crotalaria juncea*.

DISTRIBUTION: Vicinity of San José, Costa Rica; also in India.

ILLUSTRATION: Sydow, Monog. Ured. 2: pl. 4, f. 60.

254. *Nigredo fallens*.

Replace the first line of the description by:

O. Pycnia amphigenous, chiefly hypophyllous, often on the midrib in groups 1-5 mm. long, noticeably whitish, becoming light-brown, globose or pyriform, 90-110 μ in transverse diameter; ostiolar filaments up to 25 μ long.

I. Aecia hypophyllous, gregarious in small groups 1-8 mm. across, small; peridium whitish, margin erose; peridial cells rhombic, considerably overlapping, 19-23 μ broad by 27-34 μ long, the outer wall 5-7 μ thick, transversely striate, smooth, the inner wall 3-5 μ , verrucose; aeciospores globose or broadly ellipsoid, 18-22 by 22-24 μ ; wall colorless, 1-1.5 μ , closely and finely verrucose.

Insert: ILLUSTRATIONS: McAlpine, Rusts Austr. pl. G, f. 32, pl. 17, f. 142; Grove, Brit. Rust Fungi f. 42; Fl. Ibér. Ured. 2: f. 44.

Add the exsiccati: Barth. Fungi Columb. 3692, 3992, 4187, 4391, 4788; Barth. N. Am. Ured. 685, 887, 1091, 1288, 1489, 1590, 1888, 2090, 2187, 2286, 2385, 2584, 2789, 2987, 3181, 3490; Brenckle, Fungi Dak. 283.

255. *Nigredo Trifolii*.

In the synonymy, for "*Uredo Trifolii* DC." read "*Uredo Trifolii* Hedw. f."

Add the synonyms: *Nigredo Hybridi* W. H. Davis, Proc. Iowa Acad. 24: 472. 1917. *Uromyces Hybridi* W. H. Davis, Proc. Iowa Acad. 24: 472. 1917. *Uromyces Trifolii-hybridi* Paul, Krypt.-Forsch. 1917²: 50. 1917.

Add the host: *Trifolium megacephalum* Nutt., Washington.

Add the illustrations: E. & P. Nat. Pfl. 1¹***: f. 36 E, F; Mycologia 16: 214. f. 4; pl. 14; Jour. Coll. Agr. Hokkaido Univ. 11: pl. 8, f. 1; Fl. Ibér. Ured. 2: f. 42.

Omit from the exsiccati: Clements, Crypt. Form. Colo. 541, which belongs to *Puccinia nerviphila* (Grognot) Arth., page 448.

Add the exsiccati: Barth. Fungi Columb. 4197, 4395, 4396, 4500, 4597, 4698, 5097; Barth. N. Am. Ured. 294, 399, 500, 700, 899, 1199, 1398, 2290, 2389, 2399, 2589, 3286; Brenckle, Fungi Dak. 375; Ellis, N. Am. Fungi 244.

256. *Nigredo Cologaniae*.

Add the host: *Cologania glabrior* Rose, Guatemala.

Add the exsiccati: Barth. N. Am. Ured. 591.

256. *Nigredo Medicaginis*.

Add the synonyms: *Uromyces Loti* A. Blytt, Forh. Vid.-Selsk. Christ. 1896⁶: 37. 1896. *Uromyces Euphorbiae-Corniculati* Jordi, Centr. Bakt. II. Abt. 11: 791. 1904.

Add the hosts:

Hosackia argophylla A. Gray (*Lotus argophyllus* Greene), California.

Hosackia glabra Torr. (*Lotus glaber* Greene), California.

Hosackia Ornithopus Greene (*Lotus Ornithopus* Greene), California.

Add the illustrations: Beitr. Krypt. Schweiz 2²: f. 26; Centr. Bakt. II. Abt. 11: 792, f. 9-14; Fl. Ital. Crypt. Ured. f. 46b; Ber. Deuts. Bot. Ges. 25: pl. 9, f. 39-45; Briosi & Cavara, Ured. Paras. 4; Fl. Ibér. Ured. 2: f. 35, 36.

Add the exsiccati: Barth. Fungi Columb. 3699; Barth. N. Am. Ured. 398, 999, 1499, 2892, 3191, 3496.

257. *Nigredo appendiculata*.

Omit the synonyms: *Uredo Pamparum* Speg., *U. Dolichi* Arth., both belonging under *Nigredo Dolicholi* Arth., page 258.

Add the synonyms: *Aecidium Phaseoli* Funck, Crypt. Gew. Ficht. 20: 4. 1814. *Uromyces Vignae* Barclay, Jour. As. Soc. Bengal 60²: 211. 1891. *Uromyces aberrans* Dietel, Bot. Jahrb. 28: 281. 1901. *Uromyces Fatouae* P. Henn. Hedwigia Beibl. 41: 18. 1902. *Uromyces Vignae-luteolae* P. Henn. in DeWild. Ét. Fl. Bas-Congo 2: 89. 1907. *Nigredo Vignae* Fromme, Phytopathology 14: 72. 1924.

Add to the description of the urediniospore-pores: "or superequatorial (*Strophostyles*, *Vigna*)."

Omit from the hosts: *Dolichos reticulatus* Hochst., error for *Dolicholus reticulatus*, which belongs under *Nigredo Dolicholi* Arth., page 258; also omit *Vigna strobilophora* B. L. Robinson; and add to *Vigna sinensis* (L.) Endl., as synonyms: (*V. Catjang* Endl., *V. unguiculata* Walp., *Dolichos melanophthalmus* DC.).

Add the hosts:

Phaseolus lathyroides L., Porto Rico.

Phaseolus truxillensis H.B.K., Costa Rica.

Strophostyles umbellata (Muhl.) Britton (*Phaseolus helvolus* T. & G. not L.), Delaware, Florida, Indiana, Pennsylvania.

Vigna vexillata (L.) A. Rich., Cuba; Porto Rico.

Add the illustrations: Fl. Ital. Crypt. Ured. f. 42a; Grove, Brit. Rust Fungi f. 55; E. & P. Nat. Pfl. 1^{1**}: f. 37A, B; Jour. As. Soc. Bengal 60²: pl. 5, f. 19; Phytopathology 14: 70. f. 1; pl. 1; Jour. Coll. Agr. Hokkaido Univ. 11: pl. 7, f. 16, 17; Fl. Ibér. Ured. 2: f. 39.

Add the exsiccati: Barth. Fungi Columb. 3691, 4590, 4591, 4991; Barth. N. Am. Ured. 285, 381, 486, 587, 679, 680, 1188, 1283, 1784, 2086, 2087, 2088, 2185, 2186, 2285, 2384, 2482, 2483, 2581, 2582, 2583, 2692, 2785, 2786, 2787, 2877, 2878, 2982, 3086, 3087, 3180, 3378, 3379, 3485, 3486; Ellis, N. Am. Fungi 243a, b; Ellis & Ev. Fungi Columb. 651; Thaxter, Rel. Parl. 287; Seym. & Earle, Econ. Fungi 10.

258. *Nigredo Clitoriae*.

Add: ILLUSTRATION: Sydow, Monog. Ured. 2: pl. 4, f. 58.

258. *Nigredo Neurocarpi*.

Add the hosts:

Bradburya pubescens (Benth.) Kuntze, Salvador.

Clitoria guianensis (Aubl.) Benth., Cuba.

Clitoria rubiginosa Juss. (*C. glycinoides* DC., *Martiusia rubiginosa* Britton), Cuba, Jamaica, Porto Rico.

Add: ILLUSTRATION: Sydow, Monog. Ured. 2: pl. 4, f. 59.

258. *Nigredo Dolicholi*.

Add the synonyms: *Uredo Pamparum* Speg. Anal. Soc. Ci. Argent. 12: 74. 1881.
Puccinia Dolichi Arth. Bull. Torrey Club 33: 28. 1906. *Uredo Dolichi* Arth. Bull.
 Torrey Club 33: 513. 1906.

Add the hosts:

Cajon Cajan (L.) Millsp. (*Cajanus indicus* Spreng.), Florida; Cuba; Porto Rico;
 Santo Domingo; St. Croix; St. Thomas.
Dolicholus minimus (L.) Medic. (*Rhynchosia minima* DC.), Porto Rico.
Dolicholus reticulatus (Sw.) Millsp. (*Rhynchosia reticulata* DC.), Cuba; Porto Rico;
 St. Croix; St. Thomas.

Change the distribution to read: Southern Texas to southern Florida and the West
 Indies; also in South America.

Add: ILLUSTRATION: Sydow, Monog. Ured. 2: pl. 4, f. 67. EXSICCATI: Barth. Fungi
 Columb. 4091; Barth. N. Am. Ured. 1689, 2986.

259. Insert:

67a. *Nigredo Geranii* (DC.) Arthur.

Uredo Geranii DC. Syn. Pl. 47. 1806.
Aecidium Geranii DC. Fl. Fr. 6: 93. 1815.
Caeoma geraniae Link. in Willd. Sp. Pl. 6: 57. 1825.
Uromyces Geranii Fries. Summa Veg. Scand. 514. 1849.
Uromyces puccinioides Rabh. Bot. Zeit. 1851: 627. 1851.
Trichobasis Geranii Berk. Outl. Brit. Fung. 333. 1860.
Aecidium violaceum Trel. Harriman Alaska Exp. Crypt. 37. 1904.

O. Pycnia amphigenous, in small groups surrounded by the aecia, honey-yellow, in
 section flattened-globoid, 120–150 μ broad by 90–110 μ high; ostiolar filaments short.

I. Aecia hypophyllous or petiolicolous, on somewhat thickened, purplish, and usually
 depressed spots 5–15 mm. across, often extending along the veins, bullate, small, 0.3–0.4
 mm. in diameter, ruptured epidermis somewhat overarching; peridium yellowish,
 evanescent; peridial cells loosely joined, narrowly rhomboidal, 12–15 by 24–32 μ , slightly
 overlapping, the outer wall 3–4 μ thick, smooth, the inner wall slightly thinner, 2.5–3.5 μ ,
 finely verrucose; aeciospores broadly ellipsoid, 20–24 by 26–30 μ ; wall nearly or quite
 colorless, 2–2.5 μ thick, noticeably verrucose.

II. Uredinia hypophyllous, round, 0.3–0.5 mm. in diameter, somewhat tardily naked,
 cinnamon-brown, pulverulent, ruptured epidermis noticeable; urediniospores globoid or
 ellipsoid, 22–24 by 24–30 μ ; wall cinnamon-brown, 1.5–2 μ thick, moderately echinulate,
 with 1 pore, usually in the equator.

III. Telia hypophyllous, scattered, round, 0.3–0.5 mm. in diameter, somewhat tardily
 naked, pulvinate, becoming pulverulent, chestnut-brown, ruptured epidermis conspicuous;
 teliospores broadly ellipsoid or obovoid, 18–24 by 26–38 μ , rounded above, rounded or
 sometimes narrowed below; wall chestnut-brown, 1.5–2 μ thick, with hyaline umbo
 over pore, 4–6 μ thick, smooth; pedicel colorless, fragile, short.

ON GERANIACEAE:

Geranium erianthum DC., Alaska.

TYPE LOCALITY: France, on *Geranium aconitifolium*.

DISTRIBUTION: Southeastern Alaska; also in Europe.

ILLUSTRATIONS: Grev. Scot. Crypt. Fl. pl. 8; Beitr. Krypt. Schweiz 2: f. 14; Sitz.-ber.
 Böhm. Ges. Wiss. 1892^a: f. 6–10; Bubák, Pilze Böhmens f. 5; Fl. Ibér. Ured. 2: f. 46.

259. *Nigredo proëminens*.

In the synonymy the year for the publication of *Uromyces proëminens* Pass. should
 read 1874.

Add the synonyms: *Aecidium Euphorbiae* Schw. Schr. Nat. Ges. Leipzig 1: 69, hy-
 ponym. 1822. *Uredo Euphorbiae-nudiflorae* P. Henn. Hedwigia 37: 278. 1898.

Omit from the hosts, after *C. hypericifolia*: "District of Columbia, Indiana,
 Iowa, Missouri, Nebraska, New York, North Carolina, Ohio, Pennsylvania, West Vir-
 ginia," all of which belong under *C. Preslii*, and in their places insert "Costa Rica;

Panama; Bermuda; Cuba; Porto Rico"; omit, after *C. hyssopifolia*, "Florida," and add Porto Rico; also, under *Poinsettia heterophylla*, omit "Morelos."

Add the hosts:

- Aklema nudiflora* (Jacq.) Raf. (*Euphorbia nudiflora* Jacq.), Jamaica.
Chamaesyce Blodgettii (Engelm.) Small (*Euphorbia Blodgettii* Engelm.), Bermuda.
Chamaesyce densiflora (Klotzsch) Millsp. (*Euphorbia densiflora* Klotzsch), Salvador.
Chamaesyce Fendleri (T. & G.) Small (*Euphorbia Fendleri* T. & G.), Utah.
Chamaesyce oregonensis Millsp., Oregon.
Chamaesyce polycarpa (Benth.) Millsp. (*Euphorbia polycarpa* Engelm.), Arizona, California.
Chamaesyce strictospora (Engelm.) Small (*Euphorbia strictospora* Engelm.), New Mexico, Oklahoma.
Poinsettia cuphusperma (Engelm.) Small (*Euphorbia cuphusperma* Engelm.), New Mexico.
Poinsettia cyathophora (Murr.) A. Brown (*Euphorbia cyathophora* Murr.), Florida; Morelos; Bermuda; Cuba; Porto Rico.
Zygophyllidium bilobatum (Engelm.) Standley (*Euphorbia bilobata* Engelm.), New Mexico.
Zygophyllidium macropodoides (Rob. & Greenm.) Arth. (*Euphorbia macropodoides* Rob. & Greenm.), Morelos.

Add the illustrations: Jour. Coll. Agr. Hokkaido Univ. 11: pl. 8, f. 15; Fl. Ibér. Ured. 2: f. 20, 21.

Add the exsiccati: Barth. Fungi Columb. 3695, 3696, 3697, 3698, 4194, 4299, 4594, 4595; Barth. N. Am. Ured. 296, 297, 298, 396, 495, 496, 497, 695, 696, 697, 798, 799, 895, 993, 1096, 1197, 1496, 1598, 1793, 1794, 1893, 1894, 1996, 1997, 2096, 2196, 2197, 2297, 2298, 2395, 2594, 2595, 2697, 2796, 2797, 2798, 2893, 2894, 2997, 3097, 3194, 3293, 3294, 3393, 3394, 3395, 3497, 3498; Brenckle, Fungi Dak. 71a, 155, 177; Ellis & Ev. Fungi Columb. 253; Garrett, Fungi Utah. 247; Sydow, Ured. 2504.

261. Insert:

69a. *Nigredo dictyosperma* (Ellis & Ev.) Arthur.

Uromyces dictyosperma Ellis & Ev. N. Am. Fungi 2882, hyponym. 1893.

Uromyces dictyosperma Ellis & Ev.; Tranz. Ann. Myc. 8: 12. 1910.

O. Pycnia hypophyllous, scattered among the aecia, inconspicuous, in section depressed-globoid, small, 90–115 μ broad by 60–90 μ high; ostiolar filaments agglutinate.

I. Aecia hypophyllous, evenly scattered over large areas from a distributed mycelium, cupulate; peridium yellowish, the margin slightly recurved, erose; peridial cells rectangular or rhomboidal, 14–18 by 20–24 μ , slightly overlapping, the outer wall 5–9 μ thick, transversely striate, smooth, the inner wall 3–3.5 μ thick, verrucose; aeciospores globoid or ellipsoid, 12–16 by 16–20 μ ; wall thin, 1–2 μ , very finely verrucose.

II. Uredinia chiefly hypophyllous, scattered, round, large, 0.5–1.5 mm. in diameter, somewhat tardily naked, cinnamon-brown, pulverulent, ruptured epidermis conspicuous; urediniospores globoid, 16–20 μ in diameter; wall nearly colorless, 1.5–2 μ thick, finely and inconspicuously verrucose, the pores about 6, scattered.

III. Telia chiefly hypophyllous, scattered, round, 0.5–1.5 mm. in diameter, tardily naked, blackish-brown, somewhat pulverulent, ruptured epidermis conspicuous; teliospores globoid or ellipsoid, 18–24 by 24–30 μ , rounded above and below; wall chestnut-brown, uniformly 2–2.5 μ thick exclusive of tubercles, coarsely tuberculate, the tubercles 3–3.5 μ high; pedicel colorless, short, deciduous.

ON EUPHORBACEAE:

Tithymalus arkansanus (Engelm. & Gray) Klotzsch & Garcke (*Euphorbia arkansana* Engelm. & Gray), Colorado, Kansas, Nebraska, Oklahoma, South Dakota, Texas.

Tithymalus dictyosperma (Fisch. & Mey.) A. Heller (*Euphorbia dictyosperma* Fisch. & Mey.), California, Washington.

Tithymalus missouriensis (Norton) Small (*Euphorbia missouriensis* Norton), Colorado, Kansas, Montana, Nebraska, North Dakota, South Dakota, Wyoming.

Tithymalus obtusatus (Pursh) Small (*Euphorbia obtusata* Pursh), California.

TYPE LOCALITY: Hilgers, Montana, on *Euphorbia dictyosperma*, now determined as *E. missouriensis*.

DISTRIBUTION: Eastern North Dakota to western Texas and westward to California.

ILLUSTRATION: E. & P. Nat. Pfl. 11**: f. 35D.

EXSICCATI: Barth. Fungi Columb. 3495; Barth. N. Am. Ured. 884, 1190, 2486, 2487, 2881, 2985; Ellis & Ev. Fungi Columb. 1597; Ellis & Ev. N. Am. Fungi 2882; Sydow, Ured. 1554.

69b. *Nigredo Janiphæ* (Wint.) Arthur.

Uredo Janiphæ Wint. *Grevillea* 15: 86. 1887.

Uromyces Jatrophæ Dietel & Holway, *Bot. Gaz.* 24: 25. 1897.

Uromyces dichrous Vesterg. *Micr. Rar. Sel.* 1516, hyponym. 1913.

Uromyces Janiphæ Arth. *Mycologia* 7: 190. 1915.

O. Pycnia amphigenous, on brownish-yellow spots, inconspicuous, honey-yellow, in section globoid, 80–150 by 112–160 μ ; ostiolar filaments agglutinate.

I. Aecia hypophyllous, few, crowded or confluent on brownish-yellow spots, round, 0.3–0.5 mm. in diameter, tardily erumpent, ruptured epidermis overarching; peridium none; aeciospores globoid or ellipsoid, 16–23 by 19–26 μ ; wall colorless, thick, 2.5–3.5 μ , moderately and coarsely verrucose.

II. Uredinia amphigenous, caulicolous, and fructicolous, scattered, roundish, oblong, or linear, 0.3–2 mm. long, early naked, yellowish-brown, pulverulent, ruptured epidermis evident; urediniospores ellipsoid or obovoid, 18–24 by 19–32 μ ; wall brownish-yellow or nearly colorless, 1.5–3 μ thick, moderately echinulate, the pores obscure, probably 4–6, scattered.

III. Telia amphigenous, scattered, roundish, 0.2–1.5 mm. across, early naked, chocolate-brown, somewhat pulverulent, ruptured epidermis conspicuous; teliospores ellipsoid or globoid, 17–29 by 26–42 μ ; wall 2.5–5 μ thick, thickened into an acute apex, 7–12 μ , laminate, the inner layer chestnut-brown, the outer layer golden-brown, somewhat hygroscopic and frequently inconspicuous, closely and coarsely verrucose, sometimes forming longitudinal lines; pedicel colorless, except a slightly tinted collar next to spore, once to once and a half length of spore.

ON EUPHORBIACEAE:

Jatropha multifida L., Jalisco.

Manihot Manihot (L.) Cockerell (*M. utilisissima* Pohl, *Jatropha Manihot* L., *Janiphæ Manihot* H.B.K.), Jalisco; Costa Rica; Cuba, Jamaica, Porto Rico.

TYPE LOCALITY: [São Francisco, Brazil], on *Janiphæ Manihot*.

DISTRIBUTION: Central Mexico and the West Indies; also in South America.

ILLUSTRATION: Sydow, *Monog. Ured.* 2: pl. 6, f. 92.

EXSICCATI: Barth. *Fungi Columb.* 4093, 4695; Barth. *N. Am. Ured.* 193, 391; Ellis & Ev. *Fungi Columb.* 2096; Sydow, *Ured.* 1509; Vesterg. *Mic. Rar. Sel.* 871, 1516.

69c. *Nigredo* (?) *globosa* (Dietel & Holway) Arthur.

Uromyces globosus Dietel & Holway; *Bot. Gaz.* 24: 23. 1897.

O and I. Pycnia and aecia unknown.

II. Uredinia hypophyllous, few, gregarious, roundish, 0.5–0.8 mm. across, early naked, cinnamon-brown, ruptured epidermis very prominent; urediniospores obovate, 19–27 by 35–52 μ ; wall cinnamon-brown, paler below, 1–1.5 μ thick, much thicker above, 4–9 μ , sparsely and strongly echinulate, the pores indistinct, 2, approximately equatorial.

III. Telia chiefly hypophyllous, numerous, scattered, irregularly roundish, 0.1–1 mm. across, soon naked, dark chocolate-brown, somewhat pulverulent, ruptured epidermis noticeable; teliospores globoid or obovate-globoid, 27–34 by 34–42 μ ; wall thick, 6–9 μ , thickened by a broad umbo above, 10–15 μ , laminate, the inner layer dark chocolate-brown, 4–5 μ thick, the outer layer cinnamon-brown, swelling in water, closely and moderately verrucose; pedicel colorless, 6–10 μ thick, strongly bulbous next to spore, once to twice length of spore.

ON EUPHORBIACEAE:

Sapium macrocarpum Muell.-Arg. (*S. mexicanum* Hemsl.), Morelos.

TYPE LOCALITY: Cuernavaca, Mexico, on "some euphorbiaceous tree" [*Sapium macrocarpum*].

DISTRIBUTION: Vicinity of Cuernavaca, Mexico.

ILLUSTRATION: Sydow, *Monog. Ured.* 2: pl. 6, f. 97.

EXSICCATI: Barth. *Fungi Columb.* 3890; Barth. *N. Am. Ured.* 189, 488; Sydow, *Ured.* 1506.

261. *Nigredo Gouaniae*.

Insert at the end of the description of the teliospore-wall the word "verrucose."

261. **Nigredo Hyperici-frondosi.**

Omit from the hosts: "*Hypericum aureum*," an erroneous determination for *H. prolificum* L., also omit "Wisconsin" after *H. canadense*, "Iowa" after *H. mutilum*, and "Iowa" after *Triadenum virginicum*, and add the following hosts:

Hypericum anagaloides Cham. & Schlecht., California.
Hypericum pratense Cham. & Schlecht., Guatemala.
Hypericum Scouleri Hook., Oregon.

Insert: ILLUSTRATION: Sydow, Monog. Ured. 2: pl. 3, f. 49.

Add the exsiccati: Barth. Fungi Columb. 3694, 3892, 4190; Barth. N. Am. Ured. 291, 292, 389, 390, 489, 2390, 3187, 3493; Thaxter, Rel. Farl. 293a, b; Sydow, Ured. 2403, 2404.

262. **Nigredo plumbaria.**

Add the hosts:

Gaura angustifolia Michx., Mississippi.
Gaura induta Wootton & Standley, New Mexico, Oklahoma.
Gaura neomexicana Wootton, Colorado.
Lavauxia tanacetifolia T. & G., Nevada.
Oenothera muricata L., New York.
Taraxia ovata (Nutt.) Small (*Oenothera ovata* Nutt.), California.

Insert: ILLUSTRATION: Sydow, Monog. Ured. 2: pl. 3, f. 46-48.

Omit from the exsiccati: Ellis & Ev. Fungi Columb. 1994.

Add the exsiccati: Barth. Fungi Columb. 1994, 3893; Barth. N. Am. Ured. 493, 596, 1396, 1495, 1790, 1791, 2294, 2393, 2995, 3192, 3193, 3291, 3292; Ellis & Ev. Fungi Columb. 872; Ellis & Ev. N. Am. Fungi 2895, 3584.

263. **Nigredo Limonii.**

Add the synonym: *Capitularia Limonii* Sydow, Ann. Myc. 20: 123. 1922.

Add the host: *Limonium limbatum* Small, New Mexico, Texas.

Insert: ILLUSTRATIONS: Grove, Brit. Rust Fungi f. 40; Fl. Ital Crypt. Ured. f. 38b; Sitz.-ber. Böhm. Ges. Wiss. 1902⁴⁶: f. 13-18; Fl. Ibér. Ured. 2: f. 61.

Add the exsiccati: Thaxter, Rel. Farl. 297.

264. Insert:

73a. **Nigredo Armeriae** (Schlecht.) Arthur.

Caecoma Armeriae Schlecht. Fl. Berol. 2: 126. 1824.
Uredo Armeriae Link. in Willd. Sp. Pl. 6: 11. 1825.
Erysibe Armeriae Walfr. Fl. Crypt. Germ. 2: 208. 1833.
Uromyces Armeriae Lévl. Ann. Sci. Nat. III. 8: 375. 1847.

O. Pycnia amphigenous, in small groups, punctiform, inconspicuous.

I. Aecia amphigenous, in small groups 1-4 cm. across, small, cupulate; peridium whitish, the margin erose; peridial cells rhomboidal, 16-20 by 28-38 μ , considerably overlapping, the outer wall 7-10 μ thick, transversely striate, smooth, the inner wall much thinner, 2.5-3.5 μ , conspicuously verrucose; aeciospores angularly globoid or broadly ellipsoid, 16-20 by 18-26 μ ; wall colorless, thin, 1-1.5 μ , closely and minutely verrucose.

II. Uredinia amphigenous or caulicolous, scattered, round, 0.5-1 mm. across, tardily naked, pulverulent, ruptured epidermis conspicuous; urediniospores globoid or obovoid, 22-28 by 22-32 μ ; wall cinnamon-brown, thick, 2.5-3 μ , very finely and closely verrucose, the pores 2-4, equatorial.

III. Telia amphigenous or caulicolous, scattered, round, 0.5-1 mm. in diameter, somewhat tardily naked, chestnut-brown, becoming pulverulent, ruptured epidermis conspicuous; teliospores globoid or ellipsoid, 22-30 by 28-38 μ , rounded above and below; wall chestnut-brown, 2-2.5 μ thick, thicker above, 7-9 μ , smooth; pedicel colorless, short, deciduous.

ON ARMERIACEAE:

Stalice Armeria L. (*Armeria vulgaris* Willd.), California, Oregon.

TYPE LOCALITY: Berlin, Germany, on *Armeria vulgaris*.

DISTRIBUTION: Pacific coast from northern Oregon to central California; also in Europe.
ILLUSTRATIONS: Beitr. Krypt. Schweiz 2: f. 39; Grove, Brit. Rust Fungi f. 41; Fl. Ital. Crypt. Ured. f. 38a; Sitz.-ber. Böhm. Ges. Wiss. 1902⁴⁶: f. 11, 12.

264. *Nigredo* (?) *speciosa*.

Change the first host to read *Frasera speciosa* Dougl.

Add to type locality: "error for *F. speciosa*."

Insert: ILLUSTRATION: Sydow, Monog. Ured. 2: pl. 2, f. 35.

264. *Nigredo* *Gentianae*.

Add the hosts:

Amarella heterosepala (Engelm.) Greene (*Gentiana heterosepala* Engelm.), New Mexico.
Pleurogyne rotata (L.) Griseb., Quebec.

Add the exsiccati: Barth. Fungi Columb. 4890; Barth. N. Am. Ured. 1490, 1983.

264. *Nigredo* (?) *Howei*.

Reduce this name to synonymy, and substitute: *Nigredo* (?) *Asclepiadis* (Schw.) Arthur.

Add the synonyms: *Uredo Asclepiadis* Schw.; Berk. & Curt. Jour. Acad. Phila. II. 2: 282. 1853. *Uredo asclepiadina* Speg. Anal. Mus. Nac. Buenos Aires III. 12: 316. 1909.

Add the hosts:

Asclepias guatemalensis Donn.-Sm., Guatemala.

Asclepias nivea L., Cuba.

Asclepias purpurascens L., Missouri.

Vincetoxicum Shortii (A. Gray) Britton (*Gonolobus Shortii* A. Gray), Indiana.

Add the exsiccati: Barth. N. Am. Ured. 595, 688, 1593, 1694, 2289, 2388, 2588, 2693, 2888, 3186, 3492; Thaxter, Rel. Farl. 289.

265. *Nigredo* *Solani*.

Add the host: *Solanum nudum* H.B.K. Guatemala.

Add: ILLUSTRATION: Sydow, Monog. Ured. 2: pl. 2, f. 27.

265. *Nigredo* (?) *Ruelliae*.

Insert at end of first line of the description of the telia: "or forming fusiform swellings on stems, 2-3 cm. long,".

Add: EXSICCATI: Barth. N. Am. Ured. 1600.

266. *Nigredo* *Bouvardiae*.

Add the host: *Bouvardia laevis* Mart. & Gal., Hidalgo.

Insert: ILLUSTRATION: Sydow, Monog. Ured. 2: pl. 1, f. 20.

Add the exsiccati: Barth. Fungi Columb. 3889.

266. *Nigredo* *Spermacoces*.

Add the exsiccati: Barth. N. Am. Ured. 2099, 2200, 2398, 2800, 2895, 2999, 3100; Rav. Fungi Car. 2: 91.

267. *Nigredo* *Helleriana*.

Add the hosts:

Cayaponia americana (Lam.) Cogn., Porto Rico.

Cayaponia attenuata Cogn., Costa Rica; Panama.

Fevillea cordifolia L., Porto Rico.

Melothria guadalupensis (Spreng.) Cogn., Cuba; Porto Rico.

Melothria scabra Naud., Guatemala.

Add: EXSICCATI: Barth. N. Am. Ured. 1691.

267. Insert:

81a. *Nigredo compacta* (Peck) Arthur.

Uromyces compactus Peck, Bot. Gaz. 7: 56. 1882.

Uromyopsis compacta Arth. Résult. Sci. Congr. Bot. Vienne 345. 1906.

Uromyces Boltoniae H. S. Jackson; Barth. N. Am. Ured. 3488. 1926.

O. Pycnia caulicolous, crowded in center of the aecial area, inconspicuous, punctiform, in section globoid or flask-shaped, 110-160 μ wide by 130-220 μ high; ostiolar filaments short.

I. Aecia caulicolous, crowded in fusiform or elongate groups 5-15 mm. long, cylindrical, 0.2-0.5 mm. in diameter, 0.7-1.5 mm. high; peridium colorless, the margin erect, erose, and finally lacerate; peridial cells rhombic or rhomboidal, slightly overlapping, 16-23 by 45-51 μ , the wall 5 μ thick, the outer wall transversely striate, smooth, the inner wall coarsely verrucose; aeciospores ellipsoid or oblong, 20-26 by 26-32 μ ; wall colorless, 1-2 μ thick, finely and inconspicuously verrucose.

II. Uredinia caulicolous, few, scattered, round or oblong, about 0.5 mm. across, early naked, cinnamon-brown, ruptured epidermis evident; urediniospores ellipsoid or oblong, 23-30 by 32-45 μ ; wall light cinnamon-brown, 1-1.5 μ thick, moderately and finely echinulate, the pores 2, equatorial.

III. Telia caulicolous, thickly scattered, round or oblong, 0.5 mm. across, early naked, pulvinate, dark chocolate-brown, ruptured epidermis conspicuous; teliospores ellipsoid, oblong, or obovate, 19-30 by 30-42 μ , rounded above, usually narrowed below; wall chestnut-brown, 1.5-2 μ thick, thicker above, 5-8 μ , smooth; pedicel colorless, persistent, once to once and a half length of spore.

ON CARDUACEAE:

Leucosyris spinosa (Benth.) Greene (*Aster spinosus* Benth.), Arizona, New Mexico.

TYPE LOCALITY: Arizona, on "dead stems of some composite plant" [*Leucosyris spinosa*].

DISTRIBUTION: Southern Arizona and New Mexico.

ILLUSTRATION: Sydow, Monog. Ured. 2: pl. 1, f. 2.

EXSICCATI: Barth. N. Am. Ured. 3381, 3483; Ellis & Ev. Fungi Columb. 1284; Ellis & Ev. N. Am. Fungi 3566; D. Griff. West Am. Fungi 382.

81b. *Nigredo Polymniae* (P. Henn.) Arthur.

Uredo Polymniae P. Henn. Hedwigia Beibl. 38: 129. 1899.

Uromyces Polymniae Dietel & Holway; Holway, Bot. Gaz. 31: 327. 1901.

O. Pycnia epiphyllous, gregarious on pale spots, punctiform, inconspicuous, golden-brown, in section globose, 150-175 μ in diameter; ostiolar filaments short.

I. Aecia hypophyllous, in circinate groups opposite the pycnia, bullate, round or oblong, 0.3-1 mm. in longest diameter; peridium delicate, incurved, the margin erose; peridial cells oblong or elongate, 18-23 by 30-60 μ , abutted or somewhat overlapping, the outer wall 2-3 μ thick, finely verrucose, the inner wall 5-7 μ thick, coarsely verrucose; aeciospores globose or ellipsoid, 16-23 by 19-30 μ ; wall colorless, 1.5-3 μ thick, closely verrucose.

II. Uredinia chiefly hypophyllous, numerous, scattered, round, 0.2-0.5 mm. in diameter, early naked, cinnamon-brown, pulverulent, ruptured epidermis evident; urediniospores globose or obovoid-globose, 21-26 μ in diameter; wall cinnamon-brown, 1-1.5 μ thick, moderately and finely echinulate, the pores 2, distinctly subequatorial.

III. Telia chiefly hypophyllous, numerous, scattered, roundish, 0.2-0.8 mm. across tardily naked, pulvinate, chestnut-brown, ruptured epidermis conspicuous; teliospores globose or ellipsoid, 23-28 by 26-36 μ , rounded or truncate above, rounded or somewhat narrowed below; wall chestnut- or cinnamon-brown, 1.5-2.5 μ thick, much thicker above, 7-12 μ , smooth; pedicel slightly tinted, persistent, one and a half to twice length of spore.

ON CARDUACEAE:

Polymnia maculata Cav., Mexico (state), Michoacan; Guatemala.

TYPE LOCALITY: Novo Friburgo near Rio de Janeiro, Brazil, on *Polymnia* sp.

DISTRIBUTION: Southern Mexico and Guatemala; also in South America.

ILLUSTRATION: Sydow, Monog. Ured. 2: pl. 1, f. 8.

EXSICCATI: Barth. Fungi Columb. 3894; Barth. N. Am. Ured. 97, 395.

81c. *Nigredo senecionicola* Arthur.

Uromyces senecionicola Arth. Bot. Gaz. 40: 198. 1905.

O. Pycnia epiphyllous, crowded in small groups opposite the aecia, punctiform, brownish.

I. Aecia few, hypophyllous, crowded in small groups or solitary; peridium colorless, fragile; aeciospores irregularly globose or ellipsoid; wall colorless, 1-2 μ thick, closely verrucose.

II. Uredinia few, hypophyllous, scattered or in groups, round, 0.3–0.8 mm. in diameter, somewhat tardily naked, cinnamon-brown, ruptured epidermis noticeable; urediniospores ellipsoid, 18–23 by 26–28 μ ; wall pale cinnamon-brown, 1–2 μ thick, sparsely and strongly echinulate, the pores obscure, probably 2, equatorial.

III. Telia hypophyllous, thickly scattered, irregularly roundish, 0.5 mm. in diameter or less, long covered by the grayish epidermis; teliospores ellipsoid or obovoid, 18–23 by 28–36 μ ; wall cinnamon-brown, 1–2 μ thick, thicker above, 3–8 μ , smooth; pedicel nearly or quite colorless, persistent, as long as spore or shorter.

This species is morphologically similar to *Dicaeoma senecionicola* (Arth.) Arth. & Jackson, except in having unseptated teliospores, is found on similar hosts, and occurs in the same region. The two species, now kept separate for convenience, should eventually be united under one name.

ON CARDUACEAE:

Senecio Roldana DC., Mexico (state).

Senecio sp., Michoacan.

TYPE LOCALITY: Amecameca, Mexico, on *Senecio Roldana*.

DISTRIBUTION: Southern Mexico.

ILLUSTRATION: Sydow, Monog. Ured. 2: pl. 1, f. 11.

EXSICCATI: Barth. N. Am. Ured. 1296, 1497.

81d. *Nigredo Salmeae* (Arth. & Holway) Arthur.

Uromyces Salmeae Arth. & Holway, Am. Jour. Bot. 5: 445. 1918.

O. Pycnia amphigenous, few, in groups on discolored spots, noticeable, brownish, in section globoid or ellipsoid, 160–200 μ broad by 190–230 μ high; ostiolar filaments up to 96 μ long.

I. Aecia amphigenous, grouped with the pycnia on discolored spots 1–2 mm. across, cupulate, 0.1–0.2 mm. in diameter; peridium delicate, not extending above the leaf-surface; peridial cells soon collapsing, the walls thin, 1 μ , closely and coarsely verrucose; aeciospores ellipsoid or oblong, 19–26 by 29–50 μ ; wall colorless or pale cinnamon-brown, 1.5–2 μ thick, often thicker above, up to 5 μ , closely and coarsely verrucose.

II. Uredinia chiefly hypophyllous, scattered, oval or oblong, 0.3–0.8 mm. long, early naked, cinnamon-brown, somewhat pulverulent, ruptured epidermis evident; urediniospores ellipsoid or obovoid, 23–27 by 30–35 μ ; wall cinnamon-brown, 1–1.5 μ thick, finely and moderately echinulate, the pores indistinct, 2, slightly superequatorial.

III. Telia hypophyllous, scattered, oval or oblong, 0.3–0.8 mm. long, early naked, light chestnut-brown, somewhat pulverulent, ruptured epidermis noticeable; teliospores oblong or narrowly ellipsoid, 18–23 by 35–50 μ , narrowed above and below; wall golden-brown above, lighter to colorless below, thin, 1 μ , abruptly and greatly thickened above, 5–13 μ , smooth; pedicel colorless, fragile, as long as spore.

ON CARDUACEAE:

Salmea scandens (L.) DC., Guatemala; Porto Rico.

TYPE LOCALITY: San Lucas Toliman, Solola, Guatemala, on *Salmea scandens*.

DISTRIBUTION: Porto Rico and southern Guatemala.

267. *Nigredo Martinii*.

Change the first host to read: *Melanthera hastata* Michx.

267. Insert:

82a. *Nigredo columbiana* (Mayor) Arthur.

Uromyces columbianus Mayor, Mém. Soc. Neuch. Sci. Nat. 5: 467. 1913.

O. Pycnia chiefly epiphyllous, dark-brown, inconspicuous, in section globoid or flask-shaped, 90–140 μ broad by 95–150 μ high; ostiolar filaments short.

I. Aecia hypophyllous, few, in small groups 2–8 mm. across, often extending along veins, bullate, surrounded by the overarching epidermis; peridium rudimentary; peridial cells loosely united and soon falling apart, scarcely distinguishable from aeciospores; aeciospores ellipsoid, 14–18 by 20–24 μ ; wall colorless, 1.5 μ thick, finely but noticeably verrucose.

II. Uredinia amphigenous, scattered, round, small, 0.2–0.4 mm. in diameter, early naked, cinnamon-brown, pulverulent, ruptured epidermis noticeable; urediniospores globose or obovoid, 16–18 by 18–22 μ ; wall cinnamon-brown, 1–1.5 μ thick, finely and rather closely echinulate, the pores 2, approximately equatorial.

III. Telia amphigenous, scattered, round, small, 0.2–0.4 mm. in diameter, early naked, light chestnut-brown, soon pulverulent, ruptured epidermis noticeable; teliospores germinating at maturity, oblong or narrowly ellipsoid, 12–20 by 22–34 μ , rounded above, usually somewhat narrowed below; wall light chestnut-brown above, nearly colorless below, thin, 1–1.5 μ , abruptly thickened above, 5–6 μ , smooth; pedicel colorless, fragile, short.

ON CARDUACEAE:

Melanthera angustifolia A. Rich., Florida.

Melanthera aspera (Jacq.) Steud., Costa Rica; Guatemala.

Melanthera canescens (Kuntze) O. E. Schulz, Porto Rico.

Melanthera deltoidea Michx. (*M. brevifolia* O. E. Schulz), Costa Rica; Salvador; Bahamas; Cuba.

Melanthera hastata Michx. (*M. oxylepis* DC.), Costa Rica; Guatemala; Cuba; Porto Rico.

Melanthera nivea (L.) Small, Porto Rico.

TYPE LOCALITY: Medellín, Antioquia, Colombia, on *Melanthera aspera*.

DISTRIBUTION: Central America and the West Indies; also in South America.

ILLUSTRATION: Mém. Soc. Neuch. Sci. Nat. 5: 468. f. 13.

268. *Nigredo cucullata*.

Change size of urediniospores to "16–23 by 19–24 μ ."

Omit the sixth host.

Add the hosts:

Ballimora recta L., Guatemala; Panama; Salvador; Cuba.

Perymenium macrocephalum Greenm., Guerrero.

Perymenium Purpusii Brand., Guatemala.

Perymenium strigillosum (Rob. & Greenm.) Greenm., Guatemala.

Zexmenia scandens Hemsl., Guatemala.

Insert: ILLUSTRATION: Sydow, Monog. Ured. 2: pl. 1, f. 18.

268. *DICAEOMA*.

Add the synonyms: *Eriosporangium* Bertero; Lév. Ann. Sci. Nat. III. 5: 269. 1846. *Argotilium* Arth. Résult. Sci. Congr. Bot. Vienne 343, excl. descr. 1906. *Pleomeris* Sydow, Ann. Myc. 19: 171. 1921. *Persooniella* Sydow, Ann. Myc. 20: 118. 1922.

269. In the key.

Replace lines 16–21 by:

Paraphyses encircling the sori; urediniospore-pores 4; teliospores 35–50 μ long.	9. <i>D. Kaernbachii</i> .
Paraphyses intermixed; urediniospore-pores 4 or 5; teliospores 29–39 μ long.	38. <i>D. unicum</i> .

For "18. *D. Huberi*" read "18. *D. leve*."

270. In the key.

For "32. *D. Arthuri*" read "32. *D. Gymnotrichis*."

For "39. *D. interveniens*" read "39. *D. Eurotiaae*."

For "28. *D. eslavense*" read "28. *D. atrum*."

272. In the key.

Replace lines 50 and 51 by:

Teliospores medium-sized (13–19 \times 30–61 μ), with prominent projections.	
Projections 3–12 μ long, spreading.	57. <i>D. Rhamnii</i> .
Projections 10–25 μ long, erect.	58. <i>D. Periclymeni</i> .

274. In the key.

Replace line 2 by:

Urediniospore-wall 2–2.5 μ thick.	
Teliospores 45–64 μ long, the apex 16–23 μ thick.	130. <i>D. spatiosum</i> .
Teliospores 42–56 μ long, the apex 10–15 μ thick.	130a. <i>D. Allenii</i> .

Replace line 14 by:

- Uredinospore-wall moderately thick (2-2.5 μ).
 Uredinospores small (19-23 \times 23-29 μ).
 Uredinospores large (23-29 \times 29-39 μ).

121a. *D. paludosa*.
 114. *D. Cladii*.

276. In the key.

Replace line 77 by:

- Pedicels slender.
 Apical thickening of teliospore broad.
 Apical thickening of teliospore abruptly narrow.

239. *D. evadens*.
 244a. *D. Plucheae*.

277. *Dicaeoma Sorghi*.

Add the illustration: Fl. Ital. Crypt. Ured. f. 74c; Fl. Ibér. Ured. 1: f. 43.

Add the exsiccati: Barth. N. Am. Ured. 2368, 2563, 2680, 2869, 3169, 3268, 3366, 3367.

278. *Dicaeoma pallescens*.

Add the illustration: Bull. Torrey Club 32: 37. f. 2II.

279. *Dicaeoma polysorum*.

Add the hosts:

Erianthus divaricatus (L.) Hitchc., Florida.
Tripsacum laxum Nash, Virginia; Cuba.

Add the exsiccati: Barth. N. Am. Ured. 2670.

279. *Dicaeoma Ceanothi*.

Add the illustrations: Sydow, Monog. Ured. 1: pl. 43, f. 556; Bull. Torrey Club 32: 37. f. 2X.

280. *Dicaeoma virgatum*.

Omit the host: *Andropogon condensatus*.

Add the exsiccati: Barth. N. Am. Ured. 2572.

280. *Dicaeoma Mariae-Wilsoni*.

Add the synonyms: *Puccinia sagittata* Long, Phytopathology 2: 167. 1912. *Puccinia Mariae-Wilsoni* Barth. N. Am. Ured. 204. 1922. Not *P. Mariae-Wilsoni* G. W. Clinton, 1873.

Add the host, under Violaceae: *Viola palmata* L., Iowa.

Add the exsiccati: Barth. N. Am. Ured. 2432, 2841, 3241.

281. *Dicaeoma Andropogonis*.

Of the hosts under Scrophulariaceae, the last name but one should read: *Penstemon virens* Pennell (*P. humilis* A. Gray, not Nutt.).

Add the host, under Scrophulariaceae: *Penstemon nitidus* Dougl., Montana.

Under exsiccati, for "D. Griff. N. Am. Fungi," read "D. Griff. W. Am. Fungi."

Add the exsiccati: Barth. N. Am. Ured. 2334, 2335, 2336, 2422, 2531, 2645, 2646, 2647, 2648, 2735, 2736, 2737, 2738, 2927, 3029, 3125, 3126, 3223, 3448; Thaxter, Rel. Farl 238.

283. *Dicaeoma venustum*.

Omit this species, which is merged with the next.

284. *Dicaeoma Kaernbachii*.

Add the synonyms: *Puccinia Nakanishikii* Dietel, Bot. Jahrb. 34: 585. 1904. *Puccinia andropogonicola* Speg. Anal. Mus. Nac. Buenos Aires 19: 299. 1909. *Uredo andropogonicola* Speg. Anal. Mus. Nac. Buenos Aires 19: 315. 1909. *Puccinia posadensis* Sacc. & Trott. in Sacc. Syll. Fung. 21: 691. 1912. *Uredo venustula* Arth. Mycologia 8: 21. 1916. *Puccinia venustula* Arth. Mycologia 10: 128. 1918. *Dicaeoma venustum* Arth. & Fromme, N. Am. Flora 7: 283. 1920.

Add the host: *Andropogon brevifolius* Sw. (*Schizachyrium brevifolium* Nees), Costa Rica: Porto Rico.

Change the distribution to read: Central Florida, southward into the West Indies, and from central Mexico through Central America; also in New Britain Islands (Bismarck Archipelago), and in Asia, Africa, and South America.

284. *Dicaeoma versicolor*.

Change the distribution to read: Southern Mexico; also in Hawaii.

Add the illustration: Sydow, Monog. Ured. 1: *pl. 39, f. 516*.

284. *Dicaeoma purpureum*.

Add the synonym: *Puccinia Sorghi-halepensis* Speg. Anal. Mus. Nac. Buenos Aires 31: 386. 1922.

Add the exsiccati: Barth. N. Am. Ured. 2671; Sydow, Ured. 2580.

286. *Dicaeoma leve*.

Add the synonyms: *Diorchidium goyazense* Sacc. & Sydow, in Sacc. Syll. Fung. 14: 359. 1899. *Puccinia Huberi* P. Henn. Hedwigia Beibl. 39: 76. 1900. *Puccinia Puttemansii* P. Henn. Hedwigia 41: 105. 1902. *Dicaeoma Huberi* Arth. & Fromme, N. Am. Flora 7: 287. 1920.

Add the hosts:

Panicum adspersum Trin., St. Croix.

Panicum fasciculatum Sw., Panama; Cuba; Porto Rico.

Panicum maximum Jacq., Porto Rico.

Panicum trichoides Sw., Porto Rico.

Panicum ulowanaeum Scribn., Mona Island.

Add the illustrations: Hedwigia 28: 104. *f. 1-3*; Sydow, Monog. Ured. 1: *pl. 41, f. 539*.

287. *Dicaeoma Huberi*.

Omit this species, the data being distributed under *Dicaeoma leve*, page 286, and *D. substriatum*, page 289.

288. *Dicaeoma tubulosum*.

Add the synonyms: *Puccinia Pilgeriana* P. Henn. Bot. Jahrb. 40: 226. 1908. *Uredo duplicata* Rangel, Arch. Mus. Nac. Rio de Janeiro 18: 160. 1916.

Add the hosts, under Solanaceae:

Solanum diversifolium Schlecht., Guatemala.

Solanum elaeagnifolium Cav., Texas.

Insert: ILLUSTRATION: Arch. Mus. Nac. Rio de Janeiro 18: *pl. 5, f. 14, 15; pl. 6, f. 1, 2*.

289. *Dicaeoma substriatum*.

Add the synonyms: *Uredo Panici* P. Henn. Hedwigia 43: 165. 1904. Not *U. Panici* Arth. 1902. *Uredo Henningsii* Sacc. Syll. Fung. 17: 456. 1905. *Uredo Eriochloae* Speg. Anal. Mus. Nac. Buenos Aires 19: 319. 1909. Not *U. Eriochloae* Sydow, 1906. *Uredo eriochloana* Sacc. & Trott. in Sacc. Syll. Fung. 21: 810. 1912. *Puccinia dolosa* Arth. & Fromme, Torreya 15: 262. 1915. *Puccinia Maublancii* Rangel, Arch. Mus. Nac. Rio de Janeiro 18: 159. 1916. *Uredo cubangoensis* Rangel, Arch. Mus. Nac. Rio de Janeiro 18: 160. 1916.

Add the hosts:

Chaetochloa sulcata (Aubl.) Hitchc., Panama.

Paspalum paniculatum L., Morelos.

Paspalum tenellum Willd., Jalisco, Mexico (state).

Paspalum virgatum L., Cuba; Porto Rico.

Add the illustrations: Sydow, Monog. Ured. 1: *pl. 42, f. 542*; Arch. Mus. Nac. Rio de Janeiro 18: *pl. 5, f. 1, 2*.

Add the exsiccati: Arth. & Holway, Ured. Exs. Ic. 42b; Barth. N. Am. Ured. 2776; Sydow, Ured. 1986.

290. *Dicaeoma emaculatum*.

Add the exsiccati: Barth. N. Am. Ured. 2842; Thaxter, Rel. Farl. 253.

291. *Dicaeoma Pammelii*.

Add the host, under Poaceae: *Panicum amarum* Ell., Virginia.

Add the exsiccati: Barth. N. Am. Ured. 2556, 2767, 2957.

291. *Dicaeoma atrum*.

Incorporate all data given on next page under *Dicaeoma eslavense*.

Change the distribution to read: Central Texas and Arizona southward through Central America and the West Indies; also in South America and Hawaii.

Add the illustration: Sydow, Monog. Ured. 1: pl. 41, f. 541.

292. *Dicaeoma eslavense*.

This name becomes a synonym of *D. atrum* (page 291), and the data are to be merged with that species.

292. *Dicaeoma flaccidum*.

Add the synonym: *Puccinia abnormis* P. Henn. Hedwigia 35: 243. 1896.

293. *Dicaeoma Cameliae*.

The first host under Poaceae should read: *Chaetochloa machrostachya* (H.B.K.) Scribn. & Merr. (*Setaria machrostachya* H.B.K.), Texas; the species has generally been referred erroneously to *C. composita*.

Add: ILLUSTRATION: Mém. Soc. Neuch. Sci. Nat. 5: 579, f. 84.

293. *Dicaeoma Arthuri*.

Reduce this name to synonymy, and replace it by *Dicaeoma Gymnotrichis* (P. Henn.) Arthur and Fromme.

Add the synonyms: *Puccinia Gymnotrichis* P. Henn. Hedwigia 35: 242. 1896. *Puccinia Burmeisteri* Speg. Anal. Mus. Nac. Buenos Aires 6: 222. 1898.

294. *Dicaeoma Cenchri*.

Add the synonym: *Uredo cencrophila* Speg. Anal. Mus. Nac. Buenos Aires 19: 316. 1909.

Add the illustration: Sydow, Monog. Ured. 1: pl. 40, f. 525.

294. *Dicaeoma deformatum*.

Add: ILLUSTRATION: Sydow, Monog. Ured. 1: pl. 41, f. 535.

295. *Dicaeoma poculiforme*.

Add the synonym: *Puccinia megalopotamica* Speg. Anal. Mus. Nac. Buenos Aires 6: 224. 1898.

Add the host, under Berberidaceae: *Mahonia pinnata* (Lag.) Fedde (*Berberis pinnata* Lag.), California.

Add the hosts, under Poaceae:

Bromus purgans L., Indiana.
Calamagrostis hyperborea Lange, California.
Festuca californica Vasey, California.
Festuca Eastwoodae Piper, California.
Festuca Elmeri Scribn. & Merr., California.
Festuca octostora Walt., California.
Poa arida Vasey (*P. pratericola* Rydb.), Texas.
Poa compressa L., Michigan, Pennsylvania.
Poa Howellii Vasey & Scribn., California.
Poa Sandbergii Vasey, California.
Stipa coronata Thurb., California.
Trisetum canescens Buckl., California.

Add the illustrations: Bot. Gaz. 28: 422. f. 6; Bull. U. S. Dep. Agr. 1046: pl. 3-5; Fl. Ital. Crypt. Ured. f. 74a; Sydow, Monog. Ured. 1: pl. 41, f. 538.

Omit from the exsiccati: Barth. N. Am. Ured. 1632; and add Barth. N. Am. Ured. 2350, 2351, 2352, 2437, 2546, 2759, 2846, 2847, 2941, 3041, 3042, 3245, 3246, 3347, 3348; Thaxter, Rel. Parl. 255.

298. *Dicaeoma Majanthae*.

Add the synonym: *Pleomeris sessilis* Sydow, Ann. Myc. 19: 171. 1921.

Add the illustration: Fl. Ital. Crypt. Ured. f. 74d.

Add the exsiccati: Barth. N. Am. Ured. 2452.

299. *Dicaeoma interveniens*.

Omit this name and for it substitute: *Dicaeoma Eurotiae* (Ellis & Ev.) Arthur & Fromme.

Omit from the synonymy: *Roestelia interveniens*, *Aecidium roestelioides*, *Aecidium Malvastri*, *Aecidium interveniens*, *Puccinia interveniens*, all of which belong under *Allodus interveniens* (page 797).

Add the synonyms: *Aecidium Eurotiae* Ellis & Ev. Jour. Myc. 6: 119. 1891. *Aecidium Eurotiae* Tranz. Ann. Myc. 5: 547. 1907.

Omit the description of pycnia and aecia together with the hosts under Malvaceae, all of which belong under *Allodus interveniens*, and substitute:

O. Pycnia hypophyllous, scattered, occupying all or most of the leaf, conspicuous, pale honey-yellow becoming pale chestnut-brown, flattened-globoid, 144–160 μ wide by 95–115 μ high; ostiolar filaments up to 130 μ long, projecting beyond the ostiole and spreading out into a bushy mass up to 95 μ high and 130 μ wide.

I. Aecia hypophyllous, scattered, occupying all or most of the leaf, cylindrical, 0.4–0.8 mm. in diameter, 1–1.5 mm. high; peridium colorless, the margin erect, erose at first, becoming somewhat lacerate; peridial cells rhomboidal, 18–23 by 23–32 μ , abutted or slightly overlapping, the outer wall thick, 7–12 μ , finely and transversely striate, smooth, the inner wall thinner, 3.5–5 μ , closely tuberculate; aeciospores globoid or ellipsoid, 16–19 by 19–24 μ ; wall colorless, thin, 1–1.5 μ , closely and finely verrucose.

ON CHENOPODIACEAE:

Eurotia lanata (Pursh) Moq., Colorado, Montana, New Mexico, Washington, Wyoming.

Emend the description of the telia and teliospores to read: telia blackish- or chocolate-brown; teliospores ellipsoid, 23–27 by 35–42 μ ; wall chestnut-brown, 2–3 μ thick, somewhat thickened above, 4–6 μ , smooth.

Omit, under Poaceae, "California" after *Oryzopsis hymenoides*, and add "Colorado, Wyoming"; and after *Stipa comata* replace "Colorado" with "Montana"; also omit the last six hosts under Poaceae, with their localities, all of which belong under *Allodus interveniens*.

Change the type locality to read: Helena, Montana, on *Eurotia lanata*.

Change the distribution to read: Wyoming to southeastern Washington and southward to Nevada and southern New Mexico; also in eastern Europe.

Omit from the exsiccati all but D. Griff. W. Am. Fungi 387; and add Barth. N. Am. Ured. 2651, 2652; Ellis & Ev. Fungi, Columb. 271; Ellis & Ev. N. Am. Fungi 2709.

300. *Dicaeoma Stipae*.

Add the hosts, under Carduaceae:

Erigeron pumilus Nutt., Wyoming.

Hymenopappus arenosus A. Heller, Colorado.

Sideranthus grindelioides (Nutt.) Rydb. (*Aplopappus Nuttallii* T. & G.), Colorado.

Tetaneuris arizonica Greene (*Actinea Osterhoutii* A. Nelson), Colorado, Utah.

Townsendia grandiflora Nutt., Colorado.

Add the hosts, under Poaceae:

Stipa minor (Vasey) Scribn., California.

Stipa neo-mexicana (Thunb.) Vasey, Colorado.

Add the exsiccati: Barth. N. Am. Ured. 3170, 3269, 3369; Brenckle, Fungi Dak. 201a, 468.

302. *Dicaeoma scaber*.

Add the synonym: *Puccinia scaber* Barth. N. Am. Ured. 2560. 1922.

Add the illustrations: Sydow, Monog. Ured. 1: pl. 42, f. 552; Bull. Torrey Club 32: 38. f. 3.

Add the exsiccati: Barth. N. Am. Ured. 2560, 2963, 2964, 3074, 3360.

302. *Dicaeoma micranthum*.

Add the hosts, under Grossulariaceae:

Grossularia inermis (Rydb.) Cov. & Britt. (*Ribes inermis* Rydb., *R. vallicola* Greene), Colorado.

Ribes aureum Pursh (*Chrysobotrya aurea* Rydb.), Nebraska, Wyoming.

Add the illustration: Sydow, Monog. Ured. 1: pl. 41, f. 536.

Add the exsiccati: Barth. N. Am. Ured. 2456, 2457, 3470.

303. *Dicaeoma Sporoboli*.

In the description of the urediniospore-pores the number should read: "3, sometimes 4 or 6"; and in the description of the teliospores the size should read: "15-29 by 27-55 μ ."

Add the host, under Poaceae: *Sporobolus asper* (Michx.) Kunth (*S. longifolius* Wood), North Dakota.

Add the exsiccati: Seym. & Earle, Econ. Fungi 88.

303. *Dicaeoma verbenicola*.

Add the illustration: Sydow, Monog. Ured. 1: pl. 42, f. 550.

Add the exsiccati: Barth. N. Am. Ured. 2570, 3373.

304. *Dicaeoma simulans*.

Add the synonym: *Puccinia simulans* Barth. N. Am. Ured. 32 emend. 1922.

Add the illustration: Bull. Torrey Club 32: 39, f. 5.

Add the exsiccati: Barth. N. Am. Ured. 2966; Vesterg. Micr. Rar. Sel. 959.

305. *Dicaeoma Sarcobati*.

Add the synonyms: *Puccinia thalassica* Speg. Anal. Mus. Nac. Buenos Aires 6: 225. 1899. *Puccinia Sarcobati* Bethel; Barth. N. Am. Ured. 2464. 1921.

Omit *Musineon divaricatum* from the hosts under Brassicaceae, to which family it does not belong; the relationship of the fungus is uncertain.

Add the host, under Chenopodiaceae: *Spinacia oleracea* L., Arizona, Washington.

Insert, after the hosts under Alliaceae:

ON AIZOACEAE:

Sesuvium sessile Pers., Texas.

Add the host, under Alsiniaceae: *Alsine media* L. (*Stellaria media* Vill.), Colorado.

Add the hosts, under Brassicaceae:

Camelina microcarpa Andr., Colorado, Utah.

Cheirinia repanda (L.) Link (*Erysimum repandum* L.), Utah.

Hutchinsia procumbens (L.) Desv., Utah.

Lepidium simile A. Heller, Utah.

Raphanus sativus L., Arizona.

Add the host, under Capparidaceae: *Peritoma luteum* (Hook.) Raf. (*Cleome lutea* Hook.), Arizona.

Replace the host under Loasaceae by:

Acrolasia albicaulis (Dougl.) Rydb. (*Mentzelia albicaulis* Dougl.), Nevada.

Acrolasia congesta (Nutt.) Rydb. (*Mentzelia congesta* Nutt.), Nevada.

Nuttallia pumila (Nutt.) Greene (*Mentzelia pumila* Nutt.), Colorado.

Nuttallia Rusbyi (Wooton) Rydb. (*Mentzelia Rusbyi* Wooton), Colorado.

Add the hosts, under Polemoniaceae:

Gilia leptomeria A. Gray, Colorado.

Gilia longiflora (Torr.) G. Don, Colorado.

Insert, after the hosts under Solanaceae:

ON PLANTAGINACEAE:

Plantago eriopoda Torr., Saskatchewan.

Add the hosts, under Poaceae:

(?) *Pleuraphis mutica* Buckl. (*Hilaria mutica* Benth.), New Mexico.

(?) *Scleropogon brevifolius* Phil. (*S. Karwinskyanus* Benth.), New Mexico.

Omit from the exsiccati: Barth. Fungi Columb. 3846; Barth. N. Am. Ured. 643; Brenckle, Fungi Dak. 204.

Add the exsiccati; Barth. N. Am. Ured. 2464, 2465, 2466, 2467, 2468, 2678, 2866, 2962, 3071, 3072, 3073, 3164, 3165, 3360, 3361, 3362, 3474, 3475, 3476; Brenckle, Fungi Dak. 469.

308. *Dicaeoma hibisciatum*.

Change date for *Aecidium Malvastris* from "1881" to "1891."

Add the synonyms: *Puccinia subglobosa* Speg. An. Mus. Nac. Buenos Aires 19: 300. 1909. Not *P. subglobosa* Dietel & Holway, 1901. *Puccinia Spegazziniella* Sacc. & Trav.; Sacc. Syll. Fung. 20: 627. 1911.

Add the hosts, under Malvaceae:

Gossypium barbadense L., Arizona.
Sphaeralcea Fendleri A. Gray, Arizona.
Sphaeralcea grossulariaefolia (H. & A.) Rydb., Arizona.

Omit "Colorado" after *Callirhoë alceoides*.

Insert, after the telial description, the paragraph:

This species is morphologically identical in its uredinia and telia, except in septation of the teliospores, with *Nigredo Epicampis* (Dietel & Holway) Arth. The two forms also occur on similar hosts, and should eventually be united under one name.

Omit *Muhlenbergia Richardsonis* (the final letter is s and not i) from the hosts under Poaceae, for the name is entered as a synonym after *M. squarrosa*, to which the Montana material is now referred; the North Dakota material has been redetermined as *M. cuspidata*.

Add the hosts:

Limnodelpha arkansana (Nutt.) L. H. Dewey, Texas.
Sporobolus Buckleyi Vasey, Texas.

Add the illustrations: Sydow, Monog. Ured. 1: pl. 43, f. 529; pl. 42, f. 546; pl. 43, f. 549; Bull. Torrey Club 32: 38, f. 4.

Add the exsiccati: Barth. N. Am. Ured. 2365, 2554, 2555, 2561, 2661, 2666, 2855, 2946, 2971, 3057, 3156, 3166, 3172, 3250; Brenckle, Fungi Dak. 116a; Ellis & Ev. N. Am. Fungi 2401; Vesterg. Micr. Rar. Sel. 1121, 1126, 1130.

310. *Dicaeoma amphigenum*.

Omit, under Smilac[ac]eae, "Illinois" after *Smilax hispida*, and add: *Smilax Bona-nox* L., Oklahoma.

Add the host, under Poaceae: *Calamovilfa gigantea* (Nutt.) Scribn. & Merr. (*Calamagrostis gigantea* Nutt.) Colorado.

Add the exsiccati: Barth. N. Am. Ured. 2825, 2926, 3222.

311. *Dicaeoma pygmaeum*.

Add the synonym: *Pleomeris pygmaea* Sydow, Ann. Myc. 19: 171. 1921.

Add the host: *Melica subulata* (Griseb.) Scribn., California.

311. *Dicaeoma holcinum*.

Add the synonym: *Pleomeris holcina* Sydow, Ann. Myc. 19: 171. 1921.

312. *Dicaeoma monoicum*.

Substitute *Parryi* for the specific name "monoicum," other portions of the citation remaining the same.

Add the synonyms: *Aecidium Parryi* Peck, Am. Nat. 8: 215. 1874. *Dicaeoma monoicum* Arth. & Fromme, N. Am. Flora 7: 312. 1920.

Add the hosts, under Brassicaceae:

Arabis Bolanderi S. Wats., California.
Arabis Nuttallii B. L. Robinson, British Columbia.
Thelypodium linearifolium S. Wats., Arizona.

Add the hosts, under Poaceae:

Stipa Elmeri Piper & Brodie, Nevada.
Stipa occidentalis Thurber, California.

Add the exsiccati: Barth. N. Am. Ured. 2458, 2553, 2766, 2954, 2955, 3056, 3260.

313. *Dicaeoma Rhamni*.

Omit the synonym: *Aecidium Allenii* G. W. Clinton; and add *Solenodonta coronata* Sydow, Ann. Myc. 19: 174. 1921.

Omit, among the hosts under Elaeagnaceae, *Lepargyrea argentea*, and "Michigan" and "New York" after *L. canadensis*, which localities appear under *Dicaeoma Allenii* (page 786).

Add the hosts, under Poaceae:

Agropyron tenerum Vasey, Saskatchewan.
Bromus ciliatus L., New York; Saskatchewan.
Bromus polyanthus Scribn., Colorado.
Calamagrostis aleutica Bong., Washington.
Calamagrostis elongata (Kearney) Rydb., Saskatchewan.
Calamagrostis inexpansa A. Gray, Saskatchewan.
Calamagrostis neglecta (Ehrh.) Gaertn., Wyoming.
Elymus canadensis L., Saskatchewan.
Panicularia grandis (S. Wats.) Nash (*P. americana* MacM., *Glyceria grandis* S. Wats.), North Dakota.
Panicularia nervata (Willd.) Kuntze (*Glyceria nervata* Trin.), Idaho.
Poa arachnifera Torr., Alabama.
Trisetum spicatum (L.) Richter (*T. toluicense* Kunth, *T. subspicatum* Beauv.), Colorado.

Add the illustration: Fl. Ital. Crypt. Ured. f. 74f.

Omit the exsiccati: Barth. N. Am. Ured. 1801, 2001, 2772; Ellis & Ev. Fungi Columb. 1702; Ellis & Ev. N. Am. Fungi 1815; D. Griff. W. A. M. Fungi 297; all now referred to *Dicaeoma Allenii*.

Add the exsiccati: Barth. N. Am. Ured. 2463, 2672, 2673, 2674, 2675, 2676, 2677, 2772, 2860, 2861, 2960, 3066, 3067, 3162, 3265, 3266; Brenckle, Fungi Dak. 494; Rav. Fungi Am. 726; Thaxter, Rel. Farl. 249a-c.

315. *Dicaeoma Periclymeni*.

Add the synonym: *Solenodonta Festucae* Sydow, Ann. Myc. 19: 174. 1921.

316. *Dicaeoma Fraxini*.

Add the host, under Poaceae: *Spartina Bakeri* Merr., Florida.

Add the exsiccati: Barth. N. Am. Ured. 2545, 2755, 3244, 3346, 3457; Thaxter, Rel. Farl. 272a, b; Vesterg. Micr. Rar. Sel. 1124.

317. *Dicaeoma Distichlidis*.

Add the exsiccati: Barth. N. Am. Ured. 2752, 2753, 2840, 2937, 3240.

318. *Dicaeoma Cephalanthi*.

Add the synonym: *Puccinia Cephalanthi* Barth. N. Am. Ured. 261 emend. 1922.

Omit, among the hosts under Apocynaceae, "Oklahoma" after *Apocynum cannabinum*, and insert it after *A. sibiricum*.

Add the host, under Asclepiadaceae: *Asclepias speciosa* Torr., South Dakota.

Add the host, under Poaceae: *Spartina alternifolia glabra* (Muhl.) Fernald (*S. glabra* Muhl., *S. glabra alterniflora* Merr.), New York.

Add the exsiccati: Barth. N. Am. Ured. 2655; Brenckle, Fungi Dak. 566.

318. *Dicaeoma Chloridis*.

Change the citation for *Puccinia Chloridis* Speg. to: Rev. Arg. Hist. Nat. 1: 172. 1891.

Add the exsiccati: Barth. N. Am. Ured. 2344.

320. *Dicaeoma vexans*.

Add the synonym: *Puccinia aristidicola* P. Henn. Hedwigia 35: 243. 1896.

Add the exsiccati: Barth. N. Am. Ured. 2871, 3078, 3274.

320. *Dicaeoma Jamesianum*.

Omit, among the hosts under Asclepiadaceae, "Colorado" after *Asclepias verticillata*, and add: *Vincetoxicum* sp., Salvador.

Add the exsiccati: Barth. N. Am. Ured. 2550, 2854; Brenckle, Fungi Dak. 464.

321. *Dicaeoma Leptochloae*.

Add the synonym: *Puccinia subtilipes* Speg. Anal. Mus. Nac. Buenos Aires 31: 386. 1922.

321. *Dicaeoma kansense*.
Add the illustration: Sydow, Monog. Ured. 1: pl. 40, f. 524.
322. *Dicaeoma rubellum*.
Add the exsiccati: Barth. N. Am. Ured. 462.
323. *Dicaeoma Windsoriae*.
Change the distribution to read: Northeastern New York to Ontario, Wisconsin, Alabama, and Texas.
Insert: ILLUSTRATION: Sydow, Monog. Ured. 1: pl. 40, f. 526.
Omit from the exsiccati: Seym. & Earl. Econ. Fungi 88; and add: Barth. N. Am. Ured. 2376, 2573, 2872, 3079.
324. *Dicaeoma Eatoniae*.
Reduce this name to synonymy, and replace it by *Dicaeoma Myosotidis* (Burr.) Arthur & Fromme.
Add also the synonyms: *Accidium Myosotidis* Burr. Bot. Gaz. 9: 189. 1884. *Pleomeris Eatoniae* Sydow, Ann. Myc. 19: 171. 1921.
Add after the hosts under Ranunculaceae:
ON BORAGINACEAE:
Myosotis virginica (L.) B.S.P. (*M. verna* Nutt.), Illinois, Indiana, Missouri, Wisconsin.
Add the exsiccati: Barth. N. Am. Ured. 2348, 2938; Ellis & Ev. N. Am. Fungi 1832.
325. *Dicaeoma Koeleriae*.
Add the synonym: *Pleomeris Koeleriae* Sydow, Ann. Myc. 19: 171. 1921.
Omit, among the hosts under Berberidaceae, after *Mahonia Aquifolium* "Oregon" and "British Columbia," and add Wyoming.
Add the exsiccati: Barth. N. Am. Ured. 2763.
326. *Dicaeoma Liatridis*.
Add the synonym: *Puccinia Koeleriae-Liatridis* J. J. Davis, Trans. Wis. Acad. 21: 254. 1924.
Add the host, under Poaceae: *Agrostis exarata* Trin. (*A. microphylla* Steud.), Colorado.
327. *Dicaeoma epiphyllum*.
Add the synonyms: *Accidium aurantiacum* Bon. Abh. Nat. Ges. Halle 5: 208. 1860. *Uredo Poae-sudeticae* Westend. Bull. Acad. Belg. II. 11: 650. 1861. *Puccinia exigua* Dietel, Hedwigia 36: 29. 1897. Not *P. exigua* Eriksson, 1895. *Puccinia exigua* Dietel, Hedwigia 36: 299. 1897. *Uredo paulensis* P. Henn. Hedwigia 41: 297. 1902. *Pleomeris Poarum* Sydow, Ann. Myc. 19: 171. 1921.
Add the hosts, under Poaceae:
Festuca elatior L., Oregon.
Poa crocata Michx., Montana; Alberta.
Poa lucida Vasey, Wyoming.
Poa trivialis L., Washington.
Poa Wheeleri Vasey, Wyoming.
Trisetum spicatum (L.) Beauv. (*T. toluccense* Kunth, *T. subspicatum* Beauv.), California.
Add the exsiccati: Barth. N. Am. Ured. 2433, 2844, 2940, 3039, 3141, 3343, 3344.
328. *Dicaeoma abundans*.
Add the host, under Caprifoliaceae: *Symphoricarpos rotundifolius* A. Gray, Wyoming.
Add the host, under Poaceae: *Festuca Elmeri* Scribn. & Merr., California.
Add the exsiccati: Barth. N. Am. Ured. 2530, 2641, 2642, 3027, 3028, 3124, 3333; Sydow, Ured. 2716.
329. *Dicaeoma Piperi*.
Add the synonym: *Pleomeris Piperi* Sydow, Ann. Myc. 19: 171. 1921.
Add the host: *Festuca megalura* Nutt., California.
Add: EXSICCATI: Barth. N. Am. Ured. 2459.

330. *Dicaeoma Pattersonianum*.

Substitute for the line pertaining to pycnia and aecia:

O. Pycnia amphigenous, few, preceding the aecia in crowded oval groups 0.2–0.5 mm. long, honey-yellow, punctiform, inconspicuous, in section globoid or flask-shaped, 100–130 μ broad by 110–135 μ high; ostiolar filaments spreading, up to 65 μ long.

I. Aecia amphigenous, densely gregarious in oval or elongate groups on pale-yellow spots up to 3 mm. in length, short-cylindric, 0.2–0.4 mm. high; peridium straw-colored, the margin erect, erose; peridial cells squarish or rhombic, 19–26 by 29–40 μ , somewhat overlapping, the outer wall 8–10 μ thick, conspicuously transversely striate, smooth, the inner wall 3–5 μ thick, prominently tuberculate; aeciospores globoid or broadly ellipsoid, 18–26 by 21–32 μ ; wall colorless, 2–3 μ thick, finely verrucose.

ON ALLIACEAE:

Trileleia grandiflora Lindl. (*Brodiaea Douglasii* S. Wats.), Idaho, Utah, Washington.

Change the distribution to read: Montana and eastern Washington to Utah and New Mexico.

Insert: ILLUSTRATIONS: Sydow, Monog. Ured. 1: pl. 43, f. 555; Proc. Ind. Acad. 1921: pl. 1, f. A.

330. *Dicaeoma procerum*.

Add the synonym: *Pleomeris procerata* Sydow, Ann. Myc. 19: 171. 1921.

330. *Dicaeoma montanense*.

Add the synonym: *Pleomeris montanensis* Sydow, Ann. Myc. 19: 171. 1921.

Add the host, under Poaceae: *Agropyron albicans* Scribn. & Smith, Alberta.

Omit *Elymus robustus* from the hosts under Poaceae, as it is a synonym under *E. canadensis*.

Change the distribution by omitting the words, "and southern California," and adding: also in South America.

Insert: ILLUSTRATION: Bot. Gaz. 28: 420. f. 4; 421. f. 5.

331. *Dicaeoma Asperifolii*.

Add the synonym: *Pleomeris dispersa* Sydow, Ann. Myc. 19: 171. 1921.

Omit from the line pertaining to the host under Boraginaceae the words "also in Europe," and add the hosts:

Lycopsis arvensis L. (*Anchusa arvensis* Bieb.), Indiana.

Lycopsis capensis Thunb. (*Anchusa capensis* Thunb.), Indiana.

Add to the last sentence under distribution: Those recorded for Indiana, except for *Lycopsis capensis*, were field collections found after throwing rye straw over the host plants.

Add the illustrations: Eriksson & Henn. Getreider. pl. 10, f. 110–112, 114–116; pl. 11, f. 119–123.

Add the exsiccati: Barth. N. Am. Ured. 2339, 2536.

332. *Dicaeoma apocryptum*.

Add the synonym: *Pleomeris apocrypta* Sydow, Ann. Myc. 19: 171. 1921.

Omit from the hosts under Boraginaceae: *Myosotis virginica*, which should appear under *D. Ealoniae*, page 324, and add:

Lithospermum canescens (Michx.) Lehm., North Dakota.

Mertensia lanceolata (Pursh) DC., Colorado.

Mertensia subcordata Greene, Idaho.

Phacelia sericea (Graham) A. Gray, Wyoming.

Insert: ILLUSTRATION: Sydow, Monog. Ured. 1: pl. 39, f. 520.

Add the exsiccati: Barth. N. Am. Ured. 2928, 3031, 3127, 3225, 3335; Brenckle, Fungi Dak. 516, 516a.

333. *Dicaeoma Clematidis*.

Add the synonyms: *Aecidium Hepaticae* Beck, Verh. Zool.-Bot. Ges. Wien 30: 27. 1880. *Aecidium Isopyri* Schroet. Krypt.-Fl. Schles. 3¹: 378. 1887. *Uredo Chascolytri* Dietel & Neger, Bot. Jahrb. 27: 15. 1899. *Puccinia brachypus* Speg. Anal. Mus. Nac. Buenos Aires III. 1: 61. 1902. *Uredo auletica* Speg. Anal. Mus. Nac. Buenos Aires III. 1: 65. 1902. *Aecidium Hellebori* Ed. Fisch. Beitr. Krypt. Schweiz 2²: 526. 1904. *Pleomeris triticina* Sydow, Ann. Myc. 19: 171. 1921. *P. agropyrina* Sydow, loc. cit. *P. persistens* Sydow, loc. cit. *P. Agrostidis* Sydow, loc. cit. *P. perplexans* Sydow, loc. cit.

Add the hosts, under Ranunculaceae:

Actaea arguta Nutt., Alaska, Washington.
Actaea eburnea Rydb., Alaska.
Anemone globosa Nutt., Montana, South Dakota; Alberta, Saskatchewan.
Delphinium tricorne Michx., Nebraska.
Ranunculus aleophilus A. Nelson, Idaho.
Ranunculus affinis R. Br., Alberta.
Ranunculus cardiophyllus Hook., Alberta.
Thalictrum polycarpum S. Wats., California.

Omit "Wisconsin" after *Anemone cylindrica*.

Add the hosts, under Poaceae:

Agropyron albicans Scribn. & Smith, Alberta.
Agropyron flexuosum Piper, Idaho.
Agropyron Richardsoni (Trin.) Schrad., Manitoba.
Avena fatua L., California.
Bromus rigidus Roth, California.
Elymus arenarius L., Washington.
Elymus curvatus Piper, Manitoba.
Elymus diversiglumis Scribn. & Ball, Saskatchewan.
Elymus Macounii Vasey, Alberta.
Poa lucida Vasey, Colorado.
Poa nervosa (Hook.) Vasey, Montana.

Omit the synonym "*E. robustus* Scribn. & Smith" after *Elymus condensatus*, and place it after *E. canadensis*.

Add the illustrations: Bot. Gaz. 28: 419. f. 2; Eriksson & Henn., Getreider. pl. 10, f. 109, 113, 117, 118; Jour. Agr. Res. 22: pl. 21; Sydow, Monog. Ured. 1: pl. 39, f. 513; pl. 41, f. 537; pl. 43, f. 559; 3: pl. 7, f. 73.

Add the exsiccati: Barth. N. Am. Ured. 1632, 2370, 2430, 2472, 2542, 2656, 2657, 2681, 2744, 2745, 2746, 2747, 2748, 2749, 2834, 2835, 2936, 2970, 3135, 3136, 3137, 3138, 3236, 3237, 3257, 3340, 3341; D. Griff. W. Am. Fungi 20 in part, 21, 35; Thaxter, Rel. Farl. 207; Vesterg. Micr. Rar. Sel. 1562.

337. *Dicaeoma Impatientis*.

Add the exsiccati: Barth. N. Am. Ured. 2360, 2949, 3354, 3355, 3466; Roum. Fungi Gall. 3867; Shear, N. Y. Fungi 323.

338. *Dicaeoma glumarum*.

Add the synonym: *Pleomeris glumarum* Sydow, Ann. Myc. 19: 171. 1921.

Add the hosts:

Aegilops cylindrica Host, Washington.
Agropyron Smithii Rydb. (*A. occidentale* Scribn.), Colorado.
Bromus unioloides H.B.K., California.

Add the exsiccati: Barth. N. Am. Ured. 2435, 2758, 3040.

339. *Dicaeoma Hordei*.

Add the synonym: *Pleomeris Hordei* Sydow, Ann. Myc. 19: 171. 1921.

339. *Dicaeoma anomalum*.

Add the synonym: *Pleomeris simplex* Sydow, Ann. Myc. 19: 171. 1921.

Substitute, for the line under Liliaceae: *Ornithogalum umbellatum* L., Indiana; also in Europe and Asia.

Add, under distribution: The aecia recorded for Indiana were field collections found after throwing barley straw over the host plants.

Add the illustrations: Briosi & Cavara, *Funghi Paras. f. 159*; Eriksson & Henn. Getreider. *pl. 11, f. 124-128*; Fl. Ital. Crypt. Ured. *f. 74e*.

340. *Dicaeoma subdigitatum*.

Add the synonym: *Solenodonta subdigitata* Sydow, *Ann. Myc.* **19**: 174. 1921.

340. *Dicaeoma Arundinariae*.

Add the exsiccati: Barth. *N. Am. Ured.* 2929.

340. *Dicaeoma melanocephalum*.

Add the hosts:

Bambos aureo-striata Regel, Florida.
Phyllostachys bambusoides Sieb. & Zucc., Georgia.
Phyllostachys Newinii hupehensis Rendle, Florida.

341. *Dicaeoma ignavum*.

Add the synonym: *Puccinia* (?) *ignava* Arth. *Mycologia* **14**: 17. 1922.

341. *Dicaeoma obtectum*.

Add the synonym: *Pleomeris obtecta* Sydow, *Ann. Myc.* **19**: 171. 1921.

Add the host, under *Carduaceae*: *Bidens trichosperma* (Michx.) Britton, Indiana.

Add the exsiccati: Barth. *N. Am. Ured.* 2956, 3157, 3158; Brenckle, *Fungi Dak.* 492; Thaxter, *Rel. Farl.* 265.

342. *Dicaeoma McClatchieanum*.

Insert: ILLUSTRATION: Sydow, *Monog. Ured.* **1**: *pl. 39, f. 511*.

Add the exsiccati: Barth. *N. Am. Ured.* 2664.

343. *Dicaeoma angustatum*.

Add the host, under *Lamiaceae*: *Lycopus asper* Greene, Saskatchewan.

Add the host, under *Cyperaceae*: *Eriophorum angustifolium* Roth, Saskatchewan.

Add the exsiccati: Barth. *N. Am. Ured.* 2337, 2423, 2424, 2826; Thaxter, *Rel. Farl.* 239a, b.

344. *Dicaeoma Eriophori*.

Substitute for the last host under *Carduaceae*: *Senecio triangularis* Hook., British Columbia.

Add the illustration: Sydow, *Monog. Ured.* **1**: *pl. 38, f. 509*.

Add the exsiccati: Barth. *N. Am. Ured.* 3456; Thaxter, *Rel. Farl.* 254.

344. *Dicaeoma canaliculatum*.

Add the synonym: *Pleomeris canaliculata* Sydow, *Ann. Myc.* **19**: 171. 1921.

Add the exsiccati: Barth. *N. Am. Ured.* 2541, 2653, 2654, 2741, 2742, 2743, 2832, 2934, 2935, 3036, 3232, 3453.

345. *Dicaeoma Cyperi*.

Add the synonyms: *Uredo Kyllingiae* P. Henn. *Hedwigia* **35**: 256. 1896. *Pleomeris Cyperi* Sydow, *Ann. Myc.* **19**: 171. 1921.

Add the hosts:

Cyperus pseudovegetus Steud., Oklahoma.
Cyperus surinamensis Rottb., Cuba.

Insert: ILLUSTRATION: *Mém. Soc. Neuch. Sci. Nat.* **5**: 580, *f. 85*.

Add the exsiccati: Barth. *N. Am. Ured.* 2751; Brenckle, *Fungi Dak.* 488.

346. *Dicaeoma Cyperi-tagetiformis*.

Add the host: *Cyperus brunneus* Sw., Porto Rico.

347. *Dicaeoma antioquiense*.

Add: ILLUSTRATION: *Mém. Soc. Neuch. Sci. Nat.* **5**: 473, *f. 14*.

347. *Dicaeoma Eleocharidis*.

Substitute for the first host under Cyperaceae: *Eleocharis caribaea* (Rottb.) Blake, Cuba; Porto Rico; and add *Eleocharis arenicola* Torr., Texas.

Insert: ILLUSTRATION: Sydow, Monog. Ured. 1: pl. 38, f. 508.

Add the exsiccati: Barth. N. Am. Ured. 2349, 2544, 2754, 2939; Thaxter, Rel. Parl. 252.

348. *Dicaeoma incompositum*.

Omit the host: *Eleocharis geniculata*.

348. *Dicaeoma Fuirenae*.

Insert: ILLUSTRATION: Sydow, Monog. Ured. 1: pl. 38, f. 510.

349. *Dicaeoma Scleriae*.

Add the host: *Scleria microcarpa* Nees, Porto Rico.

350. *Dicaeoma Cladii*.

Add: ILLUSTRATION: Sydow, Monog. Ured. 1: pl. 38, f. 505.

350. *Dicaeoma Fimbristylidis*.

Add the synonym: *Pleomeris Fimbristylidis* Sydow, Ann. Myc. 19: 171. 1921.

Insert: ILLUSTRATION: Mém. Soc. Neuch. Sci. Nat. 5: 477, f. 16.

351. *Dicaeoma* (?) *Dichromenae*.

Add: ILLUSTRATION: Mém. Soc. Neuch. Sci. Nat. 5: 581, f. 86.

351. *Dicaeoma angustatoides*.

Reduce the host *Rynchospora aurea* Vahl to synonymy under *R. corymbosa* (L.) Britton

Add: ILLUSTRATION: Bull. Torrey Club 36: 549-551, f. 1-4. EXSICCATI: Barth. N. Am. Ured. 2425, 3030.

352. Insert: .

121a. *Dicaeoma pediculariatum* (Link) Arthur & Kern.

Aecidium Pedicularis Lib. Mém. Soc. Nat. Mosc. 5: 76. 1817. Not *Dicaeoma Pedicularis* Kuntze, 1906.

Caecoma Pedicularis Schlecht. Fl. Berol. 2: 113. 1824.

Caecoma pediculariatum Link, in Willd. Sp. Pl. 6²: 47. 1825.

Puccinia paludosa Plowr. Monog. Brit. Ured. Ustil. 174. 1889.

Puccinia Pedicularis Lagerh. Tromsø Mus. Aarsh. 17: 68. 1895.

O. Pycnia amphigenous, few, inconspicuous, golden-yellow, globose or depressed-globose, 80-130 μ broad by 65-95 μ high; ostiolar filaments short.

I. Aecia hypophyllous and caulicolous, in irregular or elongate groups 3-10 mm. across, cupulate; peridium colorless, the margin slightly recurved, lacerate or erose; peridial cells rectangular, 14-18 by 18-22 μ , slightly overlapping, the outer wall 4-7 μ thick, transversely striate, smooth, the inner wall 1.5-2.5 μ thick, finely verrucose; aeciospores globose or ellipsoid, 15-17 by 16-20 μ ; wall colorless, thin, 1 μ or less, very finely verrucose, appearing smooth when wet.

ON SCROPHULARIACEAE:

Pedicularis mexicana Zucc., Mexico (state).

II. Uredinia hypophyllous, scattered, ellipsoid or oblong, 0.5-1 mm. in length, tardily naked, cinnamon-brown, pulverulent, ruptured epidermis conspicuous; urediniospores ellipsoid or obovoid, 19-23 by 23-32 μ ; wall golden- or light cinnamon-brown, 2-2.5 μ thick, moderately and finely echinulate, the pores 2-4, equatorial.

III. Telia hypophyllous, oblong or linear, 1-3 mm. long, occasionally confluent to form striae, early naked, compact, dark chestnut-brown, ruptured epidermis conspicuous; teliospores obovate or clavate, 16-19 by 40-58 μ , rounded or obtuse above, narrowed below, usually strongly constricted at septum; wall light cinnamon-brown, darker above, 1-1.5 μ thick, much thicker above, 5-10 μ , smooth; pedicel nearly or quite colorless, half length of spore.

ON CYPERACEAE:

Carex sp. in Europe, not yet found in America.

TYPE LOCALITY: Ruthenia, on *Pedicularis sylvatica*.

DISTRIBUTION: One locality near the City of Mexico; also in Europe.

ILLUSTRATIONS: Mém. Soc. Nat. Mosc. 5: pl. 5, f. 1; Grove, Brit. Rust Fungi f. 192; Beitr. Krypt. Schweiz 2²: f. 203.

353. *Dicaeoma atrofuscum*.

Change the page number for the first citation from "343" to "344."

Insert: ILLUSTRATION: Bull. Torrey Club 32: 40, f. 8.

Add the exsiccati: Barth. N. Am. Ured. 3035.

354. *Dicaeoma minutum*.

Change the citation for this name to read: Arth. Résult. Sci. Congr. Bot. Vienne 344. 1906.

Add: ILLUSTRATION: Sydow, Monog. Ured. 1: pl. 38, f. 502.

354. *Dicaeoma Lysimachiae*.

Add the synonym: *Dicaeoma Limosae* Sydow, Ann. Myc. 20: 118. 1922.

Add the illustration: Sydow, Monog. Ured. 1: pl. 37, f. 493.

Add the exsiccati: Barth. N. Am. Ured. 3256.

355. *Dicaeoma Parnassiae*.

Add: ILLUSTRATION: Sydow, Monog. Ured. 1: pl. 37, f. 494.

355. *Dicaeoma Grossulariae*.

Append to the note at top of page 357: Another race representing the four-pored form with one-celled teliospores is given under the name *Nigredo valens* (Kern) Arth.

Omit *Carex pachystachya* from the hosts under Cyperaceae, also change "Oklahoma" to "New York" after *Carex brunnescens*, and add:

Carex ablata L. H. Bailey, Idaho.

Carex colorata Mackenzie, Ontario.

Carex gymnoclada Holm, Montana.

Carex neurophora Mackenzie, Idaho.

Carex oxycarpa Holm, Idaho.

Carex podocarpa R. Br., Idaho.

Carex praegracilis W. Boott, North Dakota.

Carex tenuiflora Wahl., New York.

Add the exsiccati: Barth. N. Am. Ured. 2353, 2439, 2440, 2441, 2442, 2659, 2760, 2848, 2942, 3144, 3145, 3351, 3459, 3460, 3461, 3462, 3463, 3464; Brenckle, Fungi Dak. 462, 462a, 489, 489a; Thaxter, Rel. Farl. 256a-c.

358. *Dicaeoma Urticae*.

Add the hosts, under Urticaceae:

Urtica Breweri S. Wats., California.

Urtica dioica L., Massachusetts; Ontario.

Among the hosts, under Cyperaceae, omit "Pennsylvania" after *Carex viridula*, replace "Utah" with "Iowa" after *Carex aquatilis*, and add:

Carex cryptolepis Mackenzie, Wisconsin.

Carex Mertensii Prescott, Washington.

Add the illustrations: Fl. Ital. Crypt. Ured. f. 73; Bull. Torrey Club 32: 40, f. 9.

Add the exsiccati: Barth. N. Am. Ured. 1275, 2372, 2474, 2568, 2683, 2684, 2777, 2778, 2973, 3174, 3272, 3372; D. Griff. W. Am. Fungi 52, 66a; Sydow, Ured. 2559; Thaxter, Rel. Farl. 245.

359. Insert:

130a. *Dicaeoma Allenii* (G. W. Clinton) Arthur & Fromme.

Aecidium Allenii G. W. Clinton; Peck, Ann. Rep. N. Y. State Mus. 24: 93. 1872.

Puccinia Caricis-Shepherdiae J. J. Davis, Trans. Wis. Acad. 21: 301. 1924.

O. Pycnia epiphyllous, usually few or none, sometimes many and loosely scattered, small, punctiform, brown, globoid, 110-130 μ in diameter; ostiolar filaments up to 100 μ long.

I. Aecia hypophyllous, in large, uncrowded, indefinite groups, 5-10 cm. across, on somewhat larger, pale, unthickened spots, cupulate or cylindrical, 0.2-0.3 mm. broad by 0.3-1 mm. high; peridium colorless, the margin recurved and irregularly lacerate; peridial cells rhombic, 16-23 by 23-26 μ in face view, greatly overlapping, the inner wall

3–4 μ thick, coarsely verrucose, the outer wall 4–7 μ thick, smooth, transversely striate; aeciospores globose or broadly ellipsoid, 17–23 by 19–27 μ ; wall about 1.5 μ thick, colorless, closely and minutely verrucose.

ON ELAEAGNACEAE:

Lepargyrea argentea (Nutt.) Greene (*Shepherdia argentea* Nutt.), Colorado, Montana, Nebraska, Wyoming; Saskatchewan.

Lepargyrea canadensis (L.) Greene (*Shepherdia canadensis* Nutt.), Michigan, New York, South Dakota, Wisconsin; Newfoundland, Ontario, Saskatchewan.

II. Uredinia amphigenous or culmicolous, scattered, oval or oblong, 0.3–0.5 mm. long, early naked, golden-brown, somewhat pulverulent, ruptured epidermis evident; urediniospores broadly ellipsoid or obovoid, 18–28 by 27–35 μ ; wall golden-brown, 1.5–2.5 μ thick, moderately and finely echinulate, the pores 2–4, equatorial, not conspicuous.

III. Telia amphigenous and culmicolous, scattered, oval, oblong, or linear, 0.3–2 mm. long, early naked, pulvinate, dark-brown, ruptured epidermis noticeable; teliospores oblong-clavate, 17–24 by 42–56 μ , more or less constricted at septum, rounded or obtuse above, narrowed below; wall chestnut-brown, 1.5–2.5 μ thick, darker and much thicker above, 10–15 μ , smooth; pedicel one half to once length of spore, tinted or nearly colorless.

ON CYPERACEAE:

Carex eburnea Boott (*C. setifolia* Britton), Wisconsin; Ontario, Quebec.

Carex viridula Michx., Michigan, Pennsylvania.

TYPE LOCALITY: Buffalo, New York, on *Shepherdia canadensis*.

DISTRIBUTION: Northern border of the United States and adjacent Canada, from Newfoundland to western South Dakota, between the parallels of 43° and 48° north latitude.

EXSICCATI: Barth. N. Am. Ured. 1801, 2001, 2072, 2861, 3233, 3234; Ellis & Ev. Fungi Columb. 1702; Ellis & Ev. N. Am. Fungi 1815; D. Griff. W. Am. Fungi 297.

359. *Dicaeoma microsorum*.

Insert: ILLUSTRATION: Sydow, Monog. Ured. 1: pl. 38, f. 504.

360. *Dicaeoma minutissimum*.

In the description of the urediniospores, the size should read: 12–18 by 16–21 μ .

Add the exsiccati: Ellis & Ev. Fungi Columb. 197.

360. *Dicaeoma Dracunculi*.

Reduce this name to synonymy, and substitute: *Dicaeoma Martianoffianum* (Thüm.) Arthur.

Add the synonym: *Aecidium Martianoffianum* Thüm. Bull. Soc. Nat. Mosc. 52: 135. 1877.

Add the host, under Carduaceae: *Artemisia Purshiana* Besser, South Dakota; Alberta.

Under the type locality, change the host to read *Artemisia glauca*.

Add the exsiccati: Barth. N. Am. Ured. 2473, 2682, 2972, 3076, 3173, 3271, 3371, 3478; Ellis & Ev. N. Am. Fungi 2219a.

362. *Dicaeoma Asterum*.

Among the synonyms, the citation for *Aecidium Asteris* Thüm. should read: Bull. Soc. Nat. Mosc. 52: 134. 1877.

Add the synonym: *Puccinia Linosyridi-Caricis* Ed. Fischer, Beitr. Krypt. Schweiz 2¹: 275. 1904.

Add to the description of the urediniospore-pores: or sometimes equatorial.

Add the hosts, under Carduaceae:

Aster armeriaefolius Greene, Colorado.

Aster nemoralis Ait., Pennsylvania.

Aster Novae-Angliae L., Connecticut.

Aster occidentalis Nutt., Washington.

Add the host, under Cyperaceae: *Carex pachystachya* Cham., Montana, Oregon.

Add the illustration: Beitr. Krypt. Schweiz 2¹: f. 205.

Add the exsiccati: Barth. N. Am. Ured. 2341, 2427, 2428, 2538, 2649, 2932, 3033, 3034, 3129, 3130, 3227, 3228, 3336, 3451, 3452; Brenckle, Fungi Dak. 485, 563; Ellis & Ev. N. Am. Fungi 2402, 2721; D. Griff. W. Am. Fungi 362; Thaxter, Rel. Farl. 251.

365. *Dicaeoma* Peckii.

Add the hosts, under Onagraceae:

Chamaenerion angustifolium (L.) Scop. (*Epilobium angustifolium* L., *E. spicatum* Lam.), Colorado; Saskatchewan.
Lavauxia triloba (Nutt.) Spach (*Oenothera triloba* Nutt.), North Dakota.

Change "*Pachylophus microglottis*" to read: *Pachylophus macroglottis*.

Add the host, under Cyperaceae: *Carex lupuliformis* Sartwell, Indiana.

Insert: ILLUSTRATION: Sydow, Monog. Ured. 1: pl. 37, f. 492, 496.

Add the exsiccati: Barth. N. Am. Ured. 2668, 3356; Ellis & Ev. N. Am. Fungi 2885; D. Griff. W. Am. Fungi 58.

366. *Dicaeoma* hieraciatum.

Omit, under Cichoriaceae, *Nabalis trifoliolatus* Cass., which is transferred to *Dicaeoma atropunctum*, page 372, and add:

Agoseris parviflora (Nutt.) Greene (*Troximon parviflorum* Nutt.), Wyoming.
Crepis glauca (Nutt.) T. & G., Nevada.
Crepis intermedia A. Gray, Washington.

Omit *Carex Frankii* from the hosts under Cyperaceae, and add:

Carex atherodes Spreng. (*C. aristata* R. Br.), North Dakota.
Carex Douglasii Boott, Colorado.
Carex trichocarpa Muhl., North Dakota.

Add the exsiccati: Barth. N. Am. Ured. 2448, 2662, 3150, 3251; D. Griff. W. Am. Fungi 66.

368. *Dicaeoma* Sambuci.

Insert: ILLUSTRATION: Sydow, Monog. Ured. pl. 37, f. 491, 497.

Add the exsiccati: Barth. N. Am. Ured. 2829, 2865, 3070, 3267, 3473; Thaxter, Rel. Parl. 244.

369. *Dicaeoma* Caricis-strictae.

Insert: ILLUSTRATIONS: Bull. Torrey Club 32: 40. f. 7; Sydow, Monog. Ured. 1: pl. 38, f. 503.

Add the exsiccati: Barth. N. Am. Ured. 2343.

369. *Dicaeoma* Trientalis.

Add the synonym: *Puccinia Aecidii-Trientalis* Liro, Ured. Fenn. 196. 1908.

Add: EXSICCATI: Barth. N. Am. Ured. 3270, 3370.

369. *Dicaeoma* (?) Pitcairniae.

Add the illustration: Sydow, Monog. Ured. 1: pl. 35, f. 480.

370. *Dicaeoma* (?) Commelinae.

Add the host: *Athyrocarpus persicariaefolius* (DC.) Hemsl. (*Commelina persicariaefolia* Delile), Grenada.

370. *Dicaeoma* obscurum.

Add the synonyms: *Aecidium compositarum Bellidis* Dur. & Mont.; Durieu, Expl. Sci. Algér. Bot. 1: 308. 1848. *Aecidium Montagnei* Gonz. Frag. Bol. Soc. Esp. Hist. Nat. 14: 239. 1914. *Aecidium Bellidis-silvestris* Sacc. Nuovo Giorn. Bot. Ital. II. 22: 31. 1915.

Insert among the hosts under Juncaceae, as a synonym after *Juncoides comosa*: "(*Luzula comosa* E. Meyer)."

Add the illustration: Grove, Brit. Rust Fungi f. 183.

Add the exsiccati: Thaxter, Rel. Parl. 264.

371. *Dicaeoma* Veratri.

Add the host, under Melanthaceae: *Veratrum californicum* Durand, California, Oregon, Washington.

Add the illustration: Fl. Ital. Crypt. Ured. f. 72c.

Add the exsiccati: Barth. N. Am. Ured. 2569, 2779, 2974, 3077; Thaxter, Rel. Parl. 275.

372. *Dicaeoma atropunctum*.

Add the synonym: ? *Aecidium Dandelionis* Schw. Schr. Nat. Ges. Leipzig 1: 66. 1822.
Change the measurement of the aeciospores to read: "13-18 by 16-18 μ ," and that
of the wall, "1-1.5 μ ."

Insert after the aecial description:

ON CICHORIACEAE:

? *Adopogon Dandelion* (L.) Kuntze (*Cynthia Dandelion* DC., *Krigia Dandelion* Nutt.,
Tragopogon Dandelion L.), North Carolina.

Nabulus trifoliolatus Cass. (*Prenanthes trifoliolatus* Fernald), Pennsylvania, Virginia.

Insert, after the telial description, the paragraph:

This species is correlated (as shown by Orton & Weiss, *Mycologia* 17: 151. 1925)
with the heteroecious rust on *Carex*, *Dicaeoma hieraciatum* (Schw.) Arth. & Kern, page
366, the aecia of the two species inhabiting the same or similar hosts, and the aeciospores,
like the urediniospores and teliospores, possessing striking morphological similarities.
Both species are also correlated with *Micropuccinia maculosa* (Schw.) Arth. & Jackson,
page 586.

Add the illustration: *Mycologia* 17: 149. f. 1, pl. 17.

372. *Dicaeoma grumosum*.

Change "334" to "344" in the page-citation for this name.

373. *Dicaeoma mutabile*.

Add the host: *Allium acuminatum* Hook., Utah.

Add the illustration: Sydow, Monog. Ured. 1: pl. 35, f. 471.

373. *Dicaeoma Allii*.

Add the host: *Allium Heckmani* Eastw., California.

Add the illustrations: Fl. Ital. Crypt. Ured. f. 71a; Sydow, Monog. Ured. 1: pl. 35,
f. 473.

Add the exsiccati: Barth. N. Am. Ured. 2644.

374. *Dicaeoma Porri*.

Add the illustration: Grove. Brit. Rust Fungi f. 182.

375. *Dicaeoma granulisorum*.

Add: EXSICCATI: Barth. N. Am. Ured. 3043.

376. *Dicaeoma Asparagi*.

Add the synonym: *Persooniella Asparagi* Sydow, Ann. Myc. 20: 118. 1922.

Add the illustrations: Grove, Brit. Rust. Fungi f. 180; Fl. Ital. Crypt. Ured. f. 71b.

Add the exsiccati: Barth. N. Am. Ured. 2338, 2533, 2534, 2535, 2739, 2930, 3128;
Thaxter, Rel. Farl. 241.

377. *Dicaeoma Smilacis*.

Add the synonym: *Persooniella Smilacis* Sydow, Ann. Myc. 20: 118. 1922.

Add the illustration: Sydow, Monog. Ured. 1: pl. 35, f. 481.

Add the exsiccati: Barth. N. Am. Ured. 2367, 2562, 2679, 2773, 2774, 2867, 2868,
2967, 2968, 3167, 3168, 3365.

377. *Dicaeoma* (?) *Aletridis*.

Add to the distribution: "also locally in the interior between the Great Lakes and the
Mississippi River."

Add the exsiccati: Thaxter, Rel. Farl. 237.

378. *Dicaeoma* (?) *Bomareae*.

Add the illustration: Sydow, Monog. Ured. 1: pl. 34, f. 463.

379. *Dicaeoma Pallor*.

Add the synonym: *Eriosporangium Pallor* Sydow, Ann. Myc. 20: 122. 1922.

379. **Dicaeoma (?) Iridis.**
Add the illustration: Grove, Brit. Rust Fungi *f.* 178.
* Add the exsiccati: Barth. N. Am. Ured. 3467; Thaxter, Rel. Farl. 286.
380. **Dicaeoma (?) Cannae.**
Omit "Cuba" after *Calathea lutea* and place it after *Thalia geniculata*.
Add the host, under Marantaceae: *Calathea macrosepala* K. Schum., Panama.
381. **Dicaeoma (?) Cypripedii.**
Add the illustration: Sydow, Monog. Ured. 1: *pl.* 33, *f.* 450.
381. **Dicaeoma Polygوني-amphibii.**
Add the synonym: *Aecidium Geranii-pusilli* Tranz. Trav. Mus. Bot. Acad. St.-Petersb. 2: 13. 1905.
Omit, among the hosts, "Ohio" after *Persicaria Hartwrightii*.
Add the illustration: Fl. Ital. Crypt. Ured. *f.* 69d.
Add the exsiccati: Barth. N. Am. Ured. 2366, 2460, 2461, 2558, 2559, 2669, 2768, 2769, 2770, 2771, 2856, 2857, 2858, 2859, 2958, 3062, 3063, 3064, 3159, 3160, 3263, 3264, 3357, 3471, 3472; Brenckle, Fungi Dak. 565; D. Griff. W. Am. Fungi 15; Thaxter, Rel. Farl. 269a, b.
382. **Dicaeoma Polygوني-vivipari.**
Add the illustration: Grove, Brit. Rust Fungi *f.* 174.
383. **Dicaeoma Bistortae.**
Add the illustrations: Grove, Brit. Rust Fungi *f.* 173; Fl. Ital. Crypt. Ured. *f.* 69b.
Add the exsiccati: Barth. N. Am. Ured. 3231.
384. **Dicaeoma Sommerfeltii.**
Add the illustrations: Fl. Ital. Crypt. Ured. *f.* 69a; Sitz.-Ber. Böhm. Ges. Wiss. 1900²⁸: *f.* 52, 53.
385. **Dicaeoma Polygوني-alpini.**
Add: EXSICCATI: Barth. N. Am. Ured. 3132.
385. **Dicaeoma Acetosae.**
Add the illustration: Fl. Ital. Crypt. Ured. *f.* 70c.
386. **Dicaeoma punctiforme.**
Add the host: *Rumex altissimus* Wood, Wisconsin.
Add to the distribution: "and one locality in south-central Wisconsin; also in Siberia."
Add the illustration: Sydow, Monog. Ured. 1: *pl.* 32, *f.* 441.
386. **Dicaeoma Guillemineae.**
Add the illustration: Sydow, Monog. Ured. 1: *pl.* 32, *f.* 436.
387. **Dicaeoma (?) obesisporum.**
Add the synonym: *Uredo nitidula* Arth. Bull. Torrey Club 47: 473. 1920.
Add the host: *Achyranthes philoxeroides* (Mart.) Standley (*Alternanthera philoxeroides* Griseb.), Guatemala.
389. **Dicaeoma (?) tardissimum.**
Add the exsiccati: Barth. N. Am. Ured. 2565, 2969.
389. **Dicaeoma Calthae.**
Add the synonym: *Persooniella Calthae* Sydow, Ann. Myc. 20: 118. 1922.
Add the illustrations: Fl. Ital. Crypt. Ured. *f.* 67f; Grove, Brit. Rust Fungi *f.* 165.
Add the exsiccati: Brenckle, Fungi Dak. 486.
390. **Dicaeoma areolatum.**
Add the host: *Caltha rotundifolia* (Huth) Greene, Colorado; omit "Colorado" after *C. leptosepala*.

- 390: *Dicaeoma calthaeicola*.
Add the illustrations: Fl. Ital. Crypt. Ured. f. 67c; Grove, Brit. Rust Fungi f. 166.
392. *Dicaeoma Nolitangeris*.
Add the exsiccati: Thaxter, Rel. Farl. 263.
392. *Dicaeoma Viola*.
Insert, among the hosts, as a synonym after *Viola eriocarpa*: (*V. scabriuscula* Schw.).
Add the hosts:
Viola Langsdorfi Fischer, Alaska.
Viola palmata L., Mississippi.
Add the illustration: Grove, Brit. Rust Fungi f. 149.
Add the exsiccati: Barth. N. Am. Ured. 2375, 2475, 3176, 3479; Thaxter, Rel. Farl. 276.
394. *Dicaeoma Epilobii-tetragoni*.
Add the hosts:
Boisduvalia parviflora A. Heller, Idaho.
Epilobium jucundum A. Gray (*E. paniculatum jucundum* Trel.), Washington.
Add the illustration: Grove, Brit. Rust Fungi f. 147.
Under exsiccati, change Barth. N. Am. Ured. "1589" to "1579," and add 2843, 3140, 3242, 3342; also add Vesterg. Micr. Rar. Sel. 964.
396. *Dicaeoma Proserpinacae*.
Add the synonym: *Persooniella Proserpinacae* Sydow, Ann. Myc. 20: 118. 1922.
Add the host: *Proserpinaca platycarpa* Small, Florida.
Add the illustration: Sydow, Monog. Ured. 1: pl. 35, f. 351.
Add the exsiccati: Barth. N. Am. Ured. 3161.
396. *Dicaeoma Pimpinellae*.
Add the hosts:
Chaerophyllum Teinturierii Hook., Tennessee.
Osmorrhiza ambigua Coult. & Rose, Oregon.
Osmorrhiza brachypoda Torr., California.
Add the illustration: Grove, Brit. Rust Fungi f. 136.
Add the exsiccati: Barth. N. Am. Ured. 2557, 3061, 3262; Brenckle, Fungi Dak. 493; Thaxter, Rel. Farl. 268a, b.
398. *Dicaeoma Cicutae*.
Add the exsiccati: Barth. N. Am. Ured. 3133; Thaxter, Rel. Farl. 247.
398. *Dicaeoma marylandicum*.
Add the synonym: *Allodus lacerata* Orton, Mem. N. Y. Bot. Gard. 6: 194. 1916.
Add the hosts:
Euryptera parvifolia Coult. & Rose, California.
Sanicula nevadensis S. Wats., California.
Sanicula trifoliata Bickn., Pennsylvania.
Sanicula tuberosa Torr., California.
400. *Dicaeoma Ortonii*.
Add the hosts:
Dodecatheon frigidum Cham. & Schlecht., Alaska.
Dodecatheon sp., South Dakota.
Insert: ILLUSTRATION: Holway, N. Am. Ured. 1: pl. 45, f. 145a, b.
400. *Dicaeoma Gentianae*.
Add the hosts:
Amarella plebia (Cham.) Greene (*Gentiana plebia* Cham.), Colorado.
Dasystephana interrupta (Greene) Rydb. (*Gentiana interrupta* Greene), Saskatchewan.
Dasystephana Newberryi (A. Gray) Arth. (*Gentiana Newberryi* A. Gray), California.
Dasystephana Scepterum (Griseb.) Arth. (*Gentiana Scepterum* Griseb.), Washington.

Add the illustrations: Holway, N. Am. Ured. 1: *pl. 45, f. 147a, b; pl. 46, f. 147c*;
Grove, Brit. Rust Fungi, *f. 128*.

Add the exsiccati: Barth. N. Am. Ured. 2756, 2757, 2845.

401. **Dicaeoma Convolvuli.**

Add the synonym: *Persooniella Convolvuli* Sydow, Ann. Myc. 20: 118. 1922.

Add the hosts:

Convolvulus polymorphus Greene, Oregon.
Convolvulus repens L., Tennessee.

Add the illustration: Holway, N. Am. Ured. 1: *pl. 48, f. 154a, b*.

Add the exsiccati: Barth. N. Am. Ured. 2347, 2431, 2658, 2838, 2839; Brenckle,
Fungi Dak. 461, 564; Ellis & Ev. N. Am. Fungi 2251.

402. **Dicaeoma jalapense.**

Add the synonym: *Puccinia jalapense* Barth. N. Am. Ured. 2549. 1922.

Add the exsiccati: Barth. N. Am. Ured. 2549.

402. **Dicaeoma Lithospermi.**

Reduce this name to synonymy, and substitute: **Dicaeoma tuyutense** (Speg.) Arthur.

Add further the synonyms: *Puccinia tuyutensis* Speg. Anal. Soc. Ci. Argent. 12: 70.
1881. *Uredo Evolvuli* Speg. Anal. Soc. Ci. Argent. 12: 72. 1881. *Uredo tuyutensis*
Speg. Anal. Soc. Ci. Argent. 12: 75. 1881. *Aecidium tuyutense* Speg. Anal. Soc. Ci,
Argent. 12: 79. 1881.

Change the name of the first host from "nummularis" to "nummularius."

Change the type locality to read: "Tuyu, Argentina, on *Evolvulus falcatus*."

Add to the distribution: "and South America."

Insert: ILLUSTRATIONS: Sydow, Monog. Ured. 1: *pl. 21, f. 301*; Holway, N. Am. Ured.
1: *pl. 49, f. 157*.

403. **Dicaeoma Cressae.**

Add the synonym: *Caecoma cressatum* Link, in Willd. Sp. Pl. 6^o: 49. 1825.

Insert: ILLUSTRATION: Holway, N. Am. Ured. 1: *pl. 49, f. 155a-c*.

Add the exsiccati: Barth. N. Am. Ured. 3239.

403. **Dicaeoma Giliae.**

Add the host: *Gilia Bigelovii* A. Gray, Arizona.

Insert: ILLUSTRATION: Holway, N. Am. Ured. 1: *pl. 51, f. 165*.

404. **Dicaeoma fumosum.**

Add the synonym: *Persooniella fumosa* Sydow, Ann. Myc. 20: 118. 1922.

Insert: ILLUSTRATION: Holway, N. Am. Ured. 1: *pl. 53, f. 170*.

404. **Dicaeoma (?) Cryptanthes.**

Add the hosts:

Cryptantha ambigua (A. Gray) Greene (*Krynitskia ambigua* A. Gray), California.
Cryptantha microstachys Greene (*Krynitskia microstachys* Greene), California.

Insert: ILLUSTRATIONS: Sydow, Monog. Ured. 1: *pl. 21, f. 300*; Holway, N. Am. Ured.
1: *pl. 53, f. 174*.

405. **Dicaeoma Menthae.**

Change the host "*Hedeoma* sp." to "*Hedeoma nana* (Torr.) Greene."

Add the illustration: Fl. Ital. Crypt. Ured. *f. 61a*.

Add the exsiccati: Barth. N. Am. Ured. 2362, 2363, 2364, 2454, 2552, 2665, 2764,
2765, 2952, 3053, 3054, 3055, 3155, 3258, 3259, 3469; Thaxter, Rel. Farl. 261a, b.

406. **Dicaeoma Monardellae.**

Add the host: *Madronella oblongifolia* Rydb., Utah.

407. *Dicaeoma fuscatum*.
Add the synonym: *Eriosporangium fuscatum* Sydow, Ann. Myc. 20: 122. 1922.
408. *Dicaeoma medellinense*.
Add the synonym: *Eriosporangium medellinense* Sydow, Ann. Myc. 20: 122. 1922.
409. *Dicaeoma insititium*.
Add the synonym: *Eriosporangium insititium* Sydow, Ann. Myc. 20: 122. 1922.
410. *Dicaeoma Hyptidis-mutabilis*.
Add the synonym: *Eriosporangium Hyptidis-mutabilis* Sydow, Ann. Myc. 20: 122. 1922.
411. *Dicaeoma salviicola*.
Insert: ILLUSTRATION: Sydow, Monog. Ured. 1: pl. 20, f. 278.
411. *Dicaeoma farinaceum*.
Add the host: *Salvia azurea* Lam., Alabama.
Add the exsiccati: Barth. N. Am. Ured. 3243.
413. *Dicaeoma mitratum*.
Insert: ILLUSTRATION: Sydow, Monog. Ured. 1: pl. 19, f. 279.
415. *Dicaeoma Anisacanthi*.
Insert: ILLUSTRATION: Sydow, Monog. Ured. 1: pl. 14, f. 211.
415. *Dicaeoma Ruelliae*.
Add the hosts:
Ruellia Drummondii (Nees) A. Gray, Texas.
Ruellia pedunculata Torr., Missouri.
Add the illustration: Sydow, Monog. Ured. 1: pl. 15, f. 212.
Add the exsiccati: Barth. N. Am. Ured. 2863, 2864, 2961, 3069, 3359.
417. *Dicaeoma punctatum*.
Add the host: *Galium californicum* H. & A., California.
Add the illustration: Fl. Ital. Crypt. Ured. f. 59a; Grove, Brit. Rust Fungi f. 115.
Add the exsiccati: Barth. N. Am. Ured. 2462; Thaxter, Rel. Farl. 271.
418. *Dicaeoma troglodytes*.
Omit "North Dakota."
418. *Dicaeoma eximium*.
Add the synonym: *Persooniella eximia* Sydow, Ann. Myc. 20: 118. 1922.
419. *Dicaeoma splendens*.
Add the synonym: *Persooniella splendens* Sydow, Ann. Myc. 20: 118. 1922.
Insert: ILLUSTRATION: Sydow, Monog. Ured. 1: pl. 7, f. 115.
419. *Dicaeoma* (?) *Xanthiifoliae*.
Insert: ILLUSTRATION: Sydow, Monog. Ured. 1: pl. 6, f. 87.
Add the exsiccati: Barth. N. Am. Ured. 2976.
420. *Dicaeoma Becki*.
Add the synonym: *Eriosporangium Becki* Sydow, Ann. Myc. 20: 122. 1922.
420. *Dicaeoma erraticum*.
Add the synonym: *Eriosporangium erraticum* Sydow, Ann. Myc. 20: 122. 1922.
422. *Dicaeoma Baccharidis-hirtellae*.
Add: ILLUSTRATION: Sydow, Monog. Ured. 1: pl. 2, f. 20.

423. *Dicaeoma evadens*.

Change "1920" in second line of synonymy to "1921."

Insert: ILLUSTRATION: Sydow, Monog. Ured. 1: pl. 1, f. 15.

Add the exsiccati: Barth. N. Am. Ured. 2409, 2410, 3142.

423. *Dicaeoma Baccharidis*.

Insert: ILLUSTRATION: Sydow, Monog. Ured. 1: pl. 1, f. 16.

Add the exsiccati: Barth. N. Am. Ured. 3229, 3230.

425. *Dicaeoma oaxacanum*.

Add: ILLUSTRATION: Sydow, Monog. Ured. 1: pl. 2, f. 21

426. Insert:

244a. *Dicaeoma Plucheae* (Sydow) Arthur & Jackson.

Uredo Plucheae Sydow, Ann. Myc. 1: 333. 1903.

Uredo biocellata Arth. Bull. Torrey Club 33: 517. 1906.

Puccinia biocellata Vesterg. Micr. Rar. Sel. 1267. 1908.

Uredo Plucheae Speg. Anal. Mus. Nar. Buenos Aires 19: 319. 1909.

Puccinia Plucheae Arth. Bull. Torrey Club 49: 194. 1922.

O. Pycnia not seen.

I. Aecia hypophyllous, in small groups on purplish spots 5-10 mm. across, small, 0.2-0.3 mm. in diameter; peridium fragile, scarcely extending above surface of leaf; peridial cells rhomboidal, 14-16 by 24-27 μ , the outer wall 3 μ thick, transversely striate, smooth, the inner wall 1.5 μ thick, verrucose; aeciospores angularly globoid, 13-17 μ in diameter; wall colorless, thin, 1 μ , minutely and inconspicuously verrucose.

II. Uredinia amphigenous, scattered, round, large, 0.7-1.5 mm. in diameter, early naked, pulverulent, chocolate-brown, ruptured epidermis noticeable; urediniospores broadly ellipsoid or obovoid, 23-27 by 27-32 μ ; wall light chestnut-brown, 1.5-2 μ thick, depressed about each pore, the separated cuticle inflated and forming circular bullate areas 18-25 μ in diameter, closely and coarsely echinulate, the pores 2, equatorial.

III. Telia hypophyllous, scattered, round, 0.2-0.5 mm. in diameter, early naked, dark cinnamon-brown, ruptured epidermis inconspicuous; teliospores broadly ellipsoid or oblong, 19-23 by 40-50 μ , rounded or obtuse above and below, slightly constricted at septum; much light cinnamon-brown, 1-1.5 μ thick, much thicker above, forming an abrupt, sub-hyaline umbo, 7-9 μ , smooth; pedicel colorless, fragile, equaling spore or shorter.

ON CARDUACEAE:

Plucheae camphorata (L.) DC., Florida.

Plucheae odorata (L.) Cass., Guatemala; Porto Rico.

Plucheae purpurascens (Sw.) DC., Florida; Santo Domingo; Mona Island; Porto Rico.

TYPE LOCALITY: Eustis, Lake County, Florida, on *Plucheae camphorata*.

DISTRIBUTION: Central Florida southward through the West Indies and in Central America; also in South America.

427. *Dicaeoma Helianthi-mollis*.

Add the hosts:

Helianthus australis Small, Georgia.

Helianthus cucumerifolius T. & G., Texas.

Add the illustration: Fl. Ital. Crypt. Ured. f. 55.

Add the exsiccati: Barth. N. Am. Ured. 2354, 2355, 2356, 2357, 2358, 2359, 2444, 2445, 2446, 2547, 2548, 2660, 2761, 2762, 2849, 2850, 2943, 2944, 3047, 3048, 3049, 3050, 3146, 3147, 3148, 3149, 3248, 3249, 3352; Thaxter, Rel. Farl. 257.

430. *Dicaeoma Zexmeniae*.

Add the hosts:

Zexmenia frutescens (Mill.) Blake, Salvador.

Zexmenia hispida (H.B.K.) A. Gray, Salvador.

Insert: ILLUSTRATION: Sydow, Monog. Ured. 1: pl. 11, f. 165.

431. *Dicaeoma inauditum*.
Add the synonym: *Eriosporangium inauditum* Sydow, Ann. Myc. 20: 122. 1922.
Add the host: *Zexmenia scandens* Hemsl., Honduras.
432. *Dicaeoma Verbesinae*.
Add the exsiccati: Barth. N. Am. Ured. 2273, 2373, 2870, 3175.
432. *Dicaeoma irregulare*.
Add: ILLUSTRATION: Sydow, Monog. Ured. 1: pl. 10, f. 148.
432. *Dicaeoma cognatum*.
Insert: ILLUSTRATION: Sydow, Monog. Ured. 1: pl. 10, f. 149.
Add the exsiccati: Barth. N. Am. Ured. 2750.
433. *Dicaeoma abruptum*.
Add the hosts:
Viguiera annua (M. E. Jones) Blake, Arizona.
Viguiera dentata (Cav.) Spreng., Texas.
Zexmenia podocephala A. Gray, Arizona.
Insert: ILLUSTRATION: Sydow, Monog. Ured. 1: pl. 10, f. 151, 158.
434. *Dicaeoma senecionicola*.
Add the host: *Senecio Petasites* DC., Salvador.
435. *Dicaeoma Cnici*.
Add the exsiccati: Barth. N. Am. Ured. 2434.
435. *Dicaeoma Lapsanae*.
Add the illustration: Grove, Brit. Rust Fungi f. 99.
436. *Dicaeoma* (?) *Harknessii*.
Add the synonym: *Dicaeoma Nemoseridis* Fairman, Field Mus. Nat. Hist. Bot. Ser. 5: 334. 1923.
Add the hosts:
Malacothrix arachnoidea McGregor, California.
Malacothrix saxatilis (Nutt.) T. & G., California.
Add the exsiccati: Barth. N. Am. Ured. 2443.
437. *Dicaeoma* (?) *Stephanomeriae*.
Insert: ILLUSTRATION: Sydow, Monog. Ured. 1: pl. 9, f. 135.
437. *Dicaeoma variabile*.
Add the illustration: Grove, Brit. Rust Fungi f. 105.
437. *Dicaeoma Orbicula*.
Add the exsiccati: Barth. N. Am. Ured. 3058; Thaxter, Rel. Parl. 266a-d.
438. *Dicaeoma hemisphaericum*.
Add the synonym: *Aecidium minussense* Thüm. Bull. Soc. Nat. Mosc. 53: 213. 1878.
Add the exsiccati: Barth. N. Am. Ured. 2945, 3353.
440. PUCINIOLA.
Add the synonyms: *Groveola* Sydow, Ann. Myc. 19: 173. 1921. *Poliotetium* Sydow, Ann. Myc. 20: 124. 1922.
441. In the key.
Insert after line 4:
Host belonging to family Loranthaceae. 4a. *P. Urbaniana*.

441. *Pucciniola Brodiaeae*.

Omit, among the hosts, after *Triteleia grandiflora*: "Idaho, Utah, Washington," represented by aecia, which are transferred to *Dicaeoma Pattersonianum* (page 330); and add *Hesperoscordum lacteum* Lindl. (*Brodiaea lactea* S. Wats.), Washington.

Change the distribution to read: "Central California to Washington, in the coastal area."

441. *Pucciniola primaverilis*.

Insert: ILLUSTRATION: Sydow, Monog. Ured. 2: pl. 11, f. 141.

442. *Pucciniola Miurae*.

Add the illustration: Jour. Coll. Agr. Hokkaido Univ. 11: pl. 9, f. 3.

443. Insert:

4a. *Pucciniola Urbaniana* (P. Henn.) Arthur.

Uromyces Urbanianus P. Henn. Hedwigia 36: 213. 1897.

O. Pycnia not seen.

I. Aecia chiefly hypophyllous, closely aggregate on more or less hypertrophied areas 6-12 mm. in diameter; peridium white, cylindric, 0.2-0.3 mm. in diameter, erect or somewhat recurved, coarsely and irregularly lacerate, fragile; peridial cells in face view hexagonally or irregularly oblong, 20-27 by 35-55 μ , slightly overlapping, strongly rugose, in side view linear or lanceolate, the outer wall thin, 1-2 μ , smooth, the inner wall thicker, 2-3 μ , prominently roughened; aeciospores globose or ellipsoid, 22-26 by 28-34 μ ; wall colorless, 1.5-2.5 μ , much thicker above, 5-12 μ , closely and noticeably verrucose.

III. Telia amphigenous, solitary or in small circinating groups 1.5-3 mm. in diameter, oblong to fusiform, 0.5-1.5 mm. long, early dehiscent by a longitudinal slit, somewhat pulverulent, chestnut-brown, ruptured epidermis erect and prominent; teliospores elongate-oblong or fusiform-oblong, 15-20 by 32-47 μ , rounded or less often narrowed at each end; wall light chestnut-brown, 1.5-2.5 μ thick, somewhat thicker at apex, 4-7 μ , evenly and noticeably verrucose, sometimes appearing striate; pedicel nearly or quite colorless, slender, short, fragile.

ON LORANTHACEAE:

Phthirusa pyrifolia (H.B.K.) Eichl. (*Loranthus pyrifolia* H.B.K.), Salvador.

TYPE LOCALITY: St. Anna, Trinidad, on *Oxycanthus spicatus*.

DISTRIBUTION: Salvador; also in South America.

443. *Pucciniola Rickeriana*.

Transferred to *Nigredo Rickeriana* (page 757).

443. *Pucciniola Atriplicis*.

Add the hosts:

Atriplex californica Moq., California.

Atriplex polycarpa S. Wats., Arizona.

Add the exsiccati: Barth. N. Am. Ured. 2597.

444. *Pucciniola Iresines*.

Add the synonym: *Poliotelium Iresines* Sydow, Ann. Myc. 20: 124. 1922.

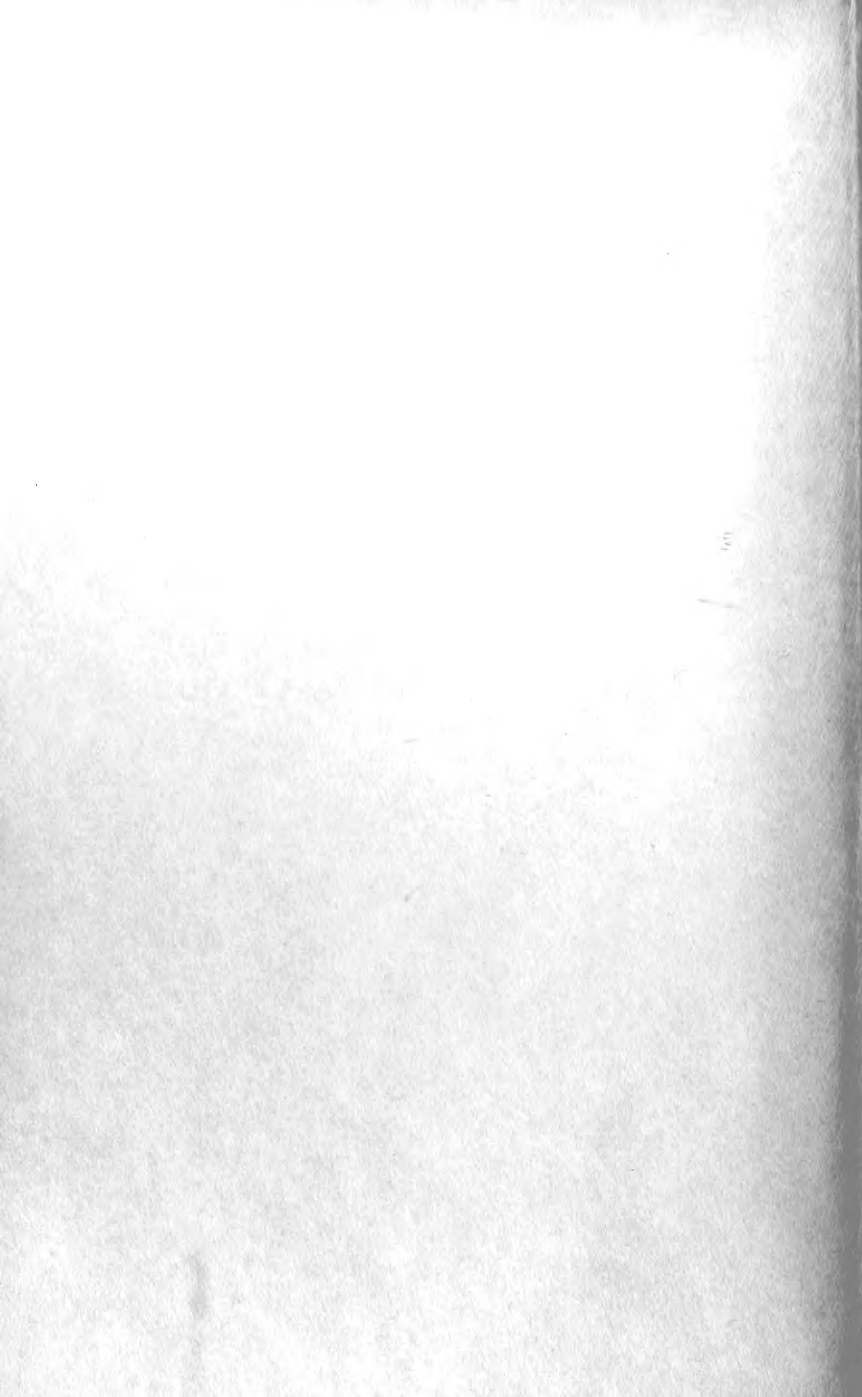
444. *Pucciniola Spragueae*.

Insert: ILLUSTRATION: Sydow, Monog. Ured. 2: pl. 8, f. 111.

445. *Pucciniola Jonesii*.

Add the exsiccati: Barth. N. Am. Ured. 3092.

446. *Pucciniola montana*.
Insert: ILLUSTRATION: Sydow, Monog. Ured. 2: pl. 4, f. 74.
447. *Pucciniola Argophyllae*.
Add the exsiccati: Barth. N. Am. Ured. 2688, 2879, 2880, 2983, 3088; and change Barth. Fungi Columb. "2094" to "2904."
447. *Pucciniola oblonga*.
Add the host: *Trifolium olivaceum* Greene, California.
Add the illustration: Jour. Coll. Agr. Hokkaido Univ. 11: pl. 8, f. 3.
448. *Pucciniola nerviphila*.
Add the distribution: "also in Europe and South America."
Add: ILLUSTRATIONS: Centralb. Bak. II. Abt. 52: 227. f. 3; Jour. Coll. Agr. Hokkaido Univ. 11: pl. 8, f. 2. EXSICCATI: Clements, Crypt. Form. Colo. 541.
449. *Pucciniola carnea*.
Add the synonyms: *Aecidium Phacae-frigidae* Wahlenb. Fl. Lapp. 525. 1812. *Caeoma appendiculatum* Sommerf. Suppl. Fl. Lapp. 232. 1826. *Uromyces Phacae-frigidae* Hariot, Jour. de Bot. 7: 376. 1893.
Add the host: *Phaca frigida* L. (*Astragalus frigidus* A. Gray), Northwest Territory (115° west, 69° north).
Add the illustration: Sydow, Monog. Ured. 2: pl. 3, f. 53.
450. *Pucciniola Hedysari-obscuri*.
Add the hosts:
Hedysarum boreale Nutt., Manitoba.
Hedysarum occidentale Greene, Washington.
Add the illustration: Jour. Coll. Agr. Hokkaido Univ. 11: pl. 7, f. 8.
Add the exsiccati: Barth. N. Am. Ured. 2989, 3182, 3183.
450. *Pucciniola porosa*.
Add the exsiccati: Barth. N. Am. Ured. 2795, 3089, 3392.
451. *Pucciniola coordinata*.
Add the host: *Tithymalus robustus* (Engelm.) Small (*Euphorbia robusta* Engelm.), Utah.
Add: EXSICCATI: Barth. N. Am. Ured. 2485; Garrett, Fungi Utah. 96.
451. *Pucciniola venusta*.
Add: ILLUSTRATION: Sydow, Monog. Ured. 2: pl. 2, f. 26.
452. *Pucciniola maculans*.
Add the host: *Cestrum macrophyllum* Vent., Costa Rica.
452. *Pucciniola Cestri*.
Add the host: *Cestrum diurnum* L., Cuba.
453. *Pucciniola Tweediana*.
Add the synonym: *Groveola indurata* Sydow, Ann. Myc. 19: 173. 1921.
Insert: ILLUSTRATION: Sydow, Monog. Ured. 2: pl. 2, f. 23.





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