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NATURAL HISTORY SURVEY

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the 1990s, the number of people with a mental health problem has increased by 50% (Mental Health Foundation, 2000). The prevalence of mental health problems in the United Kingdom is estimated to be 10% (Mental Health Foundation, 2000).

There is a growing awareness of the need to address the needs of people with mental health problems. The Department of Health (2000) has set out a strategy for mental health care, which aims to improve the lives of people with mental health problems and to reduce the burden of mental illness on society. The strategy is based on three main principles: (1) to promote the recovery of people with mental health problems; (2) to provide a range of services to meet the needs of people with mental health problems; and (3) to ensure that people with mental health problems are treated with respect and dignity.

The Department of Health (2000) has also set out a number of key objectives for mental health care. These include: (1) to reduce the incidence of mental health problems; (2) to improve the early identification and treatment of mental health problems; (3) to improve the quality of life of people with mental health problems; (4) to reduce the burden of mental illness on society; and (5) to ensure that people with mental health problems are treated with respect and dignity.

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GASTEROMYCETÆE WILLD.

Bemerk. üb. Farrenkr. (1802) em. De Bary in Streinz Nomencl. p. 727.

Fungi terrestres, rarius truncicolæ, membranacei v. coriacei v. carnosi, majusculi, rarius minuti, receptaculo vario v. peridio instructi; fructificatio basidiospora (ascis nullis) in peridio usque ad sporarum maturitatem v. ultra inclusa; sporæ continuæ, plerumque sphæroideæ v. ellipsoideæ, hyalinæ v. coloratæ.

Clavis analytica Familiarum

A) Fungi epigæi, rarissime immersi sub terra.

1. *Phalloideæ*. Fungi carnosogelatosi, erumpendo volvacei; gleba vel hymenium mucoso-carnosum, deliquescens.

2. *Nidulariaceæ*. Fungi coriacei; peridium simplex v. duplex, intus sporangiola plura, [rarissime singulum], lenticularia v. sphæroidea, intus nunquam pulveracea, fovens.

3. *Lycoperdaceæ*. Fungimembranaceo-coriacei, plerumque demum dehiscentes; gleba primum carnosocellulosa, dein pulveracea.

B) Fungi hypogæi, rarissime epigæi (Cfr. *Macowaniles*).

4. *Hymenogastraceæ*. Fungi carnosoduriusculi; gleba carnosacellulosa-cavernosa, nunquam pulveracea.

Fam. 1. **Phalloideæ**

Auctore ED. FISCHER Bernensi.

Phalloideæ Fries Syst. myc. II, 1823, p. 281.

Fungi mycelio funiculari instructi; fructificatione e volva, receptaculo, glebaque consistente, primum sphærica vel ovoidea: volva receptaculum et glebam includente. Volva e strato gelatinoso, extus vel utrinque a stratis solidioribus, tenuibus incluso consistens. Receptaculum forma varium, omnibus partibus vel ex maxima parte consistens e cavitatibus parietibus pseudoparenchymaticis inclusis. Receptaculum denique e volva prorumpens, eam multo excedens, glebam in pulpam diffluentem extollens, ita ut fungus maturus constet e receptaculo basi a volva cupulariformi incluso. Sporæ læves ellipsoideæ (semperne?), minutissimæ (3-8 μ . long., 1-2,5 μ . cr.).

Clavis analytica generum

1. PHALLEÆ. Pulpa sporifera receptaculum extus obtegente; receptaculo stipitiformi (cavo), simplici vel pileo appendicibusve instructo.

A) Phallæa mitrata. Receptaculo pileo ex apice dependente instructo. Pulpa sporifera externam pilei paginam obtegente.

Dictyophora. Stipite appendice retiformi (vel structurâ cum stipitis pariete homogenco?) h. e. «indusio» instructo.

Ithyphallus. Stipite indusio carente.

B) Phallæa capitata. Receptaculo pileo ex apice dependente carente. Pulpa sporifera receptaculi stipitiformis apicem (apud *M?* *discolorem* in pilei formam dilatatum) directe obtegente.

Mutinus. Receptaculo appendicibus carente.

Kalchbrennera. Receptaculi parte sporifera processibus coralloideis ornata.

2. CLATHREÆ. Pulpa sporifera interiori receptaculi paginae (vel receptaculi explicati supernae) imposita. Receptaculo cavo-clathrato vel lobato, stipitato vel stipite carente.

a) Receptaculo cavo-clathrato vel e paucis ramis verticalibus apice junctis consistente.

Simblum. Receptaculo stipitato, cavo-clathrato, interstitiis polygonis.

Clathrus. Receptaculo cavo-clathrato vel e paucis ramis verticalibus apice junctis consistente, stipite carente.

Colus. Receptaculo stipitato, clathrato, interstitiis (saltem pro parte) verticaliter elongatis.

b) Receptaculo superne in lacinias liberas diviso.

Lysurus. Receptaculo stipitato sursum in lacinias liberas verticales, acutas, a stipite acriter distinctas diviso.

Anthurus. Receptaculo stipitato (vel stipite brevissimo instructo), laciniiis erecto-patentibus, externa facie a stipite non distinctis.

Calathiscus. Receptaculo stipitato vel stipite carente, sursum cupulari; laciniiis verticalibus, a stipite non distinctis, sporis destitutis.

Aseroë. Receptaculo stipitato sursum in limbum horizontalem margine in lacinias divisum expanso; laciniiis (saltem in superiore parte) sporis destitutis.

Sect. 1. Phallææ (Fries).

(Phalloideæ Corda Icones Fungorum V (1842) p. 29. — Phallei Fries Summa V. S. Pars II, 1849. — Exospori Kalehbrenner Phalloidei novi vel minus cogniti 1880, p. 13, excl. Simblum).

A) **Phallææ mitratæ** (Phallææ. = Exospori mitrati Kalehbr. p. p.).

DICTYOPHORA Desvaux Journal de Botanique t. II, 1809 (Etym. a *dictyon* rete et *phoreo* fero) *Phallus* auctt. p. p. *Hymenophallus* Nees System der Pilze und Schwämme 1817. *Sophronia* Pers. in Voyage autour du Monde exécuté sur les corvettes l'Uranie et la Physicienne, publié par Freycinet, 1826, pag. 178. *Dictyoepelos* van Hasselt. — Receptaculum e stipite (cavo) et pileo (extus reticulato) consistens. Stipes appendice («Indusio») conico vel campanulato vel cylindrico, retiformi (vel structurâ cum stipitis pariete homogeneo?), pseudoparenchymatico, e superiore stipitis parte dependente ornatus.

1. **Dictyophora campanulata** Ed. Fischer in Annales du jardin bot. de Buitenzorg vol. VI, pag. 23 (non Nees) ? *D. phalloidea* Berk. in Intellectual Observer IX, 1866, p. 401 f. 4. ? *Hymenophallus albindusiatus* L. Beck. Mspt. — Stipite 10–15 cm. (et plura?) alto, superne attenuato, albo; pariete infra e 2–3 stratis cavitatum composito, supra indusii insertionem simplici et extus reticulato; indusio retiformi albo, conico vel campanulato, circiter in inferioris pilei marginis altitudine e stipite oriente, usque ad volvam dependente, margine inferiore integro; interstitiis superioris indusii partis majoribus quam inferioris; indusii ramis plano-compressis, cavis; pileo (pseudoparenchymatico) campanulato vel conico, albo, extus reticulato, apice (ad transitum in stipitem) non incrassato.

Hab. in ins. Java. — *D. phalloidea* Lév. Berk. in Intell. Obs.

l. c. indusio brevior albo vel croceo sine dubio eadem species.

2. **Dictyophora phalloidea** Desvaux Journ. de Botanique II, Paris 1809, p. 88 *Phallus indusiatus* Ventenat Mém. de l'Institut national des sciences et arts, Sciences math. et phys. I, pour l'an IV de la républ., Paris 1798, p. 520. *Hymenophallus indusiatus* Nees System der Pilze u. Schwämme 1817 ? *D. campanulata* Nees in Lèveillé Mémoires de la soc. Linnéenne de Paris V, 1827, p. 499 tab. XIII, f. 2. *Phallus* (Hymenophallus) *tunicatus* Schlechtendal in Linnæa Bd. 31, 1861–62, p. 123. = *Phallus indusiatus* in

Dictionnaire des sc. naturelles, Botanique, Végétaux acotylédones Pl. 49 (1816-1829). Præcedenti simillima (an ab ea diversa?) species, sed paullo minor et tenerior videtur; ab ea differt pileo apice (ad transitum in stipitem) incrassato, ita, ut sæpe limbus horizontalis vel annulus efformetur.

Hab. in Guyana batava locis arenosis prope maris littora et fl. Surinam (VAILLANT 1755), Blumenau St. Catharina (Brasilia), ad flumen Daintree in Australia regione inter septentriones et orientem solem spectante. An fungus Angolensis: *Phallus tunicatus* a Welw. et Curr. (Transact. of Linnean Society of London vol. XXVI, 1870, p. 286) citatus ad eandem speciem pertinet? — Numerosæ formæ, ab auctoribus nomine *Dictyophoræ phalloideæ* vel *Hymenophalli indusiati* appellatæ, probabiliter pro parte huic, pro parte præcedenti, pro parte alii speciei attribuendæ sunt: Dict. sc. nat. Botanique, Vég. acotyl. Pl. 49; Berk. in Intell. Obs. IX, p. 401, f. 4 (Hab. Java), (cfr. *D. campanulata*); Zollinger Syst. Verzeichn. der im indischen Archipel in den Jahren 1842-48 gesammelten, sowie der aus Japan empfangenen Pflanzen 1 Heft. Zürich 1854, p. 11 (Hab. Java) (= *D. campanulata* ?); Berk. et Curt. Cuban Fungi n. 490 (Hab. Japan); Cesati Mycet. in itin. Borneens. lectt. enum. (Hab. Peradeniya Ceylon); Berk. Hook. Lond. Journ. of Bot. I, 1842, p. 141 (Hab. Surinam); Montagne, Ann. Sc. nat. Sér. 4, Bot. III, p. 136: pileo (massa sporifera?) rubro (Hab. Cayenne); Bull. Torr. bot. Club. 1880 et Berk. in Grevillea II (= *D. duplicata* ?) (Hab. in America boreali).

3. **Dictyophora tahitensis** (Schlechtendal) Ed. Fischer, *Phallus dw-* 3
monum Rumph., Hooker in Hooker and Arnott Beechey's Voyage 1841, p. 78, t. XX, *Phallus* (Hymenophallus) *tahitensis* Schlechtendal in Linnaea, vol. 31, 1861-62, pag. 126. — Stipite cylindrico, vix superne angustiore; pariete etiam supra indusii insertionem cavernoso, e 1-3 stratis cavitatum composito; indusio retiformi, conico (?) margine inferiore stipite duplo vel triplo ampliore, integro, interstitiis mediocribus, subrhombeis, $\frac{1}{3}$ pilei altitudinis infra stipitis apicem oriente, non usque ad basim stipitis dependente; pileo apici stipitis absque collo vel annulo distincto lateraliter adnato, ovato, extus dense reticulato-rugoso (?).

Hab. in ins. Tahiti, N. S. Wales (sec. KALCHER. et COOKE, Grevillea IX, 1883, p. 2). — An a *D. bicampanulata* diversa?

4. **Dictyophora bicampanulata** Mont. Ann. Scienc. nat., Sér. 3, X, 4
1848, p. 120. — Stipite 17 cm. longo, a basi ad apicem sensim

attenuato, candido; indusio albo, retiformi, 8-10 mm. infra stipitis apicem oriente, late campanulato; stipite duplo minore, margine inferiore 8 fere cm. diam. metiente; indusii maculis minutis, irregulariter polygonis; pileo apici stipitis absque collo distincto adnato, hemisphærico-campanulato.

Hab. in terra humida vallis umbrosæ insulæ Tahiti. — An a precedenti diversa species?

5. **Dictyophora dæmonum** (Rumphius) Lév. sec. Berk. *Phallus dæmonum* Rumphius, Herbar. Amboinense, Pars VI, 1750, lib. XI, cap. XXV, p. 131, tab. LVI, f. 7, *Ph.* (Hymenophallus) *dæmonum* Schlechtendal in Linnæa vol. 31, 1861-62, p. 125. — Non satis nota species; stipite albo, superne attenuato; indusio brevi, conico, usque ad dimidiam stipitis partem dependente; pileo ovato, extus reticulato, apice annulo angusto ornato (?).

Hab. in India tam in silvis, quam in hortis circa claustra et septa ubi solum est humidum, umbrosum et arenosum (RUMPHIUS), Ceylon (BERKELEY), Java (BERK.), America bor.? (PECK, LEA). — *D. tahitensi* similis, sed minor esse videtur; forsân etiâ differt pileo grossius reticulato et annulo ornato.

6. **Dictyophora speciosa** Meyen Mspt. Nov. Act. Acad. Cæsareæ Leop. Carol. naturæ curios. XIX, Suppl. I, 1813, p. 239, tab. VI, *Phallus* (Hymenophallus) *speciosus* Schlechtendal in Linnæa vol. 31, 1861-62, p. 121. — Stipite 14 vel 16 cm. longo, superne sensim attenuato, albo; indusio candido, retiformi, paululum infra inferioris pilei marginis altitudinem e stipite oriente (?), usque ad volvam dependente, ampullaceo, patentim campanulato, margine inferiore integro, 15 cm. diam. metiente; pileo cum stipitis apice in collum breve conjuncto, campanulato, extus reticulato (?).

Hab. ad terram, Luçonîæ, Philippinarum insulæ (MEREX). — A precedentibus præcipue indusio longiore, latissime campanulato diversa videtur. Sec. Berkeley (Berk. et Curt. Cuban Fungi n. 489) *D. speciosa* = *D. dæmonum* (incl. *D. tahitensis*?), Ceylon, Java, Taiti, Guyana, Japan, Ohio.

7. **Dictyophora brasiliensis** (Schlecht.) Ed. Fisch., *Hymenophallus indusiatus* (Vent.) Corda Icones fungorum V, 1842, p. 73, t. VIII, *Phallus* (Hymenoph.) *brasiliensis* Schlechtendal in Linnæa vol. 31, 1861-62, p. 124. — Dimensionibus *D. campanulatae* similis videtur; stipite albo, pariete in inferiore parte e 3 stratis cavitatum composito; indusio retiformi, conico, margine inferiore apiculis prominentibus instructo, ramis teretibus cavis; interstitiis superioris

indusii partis majoribus 8-9 mm. long. 4-5 lat. quam inferioris; pileo cum stipitis apice in limbum (annulum) recurvatum conjuncto, pseudoparenchymatico, conico extus reticulato.

Hab. in Brasilia (CORDA). — *D. campanulata* et *phalloidea*. indusio ramis teretibus et margine apiculis instructo diversa videtur.

8. **Dictyophora duplicata** (Bosc) Ed. Fisch., *Phallus duplicatus* Bosc. ⁸
Magaz. der Gesellsch. naturf. Freunde zu Berlin, V, 1811, p. 86, tab. VI, fig. 7, *Hymenophallus duplicatus* Nees. System der Pilze und Schwämme 1817, *Hymenophallus togatus* Kalchbr. Gasteromycetes novi v. minus cogniti, 1884, p. 6, tab. I. — Stipite 15-18 cm. longo, 2-5 cm. crasso, albo, supra indusii insertionem attenuato; pariete infra indusii insertionem e pluribus stratis cavitatum composito; indusio retiformi albo, conico, 2 cm. infra apicem e stipite oriente, fere usque ad volvam dependente, sed vix duplo longiore quam pileus, margine inferiore circ. 7 cm. diam. metiente; indusii interstitiis rotundis vel irregulariter polygonis, parvis (maximis, in superiore indusii parte, 2-5 mm. diam. metientibus); pileo campanulato-conico, 3-5 cm. alto et totidem basi lato, extus grosse reticulato, cum stipitis apice limbo (annulo) recurvato conjuncto.

Hab. in America bor. orient. — A *D. campanulata* et *D. indusiata* præcipue pileo grosse reticulato, indusii interstitiis parvis diversa.

9. **Dictyophora rosea** (Cesati) Ed. Fischer, *Hymenophallus roseus* Cesati Mycet. in itinere Borneensi lector. a cl. Od. Beccari enumeratio, Atti della Reale Accad. delle Scienze Fisiche e Matematiche di Napoli, VIII, 1879. — Non satis nota species; circiter 15 cm. alta; volva squamuloso-pilosa; stipite albo, cylindrico; indusio retiformi roseo usque ad volvam fere descendente, interstitiis rotundis amplis; pileo ovato extus reticulato («lacunoso-celluloso»).

Hab. ad Matang? Borneo. — An alicui e præcedentibus attribuenda species?

10. **Dictyophora radicata** Mont. in Ann. sc. nat. Sér. IV Botanique ¹⁰
III, 1855, p. 137, *Phallus* (*Hymenophallus*) *radicatus* Schlechtendal Linnæa 31, p. 129. — Tota fructificatione fuliginosa; stipite 8 ad 10 cm. longo, deorsum 4, sursum 2 cm. crasso; indusio retiformi campanulato, 3 ad 8 cm. (secundum ætatem) longo, basi 5-6 cm. lato, interstitiis regulariter hexagonis (?), 4-5 mm. latis; pileo hemisphærico apice 2 cm. crasso, annulo valido munito, extus reticulato: retis maculis parvulis.

Hab. ad terram circa Cayennam Amer. australis.

11. **Dictyophora multicolor** Berk. et Broome in Transact. of Linn. 11
soc. London 2 Ser. Botany. II, Part 3, 1883, tab. XIV, f. 16. —
Circ. 20 cm. alta; stipite basi attenuato, pallide alutaceo; indu-
sio retiformi circ. 3 cm. diam. metiente (infra pilei marginem), cy-
lindrico, stipite vix ampliore, pulcherrime citrino, usque ad medium
stipitem dependente, interstitiis 3-5 mm. diam. metientibus; pi-
leo stipitis apici absque collo distincto adnato, conico (5 cm. alto;
3 cm. basi, 8 mm. apice lato), aurantiaco, extus minute reticulato.

Hab. ad Brisbane Queensland Australiæ.

12. **Dictyophora nana** Berk. in Grevillea XI, p. 39. — Non satis nota 12
species; nana, gregaria, glandiformis; volva fusca; indusio ad basim
stipitis brevis extenso; pileo conico expanso.

Hab. in insulis Andaman.

13. **Dictyophora merulina** Berk. cfr. Intellectual Obs. IX, 1866, p. 401 13
et Journ. of Linn. society Botany Vol. XIII, 1873, pag. 172. —
Descriptio mihi non nota.

Hab. Java, Rockingham Bay (Australia).

14. ? **Dictyophora** *Hymenophalli* sp. Nees et Henry 14
System der Pilze (2. Abth. bearb. v. Bail 1858), p. 97, tab. 24, f. 2.
— Stipite cylindrico; indusio cylindrico fere usque ad volvam ex-
tenso, stipiti appresso, non retiformi sed eadem structura ac stipi-
tis parietis; pileo campanulato; — De hujus formæ existentia du-
bitandum!

Hab. (locus desideratur).

15. **Dictyophora subuculata** Mont. in Expl. scient. d'Algérie, Sciences 15
nat. Botanique, Acotyled., 1846-49, p. 440, *Phallus* (Hymenophal-
lus) *subuculatus* Montagne Ann. sc. nat. Sér. II, Botanique XVIII,
1842, p. 244. — Volva e pallido fuscesciente, intus alba; stipite
cylindrico basi apiceque attenuato, pallescente; pileo ovato vel
ovato-globo, apice annulato, extus reticulato; indusio? (in exem-
plaribus a Montagneo descriptis sine dubio nondum expanso).

Hab. in Africa septentrionali: ad terram circa Blidah, ad Mo-
staganem.

Species *Dictyophoræ* etiam attribuendæ.

- Sophronia brasiliensis** Gaudichaud in Voyage autour du monde exé- 16
cuté sur les corvettes l'Uranie et la Physicienne pendant les an-
nées 1817-1820 publié par M. Louis de Freycinet. Botanique par
Gaudichaud, Paris 1826, p. 178, tab. I, f. 2.

? **Clathrus Campana** Loureiro Flora Cochinchinensis Edit. Willdenow. 17
Tom. II, 1743, p. 853.

Species excludendæ.

Phallus Ravenelii B. et C. (cfr. *Ithyphallus* R.).

Phallus Hadriani Vent. (= *Ithyph. impudicus*).

ITHYPHALLUS Fries Syst. Myc. II, 1823 (subgen.) (Etym. a *ithys* rectus et *phallus*) — *Phallus* Linn. et auctt. pro parte, excl.: *Dictyophora* Desv. et *Mulinus* Fries; incl.: *Satyrys* Bosc. (= *Leio-phallus* Fries), *Dictyophallus* Corda, *Omphalophallus* Kalchbr., *Scrobicularius* Schlechtend. — Receptaculum e stipite cavo et pileo extus reticulato vel tuberculato-ruguloso consistens. Stipes indusio carens.

a) *Reticulati*: pileo extus reticulato.

1. **Ithyphallus impudicus** (L.) Fries Syst. Mycol. II, 1823, p. 283, 18
Phallus impudicus Linn. Suec. n. 1261, *Phallus vulgaris* Micheli Nova plantar. genera 1729, *Phallus volvatus* Rothm., *Phallus fe-tidus* Sowerby Engl. Fungi, tab. 329, *Phallus Hadriani* Vent. (sec. Fries l. c.), *Hymenophallus Hadriani* Nees System der Pilze u. Schwämme 1817, *Phallus imperialis* Schulzer in Kalchbr., Icones selectæ Hymenom. Hungariæ 1877, p. 63, tab. XL, *Phallus iosmos* Berk. Engl. Flora of Sir J. E. Smith. Cryptog. vol. V, Part II, Fungi 1836, p. 227, ? *Phallus roseus* Delile in Description de l'Egypte, Histoire nat. Tom. II, 1813, Flore d'Egypte, p. 300, tab. 59. f. 6, 6', 6". — Usque ad 30 cm. altus; volva alba; stipite circ. 3 cm. diam. metiente, superne et inferne attenuato, albo; pariete e 3-4 (apicem versus 1-2) stratis cavitatum composito; pileo conico-campanulato (circ. 5 cm. alto, circ. 3-4 cm. basi lato) cum stipitis apice in limbum (annulum) recurvatum conjuncto, albo, non pseudoparenchymatico sed ex hyphis irregulariter contextis formato, extus grosse reticulato.

Hab. in Europa, Algeria, Amer. bor., Japonia. — Var. **imperialis**, *Kirchbaumia imperialis* Schulzer in Verh. der k. k. Wiener Zool.-botan. Ges. 1866, pag. 798, *Phallus imperialis* Schulzer in Kalchbr. Ic. select. Hym. Hungariæ l. c. — Volva rosea; apicis annulo margine crenulato. In Hungaria austr. (SCHULZER), Magras in Tirolia merid. (BRESADOLA sec. SCHULZER), Charente inf. Gallie. —

Var. **iosmos**, *Phallus iosmos* Berk. l. c.: pilei reticulo marginibus libere prominentibus dentato. Lowestoffe, Yarmouth, Angliæ. Delilei *Ph. roseus* sistit forsân *Ithyphalli impudici* statum pileo deformato, stipite roseo.

2. **Ithyphallus tenuis** Ed Fischer, in Ann. du Jardin bot. de Buitenzorg 1886, VI, p. 4, tab. I-III, f. 1-18. — Præcedente tenerior, 7-10 cm. altus (in alkoole); stipite in inferiore parte 1-1,2 cm. diam. metiente, superne attenuato, isabellino, pariete ex uno strato cavitatum formato; pileo cum stipitis apice in limbum (annulum) recurvatum conjuncto, anguste campanulato, isabellino (sed stipite saturatiore) circ. 2 cm. alto, 1 cm. basi lato, tenero et semipellucido, pseudoparenchymatico, extus subtilius reticulato quam in *I. impudico*.

Hab. in silva ad montem Tangkuban Prau ins. Java, apud plantationem Soekavana, in stirpe putrido.

3. **Ithyphallus quadricolor** (Berk. et Broome) Ed. Fischer, *Phallus quadricolor* Berkeley et Broome in Transact. of the Linnean society of London, Ser. 2, Botany, II, part 3, 1883, p. 66, tab. XIV, f. 18. — 12-13 cm. altus; stipite cylindrico, 1½ cm. crasso, citrino; pileo apici stipitis absque collo distincto adnato, conico, 3½ cm. diam. metiente, sed margine inferiore constricto, 4½ cm. alto, aurantiaco (sicco brunneo), extus reticulato, retis maculis polygonis.

Hab. Queensland Australiæ.

4. **Ithyphallus calyptratus** (Berk. et Broome) Ed. Fischer, *Phallus calyptratus* Berkeley et Broome in Transact. of the Linnean society of London, Ser. 2, Botany, Vol. II, part 3, 1883, p. 66, t. XIV, fig. 17. — Non satis nota species; 5 cm. alt.; stipite pallido, c. 1 cm. crasso; pileo circ. 1-1½ cm. alto, aurantiaco, extus reticulato, stipite paullo ampliore.

Hab. ad Brisbane Queensland Australiæ.

5. **Ithyphallus aurantiacus** (Mont.) Ed. Fischer, *Phallus aurantiacus* Montagne Ann. sc. nat. Sér. 2, Botanique, XVI, 1841, p. 277, tab. 16, f. 1, *Dictyophallus aurantiacus* Corda Anleitung zum Studium der Mycologie p. 190, 205, Icones Fung. VI, 1854, p. 19, tab. III, f. 45, ? *Phallus truncatus* Berk. Intellectual Observer XII, p. 18, f. 5: excl; *Phallus* (*Dictyophallus*) *aurantiacus* Mont. var. *discolor* Kalchbr. vide sub *Mulino discolori*. — Stipite 10-14 cm. longo, 1½ cm. crasso, superne paulum attenuato, aurantiaco, apice rotundato, primum clauso tum pervio; pileo absque collo s. annulo cum stipitis apice conjuncto, stipiti appresso, digitaliformi,

aurantiaco, circ. 18-25 mm. alto, extus sec. Montagne tenuiter reticulato-rugoso, sec. Corda aspero sed non reticulato (quod si ita est, *I. aurantiacus* ad rugulosos referendus esset?).

Hab. ad terram nudam in horto botanico Ponticeriensi (Pondichéry), Queensland (an idem fungus?), Natal (Wood in litt., an idem fungus?). Eadem nobis videtur esse species *Phallus truncatus* Berk. l. c. Stipite ochraceo circ. $7\frac{1}{2}$ cm. alto; pileo tenui, fuligineo (an: pileo pulpa sporifera fuliginea oblecto?) leviter reticulato, apice truncato; volva fusca.

Hab. Masulipatam, Madras (COLONEL BERKELEY).

6. **Ithyphallus? Novæ-Hollandiæ** (Corda) Ed. Fischer, *Phallus libidinosus* Cayley 1805, *Phallus Novæ-Hollandiæ* Corda Ic. fung. VI, 1854, p. 19, t. III, f. 46, *Cynophallus Cayleyi* Berk. (sec. Grevillea XI, p. 57 = *Ph. libidinosus* Cayley). — Non satis nota species. Sec. Corda *Ith. impudico* similis, sed minor et tenerior; stipite albo, gracili; pileo anguste campanulato, pæne cylindrico, stipite vix ampliore, annulo ornato (?), extus reticulato (?).

Hab. ad N. S. Wales, Clarence River, Queensland.

7. **Ithyphallus? canariensis** (Mont.) Ed. Fischer, *Phallus morchilioides* Despr. cum ic., *Ph. canariensis* Montagne in Webb. et Berthelot, Hist. nat. des îles Canaries III, Pars 2, Phytographia Canariensis Sect. IV, 1840, p. 84, Atlas 4, tab. IV, f. 2, *Ph. (Scrobicularius) canariensis* Schlechtend. Linnæa 31, 1861-62, p. 151. — Circiter 7 cm. altus, tota fructificatione rosea; volva extus reticulata?, stipite tenui (4-5 mm. crasso), dubitandum an structurâ aliarum Phalloidearum; pileo (?) ovoideo, 27 mm. alto, 16 mm. diam. metiente, margine infero vero 7 mm. «oleæ perquam simili» irregulariter reticulato, apice absque collo.

Hab. ad terram in monte Lentiscal loco Llano del Ingles dicto prope urbem de las Palmas in ins. Canariis. — Dubitandum an *Ithyphalli* species.

b) *Rugulosi*: pileo extus tuberculato-ruguloso.

8. **Ithyphallus rugulosus** Ed. Fischer, in Annales du Jardin botanique de Buitenzorg 1886, vol. VI, p. 35, tab. V, f. 32-34. — 7-8½ cm. altus (in alkoole); stipite superne attenuato; pariete in inferiore parte e 1-2, in superiore e strato singulo cavitatum composito, in summo stipite simplice, non cavernoso, tenui; pileo anguste campanulato, stipite paullo crassiore, pseudo-parenchymatico, extus tuberculato-ruguloso, apice umbonato, clauso, sporis destituto.

Hab. in Japonia.

9. **Ithyphallus Ravenelii** (B. et C.) Ed. Fischer, *Phallus Ravenelii* ²⁶
B. et C., Grevillea II, 1873, p. 33. — 10-15 cm. altus; stipite
gracili, 10-15 mm. crasso, albido; pileo conico vel campanulato,
2½-3½ cm. alto, albido, extus granulato, apice sporis destituto mem-
brana tenui clauso vel pervio.

Hab. in America boreali.

10. **Ithyphallus retusus** (Kalchbr.) Ed. Fischer, ? *Omphalophallus* ²⁷
Muellerianus Kalchbrenner Flora 1883, p. 95, *Omphalophallus re-*
tusus Kalchbrenner Gastromycetes novi vel minus cogniti, 1884,
p. 6, tab. II, f. 1. — 18 cm. altus; stipite 3½ cm. crasso, cylin-
drico, apice non attenuato; pileo ovato, apice clauso, supra sti-
pitis apicem retuso, extus albo leviter rugoso, intus griseo.

Hab. ad terram prope Illawara N. S. Wales Australiæ. — An
profecto *Ithyphallis rugulosis* attribuenda species?

11. **Ithyphallus campanulatus** (Berk.) Schlechtendal, *Phallus camp-* ²⁸
nulatus Berkeley Ann. and Mag. of nat. hist. vol. IX, 1842, p. 446,
tab. X, fig. 2. — 11-12 cm. altus, sordide albus; stipite 1½ cm.
crasso, superne et inferne attenuato; pileo conico, 3 cm. alto,
margine inferiore 3 cm. diam. metiente, extus ruguloso; apice um-
bonato, pervio, sporis destituto, 1 cm. diam. metiente.

Hab. in arenis litoris ad Maldonado (Uruguay), Somerset East,
Boschberg, Africa austr. (an idem fungus?). — *Ith. ruguloso* si-
milis videtur.

12. **Ithyphallus rubicundus** (Bosc) Ed. Fischer, *Satyrys rubicundus* ²⁹
Bosc in Mag. der Gesellschaft naturforschender Freunde zu Ber-
lin, V, 1811, p. 86, tab. VI, f. 8, *Phallus* (Leiophallus) *rubicun-*
dus Fries Syst. Myc. II, 1823, p. 285. — Non satis nota species:
16-17 cm. alta; stipite fusiformi, medio 1½-2 cm. crasso, ru-
bro; pileo conico-campanulato, circ. 3 cm. alto, levi (?), fusco (an
«pulpa sporifera fusca oblecto»?), cum stipitis apice annulo con-
iuncto (?), pervio.

Hab. in America boreali.

Species excludendæ.

Phallus Hadriani Vent. (cfr. *Ithyphallus impudicus*).

Phallus (Dictyophallus) **aurantiacus** Mont. var. *discolor* Kalchbr. (cfr.
Mutinus discolor).

B) **Phallææ capitatæ** (Corynitei. = Exospori capitati Kalchbr. incl. Cynophal-
lus, excl. Simblum et Fœtidaria).

MUTINUS Fries S. Veget. Scand. II, 1849, p. 434 (Etym. *mutinus*, h. e. *phallus*), *Phallus* auctt. pro parte, *Cynophallus* Fries Syst. Myc. II, 1822; incl. *Corynites* Berk. et Curt. (syn. *Aedyxia* Rafinesque, *Caromyxa* Montagne), *Dictyophallus aurantiacus* Mont. var. *discolor* Kalchbr. — Receptaculum stipitifforme, pileo carens, in parte superiore pulpa sporifera directe obtectum, in parte inferiore («stipite») sporis destitutum. Pars sporifera stipitem æquans vel solidior vel magis dilatata.

1. **Mutinus caninus** (Huds.) Fries, S. Veget. Scand. II, 1849, *Phallus* ³⁰
caninus Huds. Angl. II, p. 630, *Phallus inodorus* Sowerb. Fung.
t. 330, *Phallus* (Cynophallus) *caninus* Fries Syst. Myc. II, 1823,
p. 284. — Usque ad 15 cm. altus; stipite albo vel rubello, pariete ex uno strato cavitatum consistente; parte sporifera brevi (circa $\frac{1}{5}$ – $\frac{1}{6}$ totius receptaculi altitudinis), acute digitaliformi, carnea; pariete facie interna foveolata, ita ut ab interioribus partibus reticulata videatur; apice pervio vel impervio.

Hab. in Europa et America boreali.

2. **Mutinus borneensis** Cesati, Atti della R. Accademia delle Scienze ³¹
Fisiche e Matematiche di Napoli, vol. VIII, 1879, cum icone. — Digitum altus; stipite albo, inferne attenuato; parte sporifera acute digitaliformi (conica in descr.) sanguinea, circ. $\frac{1}{5}$ totius receptaculi altitudinis longa.

Hab. ad Matang Bornei. — *Mutino canino* (etiam structura partis sporiferæ) simillimus videtur; non satis nota species.

3. **Mutinus Muelleri** Ed. Fischer n. sp. — 4–8 cm. altus (in alkoole); ³²
stipite albo vel rubicundo 6–9 mm. crasso, pariete ex uno cavitatum strato consistente; parte sporifera brevi (13–22 mm. long. $\frac{1}{5}$ $\approx$ $\frac{1}{4}$ (rarius fere $\frac{1}{2}$) totius receptaculi altitudinis), sordide purpurea, conica, transversim rugosa, pariete ex uno strato cavitatum interna facie carentium composita, ita ut ab interioribus partibus reticulata videatur, apice pervio.

Hab. ad Blumenau, S. Catharina in Brasilia (comm. F. Müller). — A *M. borneensi* et *canino* parte sporifera conica, a *M. canino* parietibus partis sporiferæ minus crassis diversa species.

4. **Mutinus bambusinus** (Zoll.) Ed. Fischer in Ann. du Jardin bot. de ³³
Buitenzorg 1886, VI, p. 30 ff. tab. IV et V, f. 26–31, *Phallus* (Cynophallus) *bambusinus* Zollinger, Systematisches Verzeichniss der im indischen Archipel in den Jahren 1842–48 gesammelten, sowie der aus Japan empfangenen Pflanzen. 1 Heft. Zürich 1854, p. 11 et annotatio. — Circ. 10 cm. altus (in alkoole); stipite pallide

rubiginoso, 6-8 mm. crasso, pariete ex uno cavitatum strato composito; parte sporifera longa ($1\frac{1}{2}$ v. plus totius receptaculi altitudinis), acutissime conica, sordide purpurea, extus grosse rugoso-gibbosa, apice impervio; pariete eadem structura atque stipitis parietis prædito (ejus cavitates vero plerumque introrsum late apertæ).

Hab. in silva bambusina horti botanici Bogoriensis (Buitenzorg) ins. Java.

5. **Mutinus Ravenelii** (Berk. et Curt.) Ed. Fischer, *Corynites brevis* 34 Berk. et Curt. Mspt., sec. Bull. of Torrey bot. Club., vol. VII, 1880, p. 30, *C. Ravenelii* Berkeley et Curtis, Transact. of Linn. Society, XXI, 1855, p. 149, cum ic. — Stipite circ. 4-5 cm. alto, 8-10 mm. crasso, nitide rubro, inferne attenuato; parte sporifera vel clavata vel acute conica, in apice pervia, usque ad $1\frac{1}{2}$ totius receptaculi altitudinis longa; pariete eadem structura atque stipitis parietis prædito.

Hab. locis graminosis ad terram arenosam New York, Santee River, S. Carolina. — A præcedenti paullum diversa species esse videtur.

6. **Mutinus elegans** (Mont.) Ed. Fischer, *Caromyxa elegans* Montagne 35 Herb. 1850, *Corynites elegans* Montagne Sylloge Cryptogamarum 1856, p. 281. — Receptaculo 12-15 cm. alto, medio $2\frac{1}{2}$ cm. crasso corniformi, ad basim helvolo; apice roseo, late aperto, ore calloso marginato, 1 cm. diam. metiente; parte sporifera eadem structura ac stipitis prædita (?).

Hab. in Amer. bor. (MONT.), Colombo (GERARD). — Dimensionibus, colore, apice late aperto et ore calloso marginato a præcedenti diversa, ceterum non satis nota species.

7. **Mutinus Curtisii** (Berk.) Ed. Fischer, *Corynites Curtisii* Berkeley, 33 Grevillea II, 1873, p. 34. — 5-8 cm. altus; stipite rubro; parte sporifera conica, basi (ubi non sporis tecta) punctata, eadem structura ac stipitis prædita.

Hab. Connecticut. — Non satis nota, an a *M. Ravenelii* sat diversa species?

8. **Mutinus? Watsoni** (Berk.) Ed. Fischer, *Phallus Watsoni* Berk. 37 Journ. of the Linn. Society Botany, XVIII, 1881, p. 387. — Circ. 8 cm. altus; parte sporifera conica, $1\frac{1}{4}$ totius receptaculi altitudinis longa, minute venosa, rubra, basi circ. 6 mm. crassa.

Hab. ad Burnett's River in Australia.

9. **Mutinus? curtus** (Berk.) Ed. Fischer, *Phallus curtus* Berk. in Hook. 38 Lond. Journ. of Bot. IV, 1845. — Receptaculi apice late trunca-

to, pervio. (Receptaculum in exemplaribus a Berkeley et Corda descriptis nondum evolutum esse videtur).

Hab. ad terram, Swan river in N. Hollandia.

10. **Mutinus? papuasius** Kalchbrenner Grevillea IV, 1875, p. 74, *Phal-* 39
lus (Cynophallus) *papuasius* Kalchbr. Phalloidei novi vel minus cogniti 1880, p. 19, tab. III, f. 1. — 5-7 cm. altus; receptaculi stipite tenui et gracili, 3-4 mm. diam. metiente, pallido; parte sporifera 1-1½ cm. alta, ovato-conica vel subpiriformi, stipitem crassitie superante (7-8 mm. diam.) et ab eo acriter distincta, levi.

Hab. ad terram apud Rockhampton, Queensland. — Ex Kalchbrenneri icone dubitandum, utrum stipitis pars superior sporis oblecta sit an pileus adsit margine inferiore stipiti arete appressus.

11. **Mutinus? discolor** (Kalchbr.) Ed. Fischer, *Phallus* (Dictyophal- 40
lus) *aurantiacus* Montagne var. *discolor* Kalchbr. Grevillea IX, 1880, p. 2 et Phalloidei novi vel minus cogniti 1880, p. 19, tab. I, fig. 2. — Stipite cylindrico, aurantiaco; parte sporifera ¼ totius receptaculi altitudinis longa, ampliata, digitaliformi, margine inferiore extruso, supra stipitem prominente ita ut ab exteriori pileum margine libero adesse putares (sec. Kalchbr. iconem; in descriptione legimus: «pileus digitaliformis, præter marginem liberum stipiti adnatus»), apice primum clausa, dein pervia, lutescentigrisea vel demum nigricante (pulpâ sporifera hujus coloris oblecta?), tenuiter reticulato rugosa.

Hab. in Australia orientali subtropica, ad Wigton.

Excludenda species.

Phallus (ad interim **Mutinus**) **xylogenus** Mont. certe non ad **Mutinum** pertinet.

KALCHBRENNERA Berkeley in Gardeners Chronicle (Etym. a cl. C. *Kalchbrenner*, mycologo hungarico); Welwitsch et Currey Trans. of Linn. Soc. of London XXVI, 1870, p. 287 sub *Lysuro*. — Receptaculum stipitiforme, pileo carens, in parte superiore pulpa sporifera directe oblectum, in parte inferiore («stipite») sporis destitutum. Pars sporifera processibus coralloideis ornata.

1. **Kalchbrennera Tuckii** (Kalchbr. et Mac Owan) Berkeley; cfr. Kalch- 41
brenner Phalloidei novi vel minus cogniti 1880, pag. 21, tab. I;
? *Kalchbrennera corallocephala* (Welwitsch et Currey) Kalchbrenner in Phalloidei novi vel minus cogniti 1880. = *Lysurus corallocephalus* Welwitsch et Currey in Transact. of the Linn. Soc. of

London XXVI, 1870, p. 287, tab. 17, f. 8. — Receptaculo 7-9 cm. (vel plus) alto, subcylindrico vel clavato (basi circ. 1 cm., in parte amplissima sporis oblecta circ. 2-3 cm. crasso), apice rotundato; stipite pallide ceraceo-flavo, linea recta in partem sporiferam transeunte; parte sporifera circ. $\frac{1}{3}$ - $\frac{1}{5}$ totius receptaculi longitudinis alta, kermesina, plicato-rugulosa, clathrato-pervia, processibus coralloideis furcato-ramosis aut subsimplicibus, interdum inter se anastomosantibus, transversim rugulosis (ramos Simbli æmulantibus) splendide kermesinis, $1\frac{1}{2}$ cm. longis vel brevioribus, 2-3 mm. crassis ornata; pulpa sporifera inter processus interposita.

Hab. in Africa australi: Natal (Wood, Mac Owan in litt.), pr. Somerset East in dumetis ad Mtem. Boschberg, Bedford sub Mte. Kagaberg, prope Engcobo Tambukinorum (TAMBUKILAND) inter folia putrescentia jove pluvioso leg. Woolby (Mac Owan in sched.). — Eidem speciei attribuenda videtur *K. corallocephala* (Welw. et Curr.) Kalchbr.: 12 cm. alta, stipite albo cylindraceo; parte sporifera formata e membrana rugulosa, stipiti structura simili (?), coccinea, stipitis apicem oblique claudente, duabus tribusve foraminibus perforata, ex qua membrana undique surgunt processus coralliformes, divaricatim dichotomi, transversim rugulosi, apice coccinei. Inter Zæe Maydis plantationes, solo arenoso argillaceo, humidiusculo, cælo sereno, post pluvias frequentes in Præsidio Pungo Andongo, Angola Africæ.

c) *Phalleæ* incertæ sedis vel dubiæ.

Phallus (ad interim Mutinus) **xylogenus** Montagne Ann. sc. nat. Ser. 42 IV, Bot. III, 1855, p. 137, t. VI, f. 7. — Tota fructificatio vix 1 cm. altitudine superans; volva fusca; stipite tereti, pallido, primitus cribroso, tandem longitrorsum subsulcato, 2 mm. diam. metiente; pileo initio conico-campanulato tandem subhemisphærico, fusco-umbrino, levi, apice impervio, 3 mm. lato.

Hab. in ligno plane putrido circa Cayennam Amer. austr.

Phallus vitellinus Müller. Descriptio mihi non nota.

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Hab. Victoria (Australia).

Sect. 2. Clathræ (Fries).

(Clathraceæ et Lysuroideæ Corda Icones Fungorum V, 1842, p. 28, Clathrei et Lysurei Fries S. veget. Scand. Pars II, 1849, Endo-

spori (conjugati et liberati) Kalehr. Phalloidei novi vel minus cogniti 1880, p. 13 et 14; Incl. Simblum.

SIMBLUM Klotzsch in Hooker Bot. Misc. LXXIX, II, p. 164 (Ety. a *simblos*, alveare). — Receptaculum parte superiore cavo-clathratum, pulpam sporiferam includens, inferius stipitatum. Partis clathratæ interstitia polygonia, ramis transverse rugosis (cavis).

1. **Simblum rubescens** Gerard in Bull. of the Torrey bot. Club, VII, 1880, p. 8, tab. 1 et II. — Volva alba; receptaculo $7\frac{1}{2}$ –13 cm. alto, intense carneo, basim versus pallidiore, in parte clathrata cinabarino-marginato; stipite superne 12–15 mm. crasso, partem clathratam versus subito constricto, inferne attenuato, pariete e 3 stratis cavitatum composito; parte clathrata depresso-sphærica, stipitem diametro superante et ab eo acriter distincta, $\frac{1}{7}$ totius receptaculi longitudinis alta; interstitiis plerumque regulariter pentagonis, mediocribus, diametro ramos circiter æquantibus; ramis planis multo tenuioribus quam stipitis pariete, cavis, passim septatis, transverse rugosis.

Hab. locis apertis, graminosis Astoria, Long Island, Americæ borealis.

2. **Simblum sphærocephalum** Schlechtendal Linnæa 31, 1861–62, p. 151, tab. I. — Circa 15 cm. altum; stipite lateritio, circ. 2 cm. crasso, utrinque sensim attenuato; parte clathrata pæne sphærica, stipitem diametro superante et ab eo acriter distincta, $\frac{1}{5}$ totius receptaculi longitudinis alta; interstitiis irregulariter triangularibus, mediocribus, ramis convexis transverse rugulosis, eodem colore ac stipitis.

Hab. in republica Platensi ad terram in graminosis locis silvarum ad truncos et sub umbra arborum Prosopidis dulcis inter Esquina de bustos et fluv. Rio Cabral. — Huic speciei forsan attribuenda *Fovlidaria coccinea* Mont.? *Hab.* loco culto prope prædium Jucutacera ad urbem Villa da Victoria provinciæ Espirito santo in Brasilia.

3. **Simblum pilidiatum** Ernst, Grevillea VI, 1878, p. 119. — Receptaculi stipite 5 cm. alto, 1 cm. et plus crasso, utrinque attenuato, albo; parte clathrata segmenti sphærici quod «calotte» vocant simili, 15 mm. diam. metiente, 8 cm. alta, a stipite acriter distincta, parte inferiore super stipitis apicem deflexa; interstitiis paucis (10?), ramis transverse rugosis, lateritiis.

Hab. ad terram, ad truncum et sub umbra Psidii Guavæ in

horto «El Paraiso» dicto, Caracas. — *S. sphærocephalo* simile videtur.

4. **Simblum australe** Speg. var. *S. gracile* Berk. et Br. var. *australe* Spegazzini Anales de la Sociedad Científica Argentina Entrega V, t. XII, 1881, p. 226. — Receptaculi stipite 7-9 cm. longo, 12-20 mm. crasso, vel cylindrico, vel superne vel inferne incrassato, apice late aperto, candido, pariete e 2-3 stratis cavitatum composito (?); parte clathrata hemisphaerica (25 mm. diam., 10-12 mm. alt.) e stipitis ore apicali crassiuscule marginato et reflexo exurgente; interstitiis 16-24; ramis brevibus (4-7 mm. long. 2-3 mm. crass.) transverse rugosis.

Hab. ad terram arenosam inter caespites Cestri Parqui, Barrio del Retiro, Montevideo. — *S. pilidiato* similis vel identica species esse videtur.

5. **Simblum Lorentzii** Speg. Anales de la Sociedad Científica Argentina Entr. VI, t. XII, 1881, p. 241. — Stipite 5 cm. alto, 1 cm. crasso, apice clauso, ex albo dilute roseo, pariete e 2 stratis cavitatum composito (?); parte clathrata hemisphaerico-digitaliformi (18 mm. diam.) e membrana stipitis apicem claudente oriente, parte inferiore super stipitis apicem reflexa; interstitiis 18-20; ramis brevibus tenui-membranaceis (2-3 mm. long., 1 mm. lat., 0,3 mm. crass.), minute transverse rugosis, albo-roseis.

Hab. ad terram sabulosam in montuosis «Sierra Ventana» in rep. Argentina.

6. **Simblum periphragmoides** Klotzsch in Hook. Bot. Miscell. II, p. 161, c. ic., *S. periphragmaticum* Corda Anleitung zum Studium der Mycologie p. LXXXVI, et 119, Tab. E 51, fig. 12, 13. — Stipite circiter $\frac{1}{2}$ longitudinis crasso, flavescenti; parte clathrata stipite paullo crassiore, rotundata, a stipite non distincta, sed plus minus sensim in eum attenuata, $\frac{1}{3}$ totius receptaculi longitudinis alta; interstitiis numerosissimis, irregulariter polygonis; ramis flavescentibus.

Hab. in ins. Mauritii ad terram prope «Bois Cheri». — Eadem videtur esse forma *Simblum flavescentis* Kurz. (Berk. in Intellect. Observer IX, 1866, p. 401, c. ic.). *Hab.* in ins. Java.

7. **Simblum? gracile** Berkeley in Hooker London Journal of Botany V, 1846, p. 535, tab. XVII et vol. VI, 1847, p. 512. — Stipite utrinque attenuato, gracili, circ. 6 cm. alto, 1-1 $\frac{1}{2}$ cm. crasso, pallide luteo; parte clathrata ovata (in Gardneri icone), infra a stipite discreta; interstitiis parvis, rotundis; ramis luteis, subtenuibus.

Hab. ad terram pr. urbem Peradenya Ceylon. — Ex icone non certe elucet, utrum receptaculi pars superior pileo ovato margine libero instructa sit, an, ut in *Simblo*, efformata sit e stipitis apice dilatato, cancellato. Quamobrem, dubium est an hæc species profecto g. *Simblo* sit inserenda.

CLATHRUS Micheli Nova plantarum genera, 1729, p. 214 (Etym. a *cleithron* claustrum); incl. *Laternea* Turpin (= *Colonnaria* Rafinesque), *Clethria* Corda, *Ileodictyon* Tulasne. — Receptaculum stipite carens, cavo-clathratum v. e paucis ramis verticalibus apice junctis (*Laternea*) consistens, pulpa sporiferam includens.

1. **Clathrus triscapus** (Turpin) Fries Syst. myc. II, p. 287, *Laternea triscapa* Turp. Dict. des sciences nat. t. 25, 1822, p. 248, Atlas Vég. acotyl. t. 49. — Receptaculo e tribus ramis verticalibus, gracilibus, tenuibus, teretibus, superne attenuatis, a basi divergentibus, apice junctis, infra albis, apicem versus cinnabarinis consistente, 6,2 cm. alto, 5 cm. diametro metiente; gleba ante liquefactionem in receptaculi apice suspensa, cinnabarina; sporis sphaericis (?).

Hab. «Ile de la Tortue» Insulae St. Domingo vicina. — Nonnullae formae ab auctoribus nomine *Cl. triscapi* appellatae sunt, sed dubium, an omnes eidem speciei attribuendae: Berk. in Intell. Obs. IX, 1866, p. 401; receptaculi ramis extus costa instructis, plane rubris; totius fructificatione alt. 8 cm., diam. 4 cm. *Hab.* in ins. Java, Berk. et Curt. Cuban Fungi 493: ramis 3, quorum uno furcato, vel 4, pallide cinnabarinis. *Hab.* Chili. Ellis, sec. Bull. of Torrey bot. Club. VII, 1880, p. 30: Texas.

2. **Clathrus Berkeleyi** Gerard in litt. *Laternea pusilla* Berk. et Curt. in Journ. of Linn. society Botany X, 1869, p. 343. — Fructificatione minima (2½ cm. alta); receptaculo e 2 ramis sursum crispis coccineis, deorsum candidis consistente.

Hab. ad terram in insula Cuba.

3. **Clathrus columnatus** Bosc Magaz. der Gesellsch. naturforschender Freunde Berlin V, 1811, p. 85, tab. V, f. 5, *Colonnaria (urceolata et truncata?)* Rafinesque in Medical repository for 1808, *Clathrus colonnarius* Leman in Dict. sc. naturelles IX, 1817, p. 360, *Laternea columnata* Nees (Nees und Henry System der Pilze, 2te Abth. bearb. von Bail 1858, p. 96, tab. 23), *Clathrus brasiliensis* Ed. Fischer, Jahrb. des botan. Gartens und des botan. Museums zu Berlin IV, 1886, p. 68, tab. 1, f. 3-7. — Usque ad 12 cm. al-

tus; receptaculo forma variabili, e 3-4 ramis verticalibus consistente, interdum irregulare vel paullum cancellato; ramis quadrangulis, crassis, superne attenuatis, extus levissime 1-2-sulcatis (*Cl. brasiliensis*), cinnabarinis (Bosc) vel pulcherrime aurantiacis, extus pallidioribus (Puiggari in litt.), subtus non conjunctis.

Hab. locis arenosis Carol. inf. (Bosc), Pensilvania (RAFINESQUE), Georgia, Rio de Janeiro (*Cl. brasiliensis*), ad terram ad Apialy, Provincia de S. Paulo, Brasilia (*Cl. brasiliensis*, PUIGGARI in litt.). — A. *Cl. triscapo* ramis crassioribus, quadrangulis diversa species.

4. **Clathrus angolensis** (Welw. et Curr.) Ed. Fischer, *Laterna angolensis* Welwitsch et Currey in Transactions of Linnean society of London XXVI, 1870, p. 286, tab. 17, f. 7. — 12 cm. altus; receptaculo albo e 4 ramis teretibus (?) consistente; ramis superne multo attenuatis (subtus 1½ cm. latis, superne vix 1½ cm.), extus (sec. icon.) non transverse rugosis.

Hab. ad rupes arenaceas humo tectas prope Catete, Pungo Andongo Angolæ. — An a præcedenti diversus?

5. **Clathrus pusillus** Berkeley Hook. Lond. Journ. of Bot. IV, 1845, p. 67, tab. I, f. 6, cf. Corda Ic. fung. VI, 1854, p. 25, tab. V. — 5-7 cm. altus; receptaculo forma variabili inter præcedentes species et *Cl. cancellatum* variante; in parte superiore vel cancellato vel e nonnullis ramis verticalibus apice junctis consistente, ramis transversim rugosis, miniatis, nonnullis cavitatibus perfossis, in parte inferiore (sec. Corda) cancellato, ramis levibus, non rugosis, cavis (una cavitate perfossis), paullo coriaceis, flavescentibus (cf. *Cl. gracilis*).

Hab. in Australia: Swan river ad terram, Wide Bay (Berk. in Journ. Linn. soc. XIII, 1873, p. 172, f.).

6. **Clathrus cancellatus** Tournefort, *Cl. ruber*, *albus*, *flavescens* Micheli Nov. plant. gen. 1729, p. 214, tab. 93, *Cl. volvaceus* Bull. Champ. tab. 441, *Cl. nicæensis* Barla. — Usque ad 12 cm. altus; receptaculo sphaerico vel ovoideo, undique cancellato; interstitiis irregulariter polygonis, ramis extus plus minus distincte transverse rugosis, quadrangulis (v. compresso-rotundis v. teretibus), c. 4 mm. ad 1 cm. latis, rubris, rarius luteis vel albidis vel extus luteis intus rubris (*Cl. nicæensis* Barla).

Hab. ad terram in Europa meridionali: Italia, Gallia austr., Corcyra, Kreusenegg apud Laibach, Anglia austr. (rar.), Leyden (hort. Bot.), Livonia, Germania? Caucasus et ad portum Euzeli, Algeria, Amer. bor. (rar.), Georgia, New York, S. Domingo, Ceylon, Kha-

sia, Hindostan, Nova Zeelandia. — Sed confirmandum an, hæ omnes formæ profecto *Cl. cancellato* sint attribuendæ.

7. **Clathrus delicatus** Berk. et Broome Journ. of the Linnean society Botany XIV, 1875, p. 77. — Non satis nota species; minuta, vix $1\frac{1}{2}$ cm. alta; receptaculo parce et delicate cancellato, pallido.

Hab. ad Peradenya Ceylon.

8. **Clathrus gracilis** (Berk.) Schlechtendal Linnæa 1861-62, p. 166, 58
Neodictyon gracile Berk. in Hook. Lond. Journ. of Bot. IV, 1845, p. 69, tab. II, f. 8, cf. Corda Ic. fung. VI, 1854, p. 26 f. tab. V. — Circ. 6 cm. altus; receptaculo sphærico vel ovoideo, albo, interstitiis amplissimis (usque ad $2\frac{1}{2}$ cm.) imparibus; ramis tenuissimis ($1\frac{1}{2}$ -2 mm. diam.), superficie levibus et longitudinaliter paucis cavitatibus perfossis.

Hab. in W. Australia, Victoria, Tasmania, N. S. Wales. (Cooke Australian Fungi, Grevillea XXI).

9. **Clathrus cibarius** (Tul.) Ed. Fischer, *Neodictyon cibarium* Tulasne in Ann. sc. nat. 3 Sér. Botanique t. II, 1844, p. 114. — An a præcedenti satis diversa species? Ab ea præsertim volva strato gelatinoso crassissimo diversa videtur.

Hab. gregarius et frequens in pratis et silvis peninsulæ Banksianæ N. Zeelandiæ, ad terram Waitaki, Mount Dromedary Australiæ (Cooke).

10. **Clathrus crispus** Turpin Dictionnaire des sc. nat. Atlas. Veget. 60
acotyl. Pl. 49. — Receptaculo sphærico vel obovato (var. β . obovatus Berk. in Ann. and Mag. of nat. hist. vol. IX, 1842, p. 446, tab. XI), 4-9 cm. alto, cinnabarino (Turpin) vel salmonicolore (Berk. var. obovatus); interstitiis rotundis vel ovalibus, margine transverse rugoso et, quod videtur, torose elato, maximis (5-7 mm. altis, 3 mm. latis) medio et subtus, minimis in apice receptaculi sitis. Interstitiis rotundis ab aliis *Clathri* speciebus diversus.

Hab. in Guyana Gallica aut S. Domingo?, Maldonado (Uruguay) in dumis arenosis, Mexico (Lév. sec. SCHLECHTENDAL), Rockingham Bay inter gramina (BERK. Journ. of Linn. Soc. Vol. XIII Bot. 1873).

11. **Clathrus albidus** Lothar Becker. mspt. cf. Bericht über die 61
Thätigkeit der botanischen Section der schlesischen Gesellsch. f. vaterländische Cultur im Jahre 1874, p. 81. — Circ. 5 cm. altus, receptaculi ramis (in exempl. observ.) 18,4-9 (?) mm. longis, extus sulco lato instructis, ex albo lutescentibus. (Descr. sec. L. Becker mspt.).

Hab. in Victoria, Australia. — Non satis nota species: an *Cl. cancellato* vel *Cl. pusillo* attribuenda?

Excludendæ species.

Clathrus Campana Loureiro v. sub *Dictyophora*.

Clathrus hirudinosus Tul. = *Colus hirudinosus*.

COLUS Cavalier et Séchier Ann. Sc. nat. 2 Sér. III, 1835, p. 251 (Etym. a *colu*), *Clathrus* p. p. Tulasne; incl. *Lysurus* Sect. 2, *Desmaturus* Schlechtendal = gen. *Desmaturus* Kalchbrenner. — Receptaculum parte superiore, pulpam sporiferam includens, clathratum, inferius stipitatum. Partis clathratæ interstitia omnia verticaliter elongata, vel inferiora elongata superiora parva, polygona.

1. **Colus hirudinosus** Cavalier et Séchier in Ann. sc. nat. 2 Sér. III, 1835, p. 251, tab. 8, f. 1-5, *Clathrus hirudinosus* Tulasne Expl. scientifique d'Algérie Sc. nat. Botanique, Acotylédones (1846-49), pag. 435 tab. 23, f. 9-22. — Receptaculo fusiformi, albo, apice rubescente; stipite obconico, superne linea recta transeunte in partem clathratam; parte clathrata consistente e ramis 7-9 crassis subæqualibus verticalibus, intus cavis, fenestellas quadrilaterales verticaliter oblongas efformantibus, apice conjunctis et areolas paucas minutas polygonas formantibus; ramis inferioribus (verticalibus) extus structura stipiti æqualibus, intus rugatis, superioribus (areolas apicales efformantibus) subquadrilateralibus, dorso sulcatis, ubique minute rugulosis; gleba ante liquefactionem receptaculi apice adhærente.

Hab. in Gallia meridionali, Lusitania, Algeria; Australia occid. (Cooke Fungi australiani Grevillea X-XI), Cayenna (KALCHBR. Phalloidei novi vel minus cogniti p. 18).

2. **Colus Gardneri** (Berk.) Ed. Fischer, *Lysurus Gardneri* Berkeley 63 in Hook. Lond. Journ. of Bot. V, 1846, p. 535, tab. XVII et vol. VI, 1847, p. 512, *L. (Desmaturus) Gardneri* Schlechtendal Linnaea 31, 1861-62, pag. 180. — Receptaculo elongato, stipitiformi 17-18 cm. alto; stipite longo (15 cm. alto) superne dilatato in partem clathratam apicem conicum receptaculi efformantem transeunte; partis clathratæ interstitiis 5, verticalibus, linearibus; ramis superne attenuatis, apice junctis, extus medio structura stipiti æqualibus, latere rugosis.

Hab. in ins. Ceylon ad terram, locis humidis umbrosis. — A

C. hirudinoso præsertim receptaculo stipitiformi, interstitiis apicalibus polygonis carente differt.

LYSURUS Fries Syst. Myc. vol. II, 1823, p. 285, (Etym. a *lyo* solvo et *oura* cauda seu lacinia), *Lysurus* Sectio 1: *Eulysurus* Schlechtendal, *Phallus* p. p. Ventenat.; Excl. *Lysurus* Sectio 2: *Desmaturus* Schlechtendal et Sectio 3: *Schismaturus* Corda. — Receptaculum stipitatum, sursum in lobos verticales, apice liberos, a stipite acriter distinctos, divisum. Pulpa sporifera partem internam loborum obtegens.

1. **Lysurus Mokusin** (Cibot) Fries Syst. Myc. vol. II, 1823, p. 285, 64 *Lysurus* (*Eulysurus*) *Mokusin* Fries Schlechtendal in Linnæa 31, 1861-62, p. 178, *Mo-ku-sin* Cibot Novi Commentarii Acad. scient. imper. Petropolitane XIX pro anno 1774 (1775), p. 373 ff. tab. V, *Phallus Mokusin* Linn. Supplem. pl. p. 514, Ventenat, Mém. de l'instit. national des sciences et arts. Sc. mathém. et phys. I pour l'an IV de la républ. — Stipite quinquangulari, colore carneo apicem versus sensim magis saturato; parte lobata $\frac{1}{5}$ totius receptaculi longitudinis alta, diametro stipiti æquali; lobis 5, stipitis angulis superpositis, acutis, apice convergentibus, saturate rubris, a stipite acute discretis, lateribus rugosis.

Hab. in China locis umbrosis depressis humidis.

2. **Lysurus Clarazianus** Müller Arg. in Flora 1873, p. 526, tab. VI, 65 B. — Receptaculo $2\frac{1}{2}$ cm. longo, 8-9 mm. lato, e viridi fuscescenti-albo; stipite cylindrico, late cavo, ad basim loborum diaphragmate crasso clauso; lobis 7, c. 8 mm. longis, anguste lanceolatis, subteretibus, erectis, apice nonnihil conniventibus, horizontaliter plicato-sulcatis, extus usque ad imam basim sulco percursis, intus cavis.

Hab. prope Bahia blanca ad flumen Rio negro Americæ australis, secus fines Platenses et Patagonienses, ubi in limosis subinundatis crescit.

3. **Lysurus texensis** Ellis (ad interim) cf. Bull. of Torrey botanical 66 Club, vol. VII, 1880, p. 30. — Vix nota species: receptaculo 5-10 cm. alto; lobis 3-5.

Hab. ad terram, Texas Amer. bor.

Excludendæ species.

Lysurus aseroëformis Corda = *Aseroë lysuroides*.

Lysurus Archeri Berkeley = *Anthurus Archeri*.

Lysurus Gardneri Berkeley = *Colus Gardneri*.

ANTHURUS Kalchbrenner. Grevillea IX, p. 2 (1880) (Etym. ab *anthos* flos et *oura* cauda sen lacinia), *Stephanophallus* Mac Owan; incl.?: *Aserophallus* Leprieur et Mont. et *Lysurus Archeri* Berkeley. — Receptaculum stipitatum vel (*A. Archeri*) stipite brevissimo instructum, sursum in lacinias erecto-patentes apice liberas in stipitem directe transeuntes divisum.

1. **Anthurus Sanctæ-Catharinæ** Ed. Fischer n. sp. — Receptaculo c. ⁶⁷
6½ cm. alto, stipitiformi, sursum sensim dilatato, flavido, apice in lacinias 5 diviso, anguste lanceolatas, 1½ cm. longas, c. 4 mm. latas, sinu rotundato separatas, erecto-patentes, extus medio tantum structura et colore stipiti æquales, lateribus autem ac interna facie rugosas, rubras.

Hab. ad terram arenosam prope maris litora: Desterro in insula St. Catharina (unde nomen) Brasilia (F. MÜLLER in litt).

2. **Anthurus Woodi** Mac Owan, in Kalchbrenner Phalloidei novi vel ⁶⁸
minus cogniti 1880, p. 23, t. III, f. 2, *Stephanophallus* M. Owan. — Receptaculo c. 8-12 cm. alto, flavido, stipitiformi, basi 1-2 cm. crasso, apice paullum dilatato, in 5-6 lacinias lanceolatas diviso circ. ¼ totius receptaculi altitudinis longas, planas, erecto-patentes, angulo acuto inter se contiguas, extus structurâ stipiti æquales, interna facie rubras.

Hab. ad Port Natal, Iuanda Africae australis.

3. **Anthurus Muellerianus** Kalchbr. Grevillea IX (1880) p. 2 et Phal- ⁶⁹
loidei minus cogniti 1880, p. 22, tab. III, f. 3. — Receptaculo luteo-rufescenti, infra medium stipitiformi, prope basin vix 5 mm. crasso, sursum cupulari- vel infundibuliformi-dilatato; margine 3 cm. diametro metiente diviso in lacinias 8, distantes, sinu rotundato separatas, 2-2½ cm. longas, basi 5 mm. latas, erecto-patentes, apice recurvatas, interna facie rubras rugosasque.

Hab. in Australia: Richmond River.

4. **Anthurus? cruciatus** (Leprieur et Montagn.) Ed. Fischer, *Aserophal-* ⁷⁰
lus cruciatus Lepr. et Mont. Ann. sc. nat. 3 Sér. Botanique IV, 1845, p. 360, t. 14, f. 1, cf. Corda Ic. fung. VI, 1854, p. 21, tab. III. — Receptaculo parvo, 2-3 cm. alto, pallido; stipite tereti apice dilatato et diviso in lobos 4 (rarius 3 vel 5) subulatos vel lanceolatos, interstitiis rotundatis separatos, glebam ante liquefactionem complectentes.

Hab. in ligno putrido ad Cayennam Amer. austr.

5. **Anthurus? Archeri** (Berk.) Ed. Fischer, *Lysurus Archeri* Berke-⁷¹
ley in Botany of the antarctic voyage of discovery ships Erebus
and Terror in the years 1839-43, by I. D. Hooker Pars III, Flora
Tasmaniæ vol. II. Monocotyled. et Acotyled. 1860, pag. 234, tab.
CLXXXIV, *Lysurus pentactinus* Berk. l. c. in tab. — Recepta-
culo 14-15 cm. alto, roseo; stipite brevissimo (2 cm. longo, c. 1
cm. crasso) transeunte in lobos 5 longissimos erecto-patentes, apice
paullo recurvatos, superne et inferne attenuatos, quadri- vel tri-
angulos, 1 cm. crassos, pluribus cavitatibus perfossos, apice bre-
vissime bifidos.

Hab. ad terram, Tasmania.

CALATHISCUS Montagne Ann. sc. nat. 2 Sér. Bot. XVI, 1841, p. 278
(Etym. a *calathus* cupula), *Aseroë* p. p. Schlechtendal. — Recepta-
culum cupulare, margine in lobos (16-20) verticales, (cirrosos)
divisum, stipitatum vel stipite carens. Pulpa sporifera parti cupu-
lari imposita, lobis sporis destitutis.

1. **Calathiscus Sepia** Montagne Ann. sc. nat. 2 Sér. Botanique XVI, ⁷²
1841, p. 278, Tab. 16, *Aseroë Calathiscus* Schlechtendal de Ase-
roës genere dissertatio 1847. — Receptaculo c. 12 cm. alto, ro-
seo, stipitato; stipite 5 cm. alto, orificio non constricto; parte cu-
pulari 8 cm. diametro metiente, margine constricta, in 20 laciniis
elongatas, attenuatas, erectas, apice involute cirrosas, 4 cm. lon-
gas divisa; stipitis orificio annulo nigro (pulpa sporifera?) cir-
cundato.

Hab. ad radices arborum in silvis humidis leucam circiter ab
Ootacamund, in montibus Coimbaturisticis (= Neel-Gherries) India.
— *Anthuro Muelleriano* similis sed præcipue laciniis cirrosis
ab eo diversus.

2. **Calathiscus Puiggarii** Speg. in Anales de la sociedad científica Ar-⁷³
gentina Entr. VI, t. XII (1881), p. 242. — Receptaculo 20-25 cm.
alto, carneo-croceo v. fulvo-rubescenti, stipite carente, cupulari,
hemisphærico vel conico-calyciformi, margine 20-25 mm. diametro
metiente et in 16 appendices coccineas erectas, 1 cm. longas, 1
mm. crassas, apice obtusulas, applanatas, flexuoso-cirrosas, cri-
spulas, inter se æquidistantes, intus inferne subcanaliculatas diviso;
pulpa sporifera cavum receptaculi implectente.

Hab. ad terram arenosam in Brasilia meridionali, Apiaby Prov.
S. Paulo.

ASEROË La Billardièrè Relation du voyage à la recherche de La Pérouse t. I, Paris an VIII, de la rép. 1799-1800, p. 145 (Etym. *aseiros* jugatus (equus) vel *aseros* nauseosus), *Eu-Aseroë* Schlechtendal.: exclus. *Calathiscus* Mont., inclus. *Lysuri* sectio *Schismaturus* Corda 1854. — Receptaculum stipitatum, sursum in discum vel limbum horizontalem, margine in lacinias divisum, expansum. Pulpa sporifera supernæ faciei hujus disci vel limbi imposita, laciniis plane vel saltem in superiore parte sporis destitutis.

1. **Aseroë zeylanica** Berk. in Hooker Lond. Journ. of Bot. V, 1846, 74 p. 535, tab. XVIII et vol. VI, 1847, p. 512. — Mycelio et volva purpureis, receptaculi stipite brevi, rubescenti, laciniis 20 cinnabarinis, paria non distincte efformantibus, sinubus rotundatis separatis; pulpa sporifera stipitis orificium circumdante, phoeniceo-purpurea.

Hab. in ins. Ceylon, ad terram (1300-1800 m. alt.).

2. **Aseroë Junghuhnii** Schlecht. de Aseroës genere dissertatio p. 11, 75 c. ic.; ? *A. multiradiata* Zollinger Systematisches Verzeichniss der im indischen Archipel in den Jahren 1842-48 gesammelten sowie der aus Japan empfangenen Pflanzen 1 Heft. 1854, p. 11, et annotatio. — Volva alba; receptaculi stipite brevi c. 3 cm. alto, 3 cm. crasso, carneo, ore constricto 12 mm. diam. metiente, superne in limbum horizontalem dilatato; limbo facie inferiore carneo, superiore colore pallide igneo, circum stipitis orificium kermesino, margine diviso in 16-18 lobos, per paria approximatos (ita ut 8-9 paria loborum efformentur), sinubus rotundis separatos, horizontaliter expansos, 8 cm. longos, carneos; pulpa sporifera obscure fusca.

Hab. in ins. Java, in planitie silvatica montis Pengalengang in Mte. Gedé ad terram (*A. multiradiata*), N. Granada (exempl. in herb. instit. bot. Argentoratensis, an eadem spec.?). — An ab *A. Zeylanica* diversa? Ab ea limbo majore et laciniis (18) distinctius paria efformantibus differt. Sine dubio eidem speciei at tribuenda: *A. multiradiata* Zollinger, limbo 20-fido, facie superiore miniato.

3. **Aseroë rubra** La Bill. Relation du voyage à la recherche de La Pérouse t. I, An VIII de la Rép. p. 145, Atlas n. 12, *A. pentactina* Endlicher Iconogr. gen. plant. t. I, Ejusd. Atakta t. 50, cf. Corda Ic. fung. VI, tab. IV, fig. 12, 13, *A. actinobola* Corda Ic. fung. VI, p. 23 = *A. rubra* La Bill. Berkeley in Hook. Lond. Journ. of Bot. Vol. III, 1844, pag. 191, tab. V, A. — Stipite rubescenti vel pallide roseo, apice pervio, margine superiore horizontaliter expanso limbum superne rubrum efformante, inferiore

(exteriore) latere in stipitem transeuntem, ab eo non diversum, margine divisum in lacinias 5-8 superne rubras, horizontaliter expansas, plus minus profunde in ramos binos angulo acuto conjunctos bifurcatas; pulpa sporifera limbum vel etiam radiorum basim superne obtegente. — Præcedenti speciei similis, sed minor, ramis binis angulo acuto conjunctis ab ea diversa videtur. — α . **typica**: stipite c. 5 cm. alto, apice late pervio, limbo angusto ($1\frac{1}{2}$ cm. lato), laciniis 7, $1\frac{1}{2}$ -2 cm. longis, rectis, usque ad medium in ramos parallelos apice lutescentes bifurcatis; pulpa sporifera limbum et radiorum basim obtegente. — β . **pentactina** (Endl.): limbo angusto, laciniis 5, pro majore parte ($\frac{2}{3}$) in ramos divergentes bifurcatis; pulpa sporifera limbum et radiorum basim obtegente. Colore? — γ . **actinobola** (Corda): stipite 6 cm. alto; limbo 1 cm. lato, laciniis 8, superne coccineis, 5 cm. longis, pæne usque ad basim bifurcatis; pulpâ sporifera fusca, annuli 7 cm. lati instar stipitis orificium circumdante (non usque ad loborum basim extensa). — δ . **Mülleriana** Ed. Fischer.: limbo var. præcedenti latiore, laciniis 7 coccineis, fere ad basim bifurcatis; pulpa sporifera fusca. Inter omnes varietates *A. rubræ* varietas *Mülleriana* simillima est *Aseroi Junghuhnii*.

Hab. in Nova Hollandia: in Litore orientali portus Entrecasteaux, Van Diemensland (α), Sydney (γ), ad terram e Nova Hollandia proveniente in horto bot. Kewensi (γ), N. S. Wales (δ), Dandenong (α), New England (α), Clifton, Lake Gilles (α), New England, Timbarra (β).

4. **Aseroë Hookeri** Berk. in Fl. New Zel. p. 187, tab. CV, f. 13, *A. viridis* Berkeley et Hooker fil. in Hooker London Journal of Botany, vol. III, 1844, p. 192, tab. V. — Fructificatione parva; stipite (an plane evoluto?) $2\frac{1}{2}$ cm. longo, 8 mm. crasso, apice poro pervio; limbo parvo (12 mm. diam. metiente), subtus a stipite distinctissime discreto; laciniis 7-8, pro majore parte ($\frac{2}{3}$) bifurcatis in binos ramos divergentes, angulo acuto conjunctos, extus levibus, infra bifurcationem sulco exaratis. Pulpa sporifera verrucarum formam imitante ad basim loborum distributa. — α . **miniata**: receptaculo miniato. — β . **viridis**: receptaculo viridi. (*A. viridis* Berk. et Hook. fil.).

Hab. ad terram argillosam, Kai Patika Novæ Zeelandiæ.

5. **Aseroë lysuroides** Ed. Fischer, Jahrb. des botan. Gartens und des botan. Museums zu Berlin IV, 1886, *Lysurus* (Schismaturus) *aseroëformis* Corda Ic. fung. VI, p. 22, tab. IV, f. 3-8. — Stipite

albo, gracili, longo, apice paullum dilatato, clauso, in discum horizontalem expanso; disco superne roseo-kermesino, ad 2 cm. diam. metiente, extus a stipite acriter distincto, margine diviso in 6-7 lobos irregulares ad 2-3 cm. longos, sursum simul-ter dichotomos, deflexos, apicibus subulatos, inferne albidos, sulco exaratos, superne roseos; pulpa sporifera discum et loborum inferiorem partem obtegente; lobis initio superne inter se contingentibus.

Hab. in Nova Hollandia (SIEBER).

Forma incertæ sedis.

Staurophallus senegalensis Mont. in Ann. sc. nat. 3 Sér. Bot. III, 79

1845, p. 272, *Phallus senegalensis* Perrottet in sched., cf. Corda Ic. fung. VI, p. 21, tab. IV, f. 1-2. — Receptaculo albo, stipitato (stipite 24 cm. alto, 4-5 cm. crasso) apice in altera icone hemisphærico, pileo simili, in altera latissime pervio, lobis 4, rotundatis, brevibus, horizontalibus, instructo.

Hab. in Senegal Africae.

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Fam. 2. **Nidulariaceæ**

auctore J. B. DE TONI, scholæ botanicæ patavinæ adjutori.

Nidulariaceæ

Fr. Syst. Myc. III, p. 296, em. Berk. Outlines p. 311

Fungi maturitate crateriformes vel cyathiformes, coriacei, sporangiola numerosa (rarius unum globosum tantum) lentiformia vel sphæroidea continentia, plerumque funiculo e peridii pariete interno exsurgente instructa; sporæ ellipticæ, leves, materiem corneoam indivisam vel pulveraceam efformantes.

Clavis analytica generum.

A) Peridium simplex.

† Plura sporangiola in quoque peridio.

*) Peridium apice laceratum, non operculatum.

Nidularia. Sporangiola funiculo destituta; sporæ nullis filamentis vel parvissimis immixtæ.

**) Peridium operculo (epiphragmate) deciduo instructum; sporangiola funiculo prædita.

Cyathus. Peridium stratis tribus adnatis compositum; sporæ filamentis immixtæ.

Crucibulum. Peridium e strato unico gossypino efformatum; sporæ nullis filamentis immixtæ.

†† Sporangiolum unicum in quoque peridio.

Thelebolus. Peridium basi setulosum, apice foveola coronatum, maturitate sporangiolum emittens.

Dacryobolus. Peridium basi subtiliter sericeum, apice sporangio gelatinoso coronatum.

B) Peridium duplex.

Sphaerobolus. Utrumque stellatum laciniatum, alterum sporangiolum unicum viscosum continens.

NIDULARIA Fr. et Nordh. Symb. Gaster. pag. 2, em. Tul. Monogr. Nidul. p. 92 (Etym. a *nidus*). — Peridium sessile, utriforme, globosum, e membrana simplici tenui, contextu gossypino similari confectum, initio clausum, tandem disruptum et evanescens vel ore

circulari nudo apice dehiscens, velo nullo; sporangiola numerosa, discoidea, minuta, muco copioso involuta; tunica exteriori gossypina, crassa, sporangiole corneo, madido nunc scissili sporisque innumeris pultaceis, filamentorum expertibus evacuato, nunc filamentis in medio accretis subindividuo; sporæ minutæ, initio 2-4 insimul sterigmatum ope vel subsessiles, basidiis suffultæ.

Sect. 1. Scutula Tul.

Peridium crassiusculum regulariter apice dehiscens, marginibus subrecte truncatis velo mucoso aliquantisper persistente; sporangiolum medium filamentorum expers.

1. **Nidularia australis** Tul. Monogr. Nidul. in Ann. Scienc. Nat. 1844, 80 p. 93, t. VII, f. 2-12. — Initio subsphærica, sessilis, eradicata, papilloso-furfuracea, tandem subglabra osculoque integro, nudo, subplano dehiscens, poculiformis, dilute ochracea, sporangiolis 20-24 muco copioso, exsiccato fusco-rubello, obvolutis referta, tuberculosa; sporangiolis discoideis, glabris, tunica exteriori exsiccata admodum plicato-rugosa; sporis 10-11 $\approx$ 4,5, ovatis, utrinque obtusis, levibus, pellucidis.

Hab. gregatim ad frusta lignea sæpius ecorticata in regione Chilensi Americæ australis (GAY in herb. Mus. Paris). — Fungillus adultus 4-5 mm. diam. æquiparat, 5-6 mm. altus; sporangiola 1,3 mm. lata, 300 μ . crassa.

2. **Nidularia farcta** (Roth) Fries Syst. Myc. II, p. 301, Tul. Monogr. 81 Nidul. in Ann. Scienc. Nat. 1844, p. 95, *Cyathus farctus* Roth Catal. I, p. 237, t. VII, f. 2, *Nidularia radicata* Fr. Symb. Gaster. p. 2, *Nidularia farcta* var. *radicata* Fr. loc. cit. p. 302. — Peridio subrotundo, extus villosa, tuberculoso, tomentoso, griseo, fibris rhizoideis basi instructo, irregulariter rupto; sporangiolis orbiculatis, corrugatis, majusculis, brunneis, pulpam albam infarcientibus.

Hab. ad trabes semiputridas in aqua demersas in Germania et Suecia. — Fabæ magnitudinis; sporangiola circ. 2 mm. lata.

3. **Nidularia confluens** Fr. et Nordh. Symb. Gaster. p. 3, Syst. Myc. 82 II, p. 301, Tul. Monogr. Nidul. in Ann. Scienc. nat. 1844, p. 96, *Nidularia farcta* (confluens) Fr. Syst. Myc. II, p. 301. — Arrhiza, aggregata, subconfluens; peridio subsphæroideo, irregulariter rupto, tenui, villosa, albo vel sordide albido; sporangiolis copiosis, glabris, orbiculatis, compressis, majusculis ex albo brunneis,

siccis mox corrugatis; basidiis plerumque tetrasporis; sporis sphaeroideo-ellipsoideis, hyalinis, $8-10 \approx 6$.

Hab. ad frustula lignea, inter folia emortua, socio *Crucibulo vulgari*, rarius ad terram in Suecia, Belgio, Fennia, Britannia, Germania. — Habitus fere *Cyathi scutellaris*, peridium 3-5 mm. altum, 6-7 mm. latum, sporangiola circ. 2 mm. lata.

- 4 **Nidularia bonaerensis** Speg. Fungi Argent. Pug. III, n. 86. — Peridio majusculo, extus villosulo-hirsuto, ferrugineo-rufescenti, primo conico-ovoideo, dein conico-truncato, basi mycelio araneoso-albido late per matricem excurrente donato, superne initio velo tenui clauso dein lacerato poculiformi, intus levi, plumbeo; sporangioliis suborbiculari-lenticularibus e mutua pressione anguloso-difformibus numquam umbilicatis, funiculo absolute destitutis, mucosulo primo fluxili carneo-albo immersis, dein membranoso-tenacello carneo-fulvescente obvolutis, plumbeis, levibus, maturitate peridio exsiliantibus; basidiis filiformibus, gracilibus longissimis, dense pseudo-septatis, hyalinis, monosporis, densissime intricatis, subsimplicibus; sporis acrogenis, ovoideis vel elliptico-ovoideis, $15 \approx 10$, hyalinis, granuloso-farctis.

Hab. ad ramenta organica a flumine in ripis dejecta ad plantas colendas collecta: legit in domo sua (J. CISNEROS) et in umbrosis uliginosis prope la Recoleta in rep. Argentina. — Peridium 3-6 mm. altum, 2-4 mm. latum, sporangiola 1-1,5 mm. lata.

5. **Nidularia corrugata** (Wallr.) Tul. Monogr. Nidul. in Ann. Scienc. Nat. 1844, p. 96, *Cyathus corrugatus* Wallr. Fl. Crypt. Germ. n. 4154. — Peridio obovato, membranaceo, majusculo, extus glabrescenti, vertice depresso, poro circumato contracto-rugoso pertuso, intus levissimo; sporangioliis lenticularibus, politis, fuscis, marginatis, margine incumbentibus, latice albo exceptis.

Hab. ad finum stramineum ovium in agris relictum, aest. pr. Freiberg Germaniae (WALLROTH). — Sec. cl. Wallroth hæc species ambigit inter *Nidulariam farctam* et *Cyathum fimetarium*.

6. **Nidularia granulifera** Holmsk. Beata Rur. Ot. f. II, p. 11, t. IV, Tul. Monogr. Nidul. in Ann. Scienc. Nat. 1844, p. 97, *Cyathus granulifer* Nees Syst. Pilze p. 37 et 139 Not. t. XIII, f. 133, c. — Cyathiformis, extus tomentosa, gilva, intus albida, margine erecto lacero; sporangioliis copiosissimis, minutis, sanguineis, internæ membranæ ubique adfixis.

Hab. ad ligna putrida in Dania, Germania et Gallia. — Species a reliquis distinctissima forma obovata, deorsum attenuata, super-

ficie levi et colore; tota 6-12 mm. alta, circ. 9 mm. lata, primo clausa, dein rimose dehiscere videtur.

7. **Nidularia dentata** Wither. Arrang. of Brit. plants (1796), vol. IV, p. 357, Tul. Monogr. Nidul. p. 97. — Gregaria, cedariformis, dilute fulva, lanuginosa, margine 5-dentata, dentibus latis, lanceolatis, regularibus; sporangiolis rubello-brunneis.

Hab. ad ramulos putrescentes in Anglia. — Hanc speciem ad *Nidulariam granuliferam* Holmsk. ducit Sprengel.

Sect. 2. Sorosia Tul.

Peridium tenuissimum irregulariter disruptum, evanescens; filamenta nonnulla sporis immixta.

8. **Nidularia globosa** (Ehrenb.) Fr. Syst. Myc. II, p. 302, Tul. Monogr. Nidul. in Ann. Scienc. Nat. 1844, p. 98, *Cyathus globosus* Ehrenb. Sylv. Myc. Berol. p. 16 et 28, f. VIII. — Solitaria; peridiis globosis, parvis, tuberculosis, glabriusculis, albidis, irregulariter rum-pentibus; sporangiolis subglobosis flaventibus, mediis cavis margine incumbentibus; operculo nullo.

Hab. inter muscos ad terram sabulosam prope Berlin Germaniæ (EHRENBURG). — Peridium 4-7 mm. latum.

9. **Nidularia denudata** Fr. et Nordh. Symb. Gaster. p. 4, Fries Syst. Myc. III, p. 302, Tul. Monogr. Nidul. in Ann. Scienc. Nat. 1844, p. 98, *Cyathus denudatus* Spr. Syst. IV, p. 414. — Arrhiza, irregularis, confluens, rarius solitaria, alba; peridio tuberculoso, nudo oculo glabro, armato pubescenti, mox irregulariter rupto totoque evanescenti; sporangiolis minutis, copiosissimis, orbiculatis, utrinque umbilicatis, levissimis, glabris, nitidis, luteis.

Hab. in ligno putrido pineo et alneo locis humidis dejecto in Suecia et Germania. — Eximia species. Peridium usque ad 4,5 mm. latum; sporangiola 700 μ . circ. diam.

10. **Nidularia rubella** Ell. et Everh. in Bull. Torr. Club. 1884, p. 18. — Peridio irregulariter globoso, sæpe plurimis confluentibus, sordide albo, contextu tenui, mox evanido; sporangiolis rubro-tinctis, orbicularibus vel subelongatis, 330 μ . diam., haud umbilicatis, sublevibus, glabris, nitentibus.

Hab. in truncis piceis putrescentibus, Newfield New Jersey Amer. bor. — *Nidulariæ denudatæ* Fr. proxima, a qua colore sporangiorum differt. Peridium 1-2 mm. latum.

11. **Nidularia Durianæana** Tul. Monogr. Nidul. in Ann. Scienc. Nat. 1844, 90

p. 99, t. VII, f. 13-17. — *Gregaria*, hand confluens, radiculosa, globosa, sessilis, tuberculosa, albida; peridio tenuissimo, tandem undique disrupto et evanido; sporangiolis planis, subtomentosis, fusco-brunneis, tunica crassiuscula, cortice luteo, substantia interiori candida; sporis ovatis, primo 2-3 in quoque basidio subsessilibus $6,5-7 \approx 4,5-5$, levibus.

Hab. ad terram arenosam inter muscos in ericetis Mauritaniae prope La Calle (DURIU) et in insula Ceylon (BERKELEY). — Fungillus vix 1 mm. excedens, sporangiola 350-450 μ . lata, malefacta 160 μ . circiter crassa.

Sect. 3. *Granularia* (Roth) Tul.

Peridium non dehiscens, fungilli ad basin tandem circumscissum.

12. **Nidularia pisiformis** (Roth) Tul. Ann. Sc. Nat. 1844, p. 100, *Granularia pisiformis* Roth Ann. b. 1, s. 6, t. 1, f. 1. — *Gregaria*, subglobosa, sessilis, arrhiza, hirsuta, brunnea; sporangiolis subrotundis vel discoideis, obscure brunneis; sporis globosis aut ellipticis, hyalinis, $5-7,5 \mu$. latis.

Hab. ad frustula lignea terra immixta in Germania, Italia et Britannia. — Peridium minimum, usque ad 7 mm. latum. In superficie fungulus non dehiscit sed cortex fungum obducens basi ad terrae superficiem quasi circumscinditur et ita, mucilagine demum evanida, terrae incumbunt sporangiola sicca.

13. **Nidularia pulvinata** (Schwein.) Fries. Syst. Myc. II, p. 301, Tul. Monogr. Nidul. p. 100, *Cyathus pulvinatus* Schwein. Carol. n. 534. — Sparsa, orbicularis, pulvinata, clausa, testacea, pulverulenta; sporangiolis difformibus, compressis, demum cinereo-nigris.

Hab. in arboribus maxime putridis Carolinae inferioris in Amer. boreali. — Fungillus superficie pulvere copioso badio inquinante tegitur, aetate in flocculos congesto. Peridium 6-12 mm. latum.

Species tantum nomine nota.

14. **Nidularia Garganica** Rabenh. in Flora 1850, p. 374.

Hab. in promontorio Gargano Italiae austr. — Species loco citato et nullibi descripta.

CYATHUS Hall. Helvet. III, p. 127, (1768). (Ety. a *cyathus* cratera). — Peridium sessile vel substipitatum, primo obovatum vel fusiforme, dein obcampanulatum, cylindraceum v. cyathiforme, mar-

ginatum maturitate apice centrali dehiscens seu epiphragmate decido, disciformi clausum, e membranis tribus arcte invicem adplicatis compositum; sporangiola plura, 10-18, disciformia, crassa, funiculo umbilicoque prædita; sporæ ovatæ vel ellipticæ, leves, basiis 2-4 insimul suffultæ, filamentis crassis, corneis immixtæ.

Sect. 1. *Encyathus* Tul.

Peridium extus plus minus lanuginoso-hirsutum superneque striato-plicatum, striis ex alterutro vel ex utroque latere conspiciendis; corona plerumque perfecte determinata.

A) Sporangiorum tunica tenuis.

1. **Cyathus striatus** (Huds.) Hoffm. Veget. Crypt. p. 33, t. VIII, f. 3, 94 Tul. Monogr. Nidul. in Ann. Scienc. Nat. 1844, p. 67, t. III, t. IV, f. 1-3, t. VIII, f. 1-12, *Nidularia striata* With. Bot. Arrang. vol. III, p. 446, Fries Syst. Myc. II, p. 298, *Peziza striata* Huds. Fl. Angl. p. 634, *P. hirsuta* Schrank Baier. Fl. II, p. 625, *Nidularia hirsuta* Sow. Fungi t. 29. — Gregarius, radiculatus; peridio obconico utrinque truncato, late aperto, extus ferrugineo, hirtotomentoso, intus glabro, plumbeo-nitido, striato, margine coronaque crassis continuis, epiphragmate membranaceo, albido; sporangiolis subtrigonis, albidis, late alteque umbilicatis, tunica sursum tenuissima evanescenti, subtus gossypina crassiori, furfures albidos cooperiente; sporis oblongo-ellipticis, utrinque obtusis, 17,5 ≈ 9-11, hyalinis.

Hab. ad terram, truncos radicesque arborum in Italia, Lusitania, Helvetia, Gallia, Britannia, Belgio, Germania, Fennia nec non in America et Angola Africae. — Peridium 10-16 mm. altum, 8-10 mm. latum; sporangiola 2 mm. diam. — Var. **Schweinitzii** Tul. loc. cit. A typo differt sporangiolis nigricantibus, tunica tenuissima, pulvere furfureo nullo. In Carolina superiori Americae borealis (SCHWEINITZ).

2. **Cyathus Novæ-Zelandiæ** Tul. Monogr. Nidul. in Ann. Scienc. Nat. 95 1844, p. 66, t. VI, f. 1-5. — Elongatus, angustus, medio subcoarctatus, brunneus, obscurus, extus adpresse tomentoso-lanuginosus, intus crebre striatus, alte sulcatus, margine vix distincto tomentoso, corona brevissima, continua; sporangiolis 15-18 crassis, planis, disciformibus, aterritis, glabris, umbilico subdestitutis, tunica tenuissima vix conspicua; sporis numerosis, ellipticis, 11-13 ≈ 5,5-6,5, utrinque subacutis, guttulis faretis, levibus.

Hab. ad ligna putrida in pæninsula Banksiana Novæ-Zelandiæ (RAOUL). — Fungus initio cylindricus, vertice obtusissimo, tandem scyphulum plus minus apertum medioque sæpissime sporangiola ultra suprema coarctatum referens, gregarius et cæspitosus; peridium 12-14 mm. altum, 5-7 mm. latum; sporangiola 2,5-3 mm. diam., 1 mm. paullo crassa.

3. ***Cyathus Montagnei*** Tul. Monogr. Nidul. in Ann. Scienc. Nat. 1844, 96 p. 70, t. IV, f. 9-11. — Peridio crucibuliformi vel obconico, extus ferrugineo et parce lanuginoso-hirto, intus glabro superneque striato ciliatoque; sporangiolis rotundato-ellipticis, alte umbilicatis, nigrescentibus, tunica obvolutis, tenuissima vix perfecta absque stramento et furfuribus; sporis crassis, ellipticis, utrinque obtusis, $20 \approx 13,2$, levibus.

Hab. ad frustula lignea prope Sebastianopolim Americæ (GAUDICHAUD) in ins. Cuba, in Brasilia et Uruguay, in ins. Ceylon, in Australia. — Fungus 7-9 mm. altus, 5-6 mm. latus, sporangiorum diameter 2 mm. paullo excedens, crassities 700 μ .; peridia structura illum *Cyathi striati* æmulatur, extus vero minus hirsutum coloreque saturatius rubescens, intus glabrum leviterque striatum. — Var. **brasiliensis** Speg. Fung. Argent. IV, pug. n. 239; peridiis fulvo-ferrugineis opacis v. subopacis primo obovatis vertice rotundato, inflexo, connato-clauso, ubique densiuscule ac longiuscule lanato-hirsutis, dein obconico calyciformibus margine subflexuoso, longiuscule glabrato, grosse plicato-sulcato, exinie determinato atque appendiculo membranaceo-fimbriato longiusculo ornato, basi valide attenuato-subcoarctata, brevissime substipitata, mycelio parvulo, tumidulo, glabro, concolore donata, intus plumbeo-fusca, nitenti, 24-profunde plicato-sulcata; sporangiolis fusco-plumbeis, suborbicularibus, compressis non umbilicatis longiuscule albo-funiculatis, levibus; sporis hyalinis, ellipticis, utrinque rotundatis, $19-20 \approx 12-13$, crassissime tunicatis, granuloso faretis, levibus. Ad ramenta coacervata, putrescentia Graminearum majorum, Apiahy, Brasilia meridionali (Dr. J. PUIGGARI). Forma *C. ambiguo* Tul. typico sporangiolis non umbilicatis accedens ceterisque tamen characteribus melius ad *C. Montagnei* Tul. referenda; peridia 5-6 mm. alta, 4-5 mm. lata ad os; margo 2 mm. longus; sporangiola 1,5-1,7 mm. $\approx 400-600 \mu$.

4. ***Cyathus byssisedus*** (Jungh.) Tul. Ann. Scienc. Nat. 1844, I, p. 71, 97 t. IV, f. 8, *Nidularia byssiseda* Jungh. Fl. Crypt. Jav. I, p. 24, t. III, f. 12. — Gregarius; peridio truncato, intus levi, extus to-

mentoso-floccoso, ferrugineo, margine substriatulo, basi incrassato, byssisedo, mycelio subradiato, rufescente e fibris tenerrimis, sericeo-nitentibus, matrici arcte adnatis composito, epiphragmate concavo margini inflexo adhaerente, intus albo, extus floccoso; sporangiolis numerosis, orbiculatis, depresso-planis, dense stipatis; sporis ellipticis. $15,5 \approx 11$.

Hab. in ligno Tectoniae grandis nec non in culmis Bambusae pr. Samarang, Djocjokartam Javæ (JUNGHUIM) et Sarawak in ins. Borneo (CESATI) in Guyana Amer. merid. (LÉVEILLÉ). — Fungillus 10-12 mm. altus; sporangiola vix 1,5 mm. lata.

5. **Cyathus intermedius** (Mont.) Tul. Monogr. Nidul. in Ann. Scienc. Nat. 1844, p. 72, t. IV, f. 4-7, *Nidularia intermedia* Mont. Cub. p. 321, Syll. Crypt. n. 1040. — Cyathiformis, obconicus, extus ferrugineo-lutescens, pilis fasciculatis patenti-hirsutus, intus plumbeo-ardosiaceus, striatulus; sporangiolis nigrescentibus, tunica tenuissima involucratis, substantia media nigrescenti; sporis ovoideis $15,4 \approx 8-9$; epiphragmate floccoso-farinoso, niveo.

Hab. ad quisquillas in terra argillacea, S. Marcos Cubæ (RAMON DE LA SAGRA), in insula Mauritius (BERKELEY), in India (CUREY) et Daintree River Queensland Australiae. — Fungus 8-9 mm. altus, ore 7-8 mm. lato, sporangiorum diameter 2 mm. æquat crassities 1 mm. paullo minor. Sec. cl. Montagne huc forte spectat *Nidularia striata* var. *pusilla* Berk.

6. **Cyathus microsporus** Tul. Monogr. Nidul. in Ann. Scienc. Nat. 1844, p. 73, t. VI, f. 6-8. — Peridio obconico, e basi angustissima sursum ampliato lateque aperto, corona brevissima pilosa subdenticulata; sporangiolis tenuibus, disciformibus, superne umbone medio inferneque umbilico parum alto donatis, tunica tenuissima; sporis creberrimis, ovato-ellipticis, $6,6 \approx 4,4$. — Var. **Domingensis** Tul. loc. cit. peridio ferrugineo, initio lanuginoso-hirto, tandem subraso, margine vix perspicuo, interno pariete externo subconcolore v. mucis exsiccati gratia albido-nitente striis nullis; sporangiis cinereis. ad ligna putrida in insula Haiti (POITEAU). — Var. **Berkeleyanus** Tul. loc. cit. peridii utraque pagina subvirescenti, tomento raso obducta, interiore leviter remoteque striatula; margine coronaque productionibus; sporangiolis nigris, minoribus. Prope Sebastiano-polim Brasiliæ (BERKELEY). Funguli 5-8 mm. alti, ore subtotidem lato; sporangiola 1,5-2 mm. lata, 500 μ . circ. crassa.
7. **Cyathus Hookeri** Berk. in Hook. Journ. Bot. 1854, p. 204. — Peridio cyathiformi, lignicolori, sessili vel obsolete stipitato, pallido,

intus striato vel omnino levi, extus squamis squarrosis, acutis ob-
sito; sporangiolis 2 mm. latis, amplis, rugulosis, subnigrescentibus;
sporis obovatis, 7 μ . diam.

Hab. ad truncos emortuos inter muscos Khasia Indiæ (D. Hoo-
KER). — A *Cyatho microsporo* Tul. plane distinctus.

8. **Cyathus ambiguus** Tul. Ann. Sc. Nat. 1844, p. 75. — Peridio ob-
conico-calyciformi, cartilagineo-membranaceo, extus laxè sed lon-
giusculè lanato-hirsuto, fulvo-ferrugineo v. fulvo-cinnamomeo, pul-
chre sericeo-nitenti, margine recto, longiusculè plicato-sulcato ac
glabrato, eximie determinato atque appendiculo membranaceo-fim-
briato ornato, basi modice attenuato ac abruptè in mycelio gla-
bro, crassiusculè membranaceo, concolore, scutato-dilatato donato,
intus plumbeo-fusco, nitenti, 32-35-valide plicato-sulcato; sporan-
giolis fusco-plumbeis nitentibus, elliptico-rhomboides, compresso
lenticularibus inferne tumidulis ac medio umbilicatis, levissimis,
longiusculè albo-funiculatis; sporis hyalinis, ellipticis, crasse tu-
nicatis, 30-45 $\approx$ 20-25, levibus, granuloso-farctis.

Hab. ad ramenta salicina putrescentia et quisquilias secus flu-
men Combayma prope Ibaguè N. Granatæ (Goudot), in uliginosis
umbrosis, Boca del Riachuelo in Rep. Argentina (Spegazzini). —
sporangii Forma umbilicatis ad *C. Montagnei* Tul. vergens, sed
ceteris characteribus bene determinata. *Cyathi Pæppigii* et *C. lim-
bati* similis at distinctus. Fungillus plerumque 10-11 mm. altus, 6-7
mm. latus, sporangiola 1,5-1,8 mm. circ. diam., 500-700 μ . crassa.

9. **Cyathus sulcatus** Kalch. in Grevillea X, p. 107. — Peridio obco-
nico, tomentoso, strigoso, cervino, extus ad orificium profunde sul-
cato; sporangiolis nitentibus, nigricantibus.

Hab. ad terram Natal (Wood).

10. **Cyathus plicatus** (Fr.) Tul. Monogr. Nidul. in Ann. Scien. Nat. 103
1884, p. 76, *Nidularia plicata* Fr. in Linn. v. p. 523, Berk. in
Hook. Lond. Journ. II (1843), 639. — Peridio obconico, utrinque
plicato, extus furfureo-spadiceo; sporangiolis nigricantibus.

Hab. ad terram argillosam silvarum in Brasilia (Beyrich) et sec.
Fries. — A *C. striato* proximo quo tenuior, unde magis plicatus
fit, recedit insuper superficie furfuracea, nec hirsuta, colore in-
terno spadiceo, nigro, sporangiolis nigrescentibus. «An satis?».

11. **Cyathus desertorum** Muell. in Linn. Journ. XVIII, p. 387, Berk. 104
Australian Fungi n. 288. — Pallidus, tomentosus, intus glaber, le-
vis; sporangiolis nigris, extus quandoque subtiliter sulcatus; spo-
ris subglobosis, 4-5 $\approx$ 4.

Hab. ad terram arenosam Darling River in Australia. — Peridia 5 mm. lata, vix 1 cm. alta.

12. **Cyathus pallidus** Berk. et Curt. Cuban Fungi n. 517. — Peridio 105
campaniformi, squamis erectis stuppeis vestito, fibris apicalibus
junctis; margine vix striato; sporis subglobois, 10 μ . diam.

Hab. ad truncos emortuos in insula Cuba et Somerset East
Africæ australis (MAC OWAN).

B) Sporangiorum tunica crassa.

13. **Cyathus Gayanus** Tul. Monogr. Nidul. in Ann. Scienc. Nat. 1844, 106
p. 76, t. IV, f. 18-22 et t. V, f. 1-2. — Peridio subfusiformi tan-
dem obconico inferne longe attenuato, extus lanuginoso-hirto, fer-
rugineo, intus glabro, plumbeo, striato, osculo æquali brevè inter-
rupteque ciliato; sporangiolis 12-15 latis, subapplanatis, glabris,
atris, vix umbilicatis, tunicæ pellicula crassissima nec fragili, fo-
mite rufo, parco, furfuribus nullis; sporis crassissimis elliptico-ro-
tundatis, 20-22 $\approx$ 15,5-17,5.

Hab. ad fimetum equinum in regione Chilensi Amer. meridio-
nalis (GAR). — Fungus adultus 12-16 mm. altus, basi 2 mm. cras-
sus, osculo 5-7 mm. lato; sporangiola 3 mm. et ultra lata.

14. **Cyathus Poeppigii** Tul. Monogr. Nidul. in Ann. Scienc. Nat. 1844, 107
Cyathus plicatulus Poepp. Hautlubens. exs. n. 47. — Peridio ob-
conico, angusto pede, ferrugineo, parce tomentoso, intus glabro,
obscurò, utrinque creberrime minuteque sulcato-striato, corona dis-
secta; sporangiolis ellipticis, subtus plicato rugulosis ac vix um-
bilicatis, nigris, superne levibus, involuero crasso, fomitibus atro-
violacei pilis longis rigidis, substantia hymenifera crassissima al-
bida, sporifera lineari obscuriori; sporis ellipsoideis, crassissimis,
41,7 $\approx$ 26,3.

Hab. ad terram et ramenta lignea in Antillis, Guyana, Brasi-
lia et Venezuela. — Fungus sæpius 7-10, interdum 5-6 mm. altus,
basi 1 mm. crassus, osculo 4-6 mm. aperto; sporangiola 2 mm.
longa, 500 μ . crassa.

15. **Cyathus limbatus** Tul. Monogr. Nidul. in Ann. Scienc. Nat. 1844, 108
p. 78, t. IV, f. 12-17. — Peridio obconico, ferrugineo hirto-to-
mentoso, utrinque striato, margine lineari tenui, corona alta, con-
tinua, membranacea, recte truncato; sporangiolis 10-12, ellipticis,
nigris, glabris, vix umbilicatis, involucri strato fibroso, tenui, atro,
furfuribus nullis vel parcis, cortice aterrimo, levi; sporis ellipti-
cis, utrinque obtusis 14,3-16,5 $\approx$ 6,5-11 levibus, pellucidis.

Hab. ad terram in Guyana Anglica et Surinam aliisque Americæ in locis ad Alpiniam quandam semiputridam prope Panurè. — Fungus angustata basi sedet, 6–8 mm. altus, ore 4–5 mm. lato; sporangiola longit. 2 mm. excedunt, 1 mm. vix crassa.

Sect. 2. *Olla* Tul.

Peridium utraque pagina striis sulcisve destitutum, sæpe subglabrum, limbo seu corona subnulla.

16. ***Cyathus Lesueurii*** Tul. Monogr. Nidul. in Ann. Scienc. Nat. 1844, 109 p. 79, t. V, f. 5–13 (var. maior). — Peridio membranaceo, tenui, griseo, pallescenti, extus pilis rasis substellatis obsito vel nudato, intus glabro, ad margines haud striato nec ciliato, limbo brevissimo continuo mutico, interdum subnullo; sporangiolis discoideis, atris, levibus, tunica crassissima tenaci indutis; substantia hymenifera tenui; sporis crassis, $28,5-33 \approx 22-24,2$, ellipticis levibus.

Hab. ad ligna putrescentia in America boreali et Australia. — Fungus 11–14 mm. altus, osculo 5–7 mm. aperto, sporangiola 2–2,5 mm. lata. — Var. **minor** Tul. loc. cit.: brevis, crucibuliformis, albicans, eplicatus, extus tomentosus vel subvillosus; sporis subglobosis, $22-22,5 \approx 17,5-19,8$, levibus. Ad ligna in Carolina et Connecticut Amer. bor. Fungus 5–7 mm. altus, osculo 4–6 mm. lato.

17. ***Cyathus vernicosus*** (Bull.) De Cand. Hor. Franc. II, p. 270, Tul. Monogr. Nidul. in Ann. Scienc. Nat. 1844, p. 81, t. V, f. 14–23, *Nidularia vernicosa* Bull. Champ. I, p. 164, t. 488, f. 1, *Cyathus Olla* Pers. Syn. p. 237, *C. nitidus* Roth, *Peziza lentifera* Huds. Fl. Angl. p. 633, *Peziza sericea* Müll. in Fl. Dan. t. 780, *Peziza Olla* Batsch Elench. p. 127, *Cyathus levis* Hoffm. Veg. Crypt. p. 31, t. VIII. f. 2, *Nidularia campanulata* Sibth. Fl. Oxon. p. 393, *Nidularia plumbea* Pers. Champ. comest. p. 110, *Nidularia Olla* Link Obs. I, t. II, f. 53, *Cyathus campanulatus* Corda Anleit. t. D. f. 42. — Peridio campanulato, basi angustata subsessili, sursum late aperto, undulato-repando, ochraceo-pallido vel cinereo-fuscescenti, tomentoso, demum glabrescenti, intus plumbeo vel brunneo, nitenti, demum subspadiceo, levi, epiphragmate tenui, floccoso, albo, lacero-rumpente; sporangiolis nigrescenti-pallidis, levibus, furfuraceis, orbicularibus, tunica crassiuscula, continua, cinerea, funiculo candido; sporis ovoideis $12-13,2 \approx 6-7,7$ levibus, hyalinis.

Hab. ad terram ramentaque lignea in Europa. Amer. bor. et me-

rid. (Chili) Africa boreali et australi et Queensland Australiæ. — Species valde polymorpha: fungus gregarius, 10-14 mm. altus, osculo 8-10 mm. lato; sporangiola 2,5-3 mm. lata, crassit. 1 mm. — Var. **nitidus** (Roth) Pers. Syn. p. 238: peridio campanulato, griseo, tomentoso, margine demum revoluta, interne nitidissimo, plumbeo, striis demum concentricis. Ad terram in Germania et Gallia. — Var. **Sarracenii** Tul. loc. cit.: peridio lutescenti, margine reflexo; sporangiolis minutis dilute concoloribus, pulvere furfureo candido tectis. Canada. — Var. **Merretii** Tul. loc. cit.: peridio toto aterritimo, friabili, utraque pagina glaberrimo, margine erecto, in-crassato, undulato; sporangiolis summopere ruguloso-undulatis, tunica crassa nigrescenti vel spadicea, pulverem furfureum copiosum celante amictis; sporis parum numerosis. In Anglia (MERRET). — Var. **chilensis** Tul. loc. cit.: major, sporangiolis 3,5 mm. latis, 1,5 mm. crassis, rugulosis; tunica tenui, adnata, furfure deficiente, hymenio minuto, udo linea media pellucida notato. Ad ramenta lignea prope Rancagna aliisque in locis Chili (GAY, BERTERO). — f. **agrestis** (Pers.) Tul. l. c. pag. 83: peridiis obconicis papyraceis tenacellis, extus minute et adpresse araneoso-puberulis, griseo-fuscis, opacis, margine recto, integro, subexappendiculato, basi acutiuscule attenuatis, vix adnato-radicatis, intus levibus, plumbeis; sporangiolis applanato-lenticularibus, levissimis, funiculo valido, crasso, elongato, albo suffultis; sporis globoso-ellipticis, 15-20 $\pm$ 10-16, 1-grosse guttulatis, hyalinis. Ad terram uliginosam, nudam substantiis organicis fartam in nemorosis, prope la Recoleta Americæ australis. Peridium 8-10 mm. altum, 6-7 mm. latum ad os.; sporangiola 1,5 mm. diam., 300 μ . crassa: — f. **argentinus** Spieg. F. Arg. Pug. IV, p. 96: peridiis conico-calyceformibus, crassiuscule papyraceis, tenacellis, araneoso-furfuraceis, margine integro, xappendiculato, varie undulato-flexuoso, basi leniter attenuato-sub-coarctatis, crasse brevissimeque stipitatis, mycelio glabro, ferrugineo, tenuissime membranaceo, late matricem ambiente adnato-radicatis, intus levibus, plumbeis, parce nitentibus; sporangiolis majusculis, elliptico-romboideis, compressis, in sicco contractulis ac undulatis, fusco-plumbeis, subnitentibus, funiculo albo, valido, breviusculo suffultis; sporis ellipticis, utrinque plus minusve acutato-rotundatis 12-14 $\pm$ 7-9, tenuiuscule tunicatis, granuloso faretis, hyalinis. Ad ramos dejectos putrescentes Rosæ speciei cujusdam in hortis Buenos Ayres (BERG.). — Formæ *chilensi* Tul. l. c. p. 84 valde affinis, sed omnibus notis bene non congruit. Peridium 7-9

mm. altum, 9-10 mm. latum ad os, sporangiola 3 mm. diam., 500 μ . ad 1 mm. crassa.

18. **Cyathus emodensis** Berk. in Kew Journ. Bot. 1854, p. 204. — 11

Peridio albo, campaniformi, basi angustata subsessili, superne late aperto, striis plane destituto, extus fasciculato-tomentoso, margine stellato ciliato; sporangiolis umbrinis, levibus, copiosissimis; sporis obovatis, 7-7,5 μ . long.

Hab. ad truncos emortuos Sikkim Hymalajæ (Doct. HOOKER) et in planitie Horton in ins. Ceylon (BERKELEY et BROOME). — Peridium crassiusculum, intus glaberrimum, 10 mm. altum latumque; sporangiola circ. 1 mm. — A *Cyatho vernicoso* colore tomentoque peridii sporangiolis sporisque minoribus distinctus.

19. **Cyathus similis** Cooke in Grevillea VIII, p. 58. — Campanifor- 11

mis, sessilis, superne late apertus, striis plane destitutus, extus pallide ochraceus, sericeo-tomentosus, intus fusco-cinereus; sporangiolis ellipticis, nigris, levibus; tunica 100 μ . crassa; sporis ovatis, 12 $\approx$ 9, hyalinis.

Hab. ad terram in pæninsula Bank. — *Cyatho vernicoso* De Cand. similis, a quo sporangiolis et sporis differt. Sporangiola 3,5 mm. longa, 2,5 mm. lata. «Cum *C. emodensi* Berk. comparandum?»

20. **Cyathus dasypus** Nees Hor. Phys. Berol. p. 41, t. V, f. 1, Tul. 11

Monogr. Nidul. in Ann. Scienc. Nat. 1844, p. 85, f. V, f. 24-25, *Nidularia dasypus* Fries Syst. Myc. II, p. 299. — Peridio campaniformi subcylindrico, inæquali, extus dilute ochraceo vel terreo, adpresse minuteque tomentoso, intus plumbeo, glabro, levi, limbo nullo, osculo tenui; sporangiolis crassissimis inæqualibus irregularibusque rotundato-elongatis aut etiam reniformibus, cinereis, glabris, umbilico punctiformi, funiculo exiguo, candido; sporangiolo medio pallido; sporis ovatis 11 $\approx$ 7,7-8,8, levibus.

Hab. ad terram nudam limosam, in fimetis etc. ad caput Bonæ Spei in Africa austr., in insula Guadelupa et prope Valparaiso Chili (GAUDICHAUD). — Fungus 10-12 mm. altus, osculo 8-10 mm. lato, sporangiola 4-5 mm. longa, 1-1,5 mm. lata. Accedit ad *C. vernicosum*, a quo præsertim sporangiorum forma, crassitie coloreque, tunicæ et pulveris furfurei indole differre videtur.

21. **Cyathus stercoreus** (Schwein.) De Ton., *Nidularia stercorea* 11

Schwein. North Am. Fung. n. 2215. — Peridio obconico, extus strigoso-hirsuto, canescente, demum denudato brunneo, margine imbriato, intus glabro nec plicato-striato, spadiceo-castaneo, subniente, in fundo nigricante; sporangiolis atris, glabris, majusculis.

Hab. subsparsim in fimo vaccino New Jersey Amer. bor.

22. **Cyathus subiculosus** Kickx in Bull. Acad. Bruxelles 1841, p. 78, 115
t. II, f. 3-5, Tul. Monogr. Nidul. in Ann. Scienc. Nat. 1844, p. 86.
— Peridio radicato, obconico-infundibuliformi, extus squamuloso-
stuposo, griseo nitido, dein rufescente, subiculo concolori, tomen-
toso, dein pulvinato, intus levi, nigricante, epiphragmate albo; spo-
rangioliis 7-12, plus minus lenticularibus, levissimis, cæruleo-atris,
dein nigris; sporis globulosis, magnis.

Hab. in caldariis Horti Bot. Gandavensis in Belgio, Novæ Hi-
spaniæ vero indigenus.

23. **Cyathus fimicola** Berk in Linn. Journ. XVIII, p. 387, Australian 116
Fungi n. 290. — Cupuliformis, umbrinus; sporangioliis concolori-
bus; sporis angustis, 10-12 μ . longis.

Hab. ad fimum prope Rockhampton Australiæ (THOZET).

24. **Cyathus pezizoides** Berk. in Linn. Journ. XVIII, p. 387, Australia 117
Fungi n. 291. — Cupuliformis, extus dense tomentosus, umbrinus.

Hab. ad plantas herbaceas putrescentes prope Rockhampton
Australiæ (THOZET). — Specimina valde imperfecta. «An *Cyathi*
fimicolæ identicus?».

25. **Cyathus pusio** Berk. in Linn. Journ. XVIII, p. 387, Australian 118
Fungi n. 289. — Cyathiformis, albidus, extus minute depresso-to-
mentosus; sporangioliis pallidis; sporis 7,5 μ . longis.

Hab. ad truncos Eucalypti hemiphlæodis pr. Rockhampton Au-
straliæ. — Species perparvula.

26. **Cyathus Wrightii** Berk. North Amer. Fungi n. 325. — Peridio 119
campaniformi, eplicato, extus stippeo; sporis ellipticis, 15 $\approx$ 10.

Hab. ad terram Connecticut Amer. bor. (C. WRIGHT). — Fun-
gillus 1,2 cm. altus, striis destitutus.

27. **Cyathus complanatus** De Cand. Fl. Franc. II, p. 270, *Nidularia* 120
complanata Fr. S. M. II, p. 300. — Peridio hemisphærico, extus
cinereo-ferrugineo, subsquamuloso, intus levi, albo, sporangioliis 7-
15 repleto; sporangioliis 7-15, albis, demum griseis.

Hab. ad lignum putridum in Gallia (DUFOUR) et Germania. —
Sec. Tulasne forte ad hoc genus haud pertinere videtur.

28. **Cyathus fimetarius** DC. Fl. Fr. v. 104, Tul. Monogr. Nidul. p. 87. 121
— Peridio hemisphærico, toto rufo-fulvo, extus velutino, intus
glabro; sporangioliis concoloribus, lenticularibus, subpunctulatis v.
granulatis.

Hab. in stercore vaccino in Gallia (CHAILLET). — *Cyathi com-*
planati affinis videtur.

29. **Cyathus rugispermus** (Schwein.) De Ton., *Nidularia rugisperma* 122
 Schwein. North Amer. Fungi n. 2217. — Cæspitosus vel sparsus; peridio obconico-campanulato, extus strigoso, pallido aut ochraceo, intus cinereo-nitente glabro; limbo vix patente; operculo crasso, plano, albido, floccoso-strigoso; sporangiolis magnis, atris, lenticularibus, non nitentibus, reticulato-rugosis,
Hab. in quiscuiliis dejectis, Bethlehem Amer. bor. — Magnitudo *Cyathi striati*.
30. **Cyathus melanospermus** (Schwein.) De Ton., *Nidularia melano-* 123
sperma Schwein. North Am. Fungi n. 2216. — Peridio obconico, limbo patenti, extus valde strigoso, pallido, margine integro, intus glaberrimo, atro-fusco, nitente; sporangiolis magnis, aterrimis, difformiter lenticularibus, glaberrimis, nitidis; operculo pallido, tenuiusculo.
Hab. gregatim in pulvere vaporario ad vias emendandas adhibito Bethlehem Pennsylvania Amer. bor. — Magnitudo *Cyathi striati*.
31. **Cyathus scutellaris** Roth Catal. Bot. I, p. 237, Tul. Monogr. 124
 Nidul. p. 87. — Peridio globoso, extus tomentoso, cinereo, primum operculo ferrugineo tecto, dein hemisphærico, ore repando recluso, margine integro, saltem leviter crenulato, intus levi, albo; sporangiolis majusculis levibus albidis, dein nigrescentibus.
Hab. ad ramos dejectos in nemoribus in Germania, Gallia et Italia. — Forte *Cyathi complanati* varietatem sistit.
32. **Cyathus fascicularis** (Schwein.) De Ton., *Nidularia fascicularis* 125
 Schwein. North Amer. Fungi n. 2218. — Fasciculatim crescens, in superficie corticis radicalis e basi quadam tomentoso-strigosa, effusa; peridio maxime obovato, limbo repando, subundulato, reflexo, extus badio strigoso, basi valde contracto, subparalleliter annulatim zonato, intus glaberrimo, nitore argenteo fuligineoque zonato; operculo initio globoso convexo vel cacumine subacuto, strigoso, concolori; sporangiolis majusculis, argenteo-plumbeis.
Hab. ad radices emortuas Artemisiæ Absinthii in hortis Bethlehem Amer. borealis.
33. **Cyathus deformis** Willd. in Uster. bot. Mag. II, 4, p. 14, t. V, 126
 f. 8, Tul. Monogr. Nidul. p. 89, *Nidularia deformis* Fries Syst. Myc. II, p. 302. — Arrhizus; peridio primum hemisphærico, dein irregulari, rugoso, pubescenti, albo; sporangiolis oblongis, brunneis, minutis, funiculo filiformi tenuissimo appensis.
Hab. ad ramulos dejectos in locis opacis silvarum prope Berlin

Germaniæ. — Ab omnibus speciebus hujus generis differt quod epiphragmate caret; a *Crucibulo vulgari* peridio irregulari rugoso vel villosulo, sporangiolis minoribus oblongis nec subrotundis, colore albo nec extus flavo.

Species ejus diagnosis mihi haud innotuit.

34. **Cyathus Colensoi** Berk. Fl. N. Zeal. II, 192.

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Hab. S. Australia, Tasmania, N. S. Wales.

CRUCIBULUM Tul. Monogr. Nidul. in Ann. Scienc. Nat. 1844, p. 89 (Etym. *crucibulum* h. e. vas in quo metalla funduntur). — Peridium initio globosum capitatum, tandem subcylindricum crucibuliforme et epiphragmate plano concolore furfuraceo, cyathi marginibus extremis continuo clausum, hocce frustulatim demum evanido, late apertum, crassum; contextu fibroso-spongioso, homogeneo nec e stratis parallele appositis distinctis constante; osculum admodum nudum absque ulla corona limbari; sporangiola numerosa, disciformia, plana, regularia, tegumento crassissimo fibroso involucrata, funiculo longo e prominentia mammiformi oriundo instructa; sporæ 2-4 in quaque basidia, filamentis non immixtæ.

1. **Crucibulum vulgare** Tul. Monogr. Nidul. in Ann. Scienc. Nat. 1844, p. 90, *Cyathus crucibuliformis* Hoffm. Veg. Crypt. II, pag. 29, t. VIII, f. 1, *Nidularia Crucibulum* Fr. Syst. Myc. II, p. 299, *Nidularia leucosperma* Pers. mscr. *Cyathus ericetorum* Havet. mscr. *Cyathus cylindricus* Willd. Fl. Berol. pag. 399, *Nidularia levis* Bull. Champ. t. 488, f. 2, *Cyathus Crucibulum* Pers. Syn. pag. 238, *Peziza crucibuliformis* Schaeff. Ic. pag. 125, *Peziza lentifera* Poll. Pal. III, pag. 305, *Peziza Pyxis* Batsch Klench. p. 129, *Peziza levis* Huds. Fl. Angl. p. 634. — Peridio campanulato-cylindrico, utrinque truncato, ex ochraceo ferrugineo, juniore tomentoso, tandem glabro, crassiusculo, fere levi, osculo integerrimo, nudo, late aperto, intus omnino levi, glabro, nitenti, luteo-pallescenti; sporangiolis albidis demum pallescentibus vel ochraceo-pallidis orbicularibus; sporis ellipticis, 8-9 $\approx$ 4-4.5, levibus, hyalinis.

Hab. ad ramulos, caules asseresque humi jacentes in silvis umbrosis totius Europæ, pr. Minussinsk Sibiricæ Asiaticæ, in America boreali, in Africa boreali (DURIÉU), in Australia et Nova Zelandia, in insula Madera prope Teneriffa. — Gregarius, 5-8 mm. altus, 6-7 mm. sursum latus; sporangiola 1.5-2 mm. lata, 400 μ .

crassa. — Var. **lanosum** Cooke in Grevillea: peridio typo pallidiori, extus lanoso; sporangiolis 1,5 mm. latis, brunneis; sporis minoribus. Ad ramulos Wellington (TRAVERS). An huc spectat Bull. Champ. t. 40, f. B?

2. **Crucibulum juglandicolum** (Schwein.) De Ton. *Nidularia juglandicola* Schwein. North Amer. Fungi n. 2219. — Peridio turbinate-campanulato, arrhizo, basi contracto, limbo repando sæpe confluyente, extus ferrugineo-lutescente, subtomentoso, tomento basilarium tenui in cortice effuso, intus glabro, candidissimo; operculo impresso, firmo, subconcolori; sporangiolis crebris, candidissimis.

Hab. fasciculatim seriatimque in cortice Juglandium, pr. Bethlehem in Pennsylvania Amer. bor.

THELEBOLUS Tode Meckl. I, p. 41 (Ety. a *thele* papilla et *bolos* jactus). — Peridium sessile, subrotundum, urceolato-ventricosum, ceraceum, basi setis instructum, apice sporangiolum globosum protrudens et rima limbatum; sporangiola papilliformia; sporæ mucosæ.

1. **Thelebolus terrestris** Alb. et Schwein. Carol. p. 71, t. II, f. 4, 130 Fr. Syst. Myc. III, p. 307. — Peridio hemisphaerico, croceo, congesto, subiculo tomentoso dense complexo insidente; sporangiolis subglobosis, primo crusta obtectis, dein emersis aureis.

Hab. ad terram, folia, truncos, muscos emortuos putrescentes in silvis umbrosis in Lusatia, Britannia, Belgio, Germania. — Subiculum flavicans, primo crassiusculum, e filamentis longis firmiusculis dilute flavis arcte intertextum, demum tenuius atque hinc inde oblitteratum, effusum, 5–8 cm. latum, cui catervæ fungorum primo semimmersæ, adultæ nudæ, nec nisi fibrillis sparsis pro annexu instructis. Ceterum *Theleboli stercorei* nimis affinis, sed ultra duplo majus, velo minus fugaci.

2. **Thelebolus stercoreus** Tode Meckl. t. VII, f. 56, Wallr. Fl. Crypt. 137 Germ. n. 3689, Fr. Syst. Myc. III, p. 307. — Peridio subgloboso, croceo, subiculo nullo.

Hab. in fimo vaccino, merda humana etc., passim in Europa et etiam in America. — Gregarius confertus, magnitudine Sinap. albæ seminis, glaber, sed basi pilis solitariis radiantibus adfixus; prima ætate pallidissimus, sensim croceus; papilla decidua peridium in cupulam sensim planiusculam dilatatur.

3. **Thelebolus delicatus** Fries Elench. II, p. 51. — Peridio subgloboso, 138 glabro, hyalino-fuscescente, subiculo tenuissimo araneato-argen-

tato insidente; sporangio globoso, primo sphaerico, astomo, dein ex osculo urceolato constricto globulum minutum mox decedens expellente itaque umbilicato; velo inconspicuo.

Hab. in lignis putridis in Gallia? (Mougeot). — Subiculum tenuissimum, flocculosum, in membranulam delicatissimam determinatam, glabram, argentatam unitum.

4. **Thelebolus? minutissimus** (Schwein.) De Ton. *Sphaerobolus minutissimus* Schwein. North Amer. Fungi n. 2233. — Peridio fere omnino libero, minutissimo, extus nempe cinereo-albo, villosulo-stri-goso, subcylindraco, turbinato, demum sporangiolum globosum subhyalinum, cinerescens, emittente.

Hab. in fibris subsolutis corticis dejecti Castaneorum prope Bethlehem in Pensylvannia Americae borealis. — Exacte *Pezizama dasyscypham* referens, peridium primo omnino clausum at sporangio dejecto, supersunt quasi Pezizulae strigoso-pulverulenta, margine irregulariter fissis nec stellatis.

DACRYOBOLUS Fries Summa Veget. Scand. p. 404 (Etym. a *dacryon* lacrima et *bolus* jactus). — Peridium simplex, molle, ceraceum, globosum, osculo umbilicato sporangioque coronato; sporangiolum gelatinosum, sphaeroideum; sporae minutae ellipsoideae, hyalinae. Species lignicola.

1. **Dacryobolus sudans** (Alb. et Schwein.) Fr. Summ. Veg. Scand. p. 404, *Thelebolus sudans* Fries Elench. II, p. 51, *Hydnum sudans* Alb. et Schw. Carol. p. 272, *Thelebolus lignatilis* Wallr. Fl. Crypt. Germ. n. 3688. — Peridio candido, subgloboso obsolete pubescente; sporangio lutescente; subiculo sericeo.

Hab. ad ligna putrescentia in Lusatia, Thuringia. — Admirabilis fungus. Subiculum plerumque longitudinaliter effusum, sistens maculas 5–8 cm. longas, 2,5 cm. latas, determinatas, candidas, albido-hyalinas, quae e villo delicatissimo in telam sericeam levigatam, matri arcte adpressam, contextae sunt. Huic subiculo imposita sunt peridia admodum regulariter disposita, subconferta, globosa, eumorpha, mollia, vix distincte pubescentia, e quibus mox protruduntur sporangiola rotundata aut conica lutescentia decidua tum sporangiolum urceolatum, poro apertum, intus evacuatum. Globulus gelatinoso-induratus, certe nulla vesicula cinctus! Nudo oculo *Hydnum* refert, fere *H. farinaceum*, at longe distat!

2. **Dacryobolus incarnatus** Quel. 13 Suppl. p. 7, t. VIII, f. 15. — Peridio ovato-globuloso, dein urceolato, ceraceo, carneo, albo-vil-

loso; sporangioło globuloso, deliquescenti, pruinoso, roseo-carneo vel subcoccineo; sporis ovato-sphæroideis, 3 μ . diam., hyalinis.

Hab. ad ramos siccos Quercus, Acaciæ Saintonge (BRUNAUD) et Gironde Galliæ (FORQUIGNON). — Peridium 1 mm. latum, sporangiolum 500 μ . crassum.

SPHÆROBOLUS Tode Meckl. I, pag. 43 (Etym. a *sphæra* et *bolus*, jactus). — Peridium rotundatum, initio clausum, immerso-sessile duplex, utrumque stellatum, interius membranaceum demum elastice inversum sporangiolum projiciens; sporangiolum unicum, subglobosum, solidum, polysporum; sporæ numerosæ, globosæ vel ovatæ.

1. **Sphærobolus stellatus** Tod. Fung. Meckl. I, p. 43, *Lycoperdon* 130
Carpobolus Linn. Fl. Dan. t. 865, *Carpobolus albicans* Willd. Fl. Berol. p. 414, *Carpobolus stellatus* Desm. in Kickx t. II, p. 5, *Sphærobolus impatiens* Boud. in Bisch. Kryptog. f. 3644? — Peridio exteriori subsphæroideo, carnosulo, in lacinias 5-8 æquales, acutas dehiscente flavo-pallescente; peridio interiori tenui, pelliculo, albicante; sporangioło carnoso; sporis ellipsoideo-sphæroideis, hyalinis, levibus, 8-9 $\approx$ 6 μ .

Hab. ad ligna quisquillasque varias nec non in fimo in Germania, Lusitania, Belgio, Britannia, Gallia, Italia, Fennia, Lapponia, in America boreali et Chili Amer. merid. in Algeria Somerset East et Natal Africae, Peradenya in ins. Ceylon, in Tasmania, in tota Fennia et Lapponia. — Gregarius, emergens, primitus villosulus, dein glaber; peridium interius vesiculæ instar mitræformis exterius coronans, tandem secedens. — β . *S. stercorarius* Fries. Syst. Myc. II, p. 310: aggregatus, tomentoso-crustaceus, globosus, osculo irregulari dentato. In fimo hinc inde cum specie. An propria species? Crustæ villosæ quasi insidet, radicibus fibrosis valde repens.

2. **Sphærobolus rubidus** B. et Br. Ceylon Fungi n. 731. — Peridio 13
exteriori rubro; osculo irregulari; sporangioło rubro; sporis oblongis, 7,5 μ . longis.

Hab. in fimo Elephantis in insula Ceylon.

3. **Sphærobolus cyclophorus** (Desm.) Fries Elench. II, II, pag. 52, 13
Carpobolus cyclophorus Desm. in Rec. Trav. Soc. Lille 1823, p. 225, f. 1. — Peridio externo globoso-depresso, fulvo, ultra medium in lacinias lanceolatas fisso, peridio interno albido, medio circum rufum-aurantiaco cincto.

Hab. in cæspitibus emortuis Graminearum emortuarum prope Lille Galliæ borealis et in Belgio. — *S. stellati* circ. duplo major.

A *Sp. stellato* quantum *S. tubulosus* distat; verum ab illa centrali specie in alterum extremum divergit; nempe colore obscuriori, statura paullo majori, forma subdepressa, præcipue vero laciniis peridii exterioris, ultra medium fissi, longioribus et angustioribus peridioque interiori cingulo notabili vivide aurantio-rubro notato. Tincturam rubram, at irregularem, ad basim peridii interioris, etiam in *Sph. stellato* sæpius extat.

4. **Sphærobolus tubulosus** Fries Syst. Myc. II, p. 309. — Solitarius; 139
peridio obovato-cylindrico, albo; osculo irregulari lacero; sporangiolis illis *S. stellati* pallidioribus.

Hab. ad ramos aridos pineos rarissime in Lusatia, in Germania nec non in Pennsylvania Amer. borealis. — Solitarius, ligno ad dimidium immersus, glabrescens, albus, osculo inflexo, demum aperto lacero-fisso. An huc spectat *Sph. Solen* Alb. et Schw. Consp. p. 70?

5. **Sphærobolus epigæus** Berk. et Curt. North Amer. Fungi n. 326. 140
— Major; peridio globoso furfuraceo, e mycelio filiformi oriundo.

Hab. ad terram inter muscos Alabama Amer. bor. (PETERS). — Hoc loco cl. Berkeley observationes sequentes fecit: *Sphaerobolus Corii* Schwein. est *Stictidem radiatam*, *Sphaerobolus sparsus* Schw. refert *Stictidem* quamdam imperfectam et *Sphaerobolus cruceus* Schw. etiam *Stictidem* sistit.

Genera delenda quia entomogena v. heterogena.

POLYANGIUM Link Diss. I, p. 42, Dittm. apud Sturm DC. Fl. III, tab. 27.

Polyangium vitellinum Link. loc. cit.

Hab. ad truncos prostratos in udis fere ubique vulgaris.

ATRACTOBOLUS Tode Meckl. I, p. 45.

Atractobolus ubiquitarius Tode loc. cit. f. 9.

Hab. in variis corporibus post pluvias. — Sec. cl. Berkeley exemplaria Schweinitziana Pezizam sporis linearibus sistunt.

Atractobolus lutescens Schwein. in herb.

Hab. in variis corporibus udis.

Fam. 3. **Lycoperdaceæ**

auctore Doct. J. B. DE TONI, Scholæ Botanicæ Patavinæ adjutore.

Lycoperdaceæ

Ehrenb. Sylv. Berol. (1818), p. 14 em. Fr. Summa Veg. Scand. II, p. 439.

Fungi epigæi, raro hypogæi, sæpius globosi vel piriformes, sessiles vel stipitati; peridium membranaceo-coriaceum, plerumque varie dehiscens vel osculo pertusum; gleba floccosa, pulverulenta; sporæ sphaeroideæ, leves vel verrucosæ, hyalinae vel varie coloratæ.

Conspectus Subfamiliarum

Podaxineæ. Peridium verticaliter a columella vel stipitis continuatione transversatum; capillitium nullum vel copiosum.

Diplodermeæ. Peridium plus minus tenue e membranis duabus distinctis, exteriorē fugaci vel persistenti efformatum; gleba floccoso-pulverulenta; capillitium parum compactum, rarius nullum.

Lycoperdeæ. Peridium tenue, sessile vel stipulatum cortice adherenti prædito vel destituto; gleba cellulis laud excavata; capillitium floccosum.

Sclerodermeæ. Peridium crassum, coriaceum, sessile vel stipitatum; gleba cellulis excavata, sporangia continentibus vel illis carentibus.

Subfam. 1. Podaxineæ Fr.

A) Capillitium nullum vel parvum; gleba septis membranaceis sive liberis et tunc lamelliformibus sive anastomosantibus prædita (Secotieæ Tul.).

† Septa lamelliformia, numquam anastomosantia.

Gyrophragmion. Capillitium nullum; peridium turbinatum, dein medio circulariter transverseque ruptum.

†† Septa anastomosantia cellulasque efformantia.

a) Capillitium nullum.

Secotium. Stipes centralis, evolatus.

b) Capillitium filamentosum.

Polyptocium. Stipes tunica volvacea instructus.

B) Capillitium copiosum, filamentosum vel floccosum, columellæ adnatum; gleba septis cellulisque destituta (Podaxeæ Tul.).

† Columella apicem peridii non attingens, libera; capillitium filamentosum; peridium subsessile.

Cycloderma. Epigæum; sporæ sphaericæ.

Mesophellia. Hypogæum; sporæ oblongo-subfusiformes.

†† Columella apicem peridii attingens; capillitium plerumque floccosum; peridium stipitatum.

Cauloglossum. Peridium lateraliter lacerato-dehiscens; columella floccosa.

Podaxon. Peridium circa insertionem stipitis apertum; columella rigida.

Sphericeps. Peridium peripherice medio orbiculatim dehiscens.

Subfam. 2. *Diplodermeæ* Fr.

A) Peridium stipitatum, simplex vel duplex, plerumque osculo angusto distincto, regulari apertum (*Tylostomeæ* Forq.).

† Peridium unicum persistens.

Tylostoma. Peridium stipiti adnatum; osculum distinctum regulare vel laceratione peridii efformatum.

Queletia. Peridium facile a stipite separabile; osculum nullum.

†† Duo peridia persistentia.

§ Endoperidium convexum, stipitatum, sporis superiori pagina conspersum.

Battarrea. Exoperidium volvaceum, stipitis basim circumdans.

§§ Endoperidium osculo instructum, intus sporas continens.

Husseyia. Capillitium copiosum; endoperidium osculo plicato-sulcato instructum.

Mitremyces. Capillitium nullum vel ægre visibile; endoperidium in exoperidii cavitatem libere suspensum, osculo squamis plerumque læte coloratis instructum.

B) Exoperidium sessile, plerumque stellatim laciniatum 1 vel plura endoperidia continens (*Geastrideæ* Forq.).

† Endoperidium unicum.

§ Endoperidium intus sporas fovens.

Geaster. Exoperidium stellatim fissum; endoperidium sæpissime osculo regulari præditum, rarius irregulariter dehiscens.

Diploecystis. Exoperidium cupuliforme, circulariter apertum; endoperidium osculo ciliato minuto præditum.

? *Diploderma*. Exoperidium clausum; sporæ leves.

§§ Endoperidium extus (ut in *Battarrea*) sporis conspersum.

Trichaster. Peridium utrinque stellatim dehiscens; stipes nullus.

†† Plura endoperidia.

Broomeia. Capillitium laxum, parietibus endoperidii undique adnatum. Mycelium crustam crassam, siccam efformans.

Coilomyces. Capillitium intus regulariter cavum; mycelium tenue.

Subfam. 3. *Lycoperdeæ* Fr.

A) Basis endoperidii sterilis nulla vel obsoleta.

† Peridium sessile vel subsessile.

§ Capillitium in pilam elasticam, compactam, fere lanceam a peridio discretam densissime intertextum.

Lanopila. Peridium persistens.

Eriosphæra. Peridium haud persistens, immo caducissimum.

§§ Capillitium in pilam elasticam, compactam a peridio discretam haud densissime intertextum.

Bovista. Peridium persistens, plerumque leve; sporæ ut plurimum longe pedicellatæ.

†† Peridium stipitatum.

Calvatia. Exoperidium superne secus plicas undulatas dehiscens.

B) Basis endoperidii sterilis distincta.

Lycoperdon. Peridium plerumque obovatum v. piriforme, extusque aculeolatum aut verrucosum; sporæ ut plurimum caudatæ.

Subfam. 4. Sclerodermeæ Fr.

A) Gleba cellulosa vel cavernosa, dein pulverulenta, sporangiola haud continens (Sclerangiae Forq.).

† Peridium sessile vel subsessile, clausum aut irregulariter dehiscens, rarius stellatim fissum.

Hippoperdon. Peridium numquam sponte dehiscens; sporæ globosæ.

Scleroderma. Peridium stellatim aut irregulariter fissum; sporæ globosæ.

? *Castoreum*. Peridium persistens; sporæ fusiformes.

†† Peridium stipitatum, in lobos plures vel per fissuras reticulatim dehiscens.

Xyloporium. Peridium multilobatum; stipes fibroso-lignosus; sporæ leves vel echinatæ.

Areolaria. Peridium reticulatim dehiscens; stipes solidus, firmus; sporæ verrucosæ.

Phellorina. Peridium irregulare cortice suberoso dein omnino elabente tectum; stipes cavus.

Favillea. Peridium clavatum, ecorticatum, superne fatiscens totumque disparrens, sporas numerosas, coacervatas denudans; stipes solidus.

B) Gleba cellulosa, sporangiola numerosa includens (Polygastreæ Forq.).

† Sporangiola gelatinosa, viscosa.

Polygaster. Peridium duplex, apice dehiscens, basi stipitiformi sterilique destitutum, intus celluloso-carnosum.

Polysaccum. Peridium simplex, diffracto-lacerum, basi stipitiformi sterilique instructum, intus primo mucoso-cellulosum.

? *Testicularia*. Peridium simplex, sponte haud dehiscens, sessile; sporangiola minuta, superficie sporis conspersa.

†† Sporangiola membranacea, haud gelatinosa.

Arachnion. Peridium duplex, suberosum; sporangiola rotundata.

Scoleciocarpus. Peridium simplex (?), tenue, membranaceum; sporangiola cylindracea, gyrosa.

? *Paurocotylis*. Peridium simplex, tenue, durum; sporangiola magna, flexuosa.

Genera minus nota vel quoad locum dubia.

Cilicicarpus Corda. — *Lycogalopsis* Fisch. — *Glischroderma* Fuck. — *Emericella* Berk.

Subfam. I. Podaxineæ Fr.

Peridium verticaliter a columella vel stipitis continuatione percursum; capillitium nullum vel abundans; gleba septis instructa vel destituta.

GYROPHRAGMIUM Mont. Flor. d'Algérie I, p. 368 (Etym. a *gyros* curvatus et *phragma* septum). *Catachyon* Ehrenb. — Receptaculum stipitatum. Peridium primo turbinatum, dein medio orbiculatum ruptum, superne pileiforme cum stipite centrali ad apicem usque producto, volva ampla (quæ nihil aliud præter partem peridii inferiorem) instructo continuum. Capillitium in dissepimenta contextum lamelliformia, subparallela, e peridii toto hemisphærio descendia, a stipite distantia, in plano ramosa (non autem anastomosantia), sinuosa, plicato-crispata adeoque densata ut sibi coherere videantur, primo lenta olivacea, tandem exarescentia, nigra, fragilissima, subtus libera, labyrinthiformia. Flocci liberi nulli. Sporæ sphæricæ, pedicellatæ, dissepimentis affixæ brunneolæ. Contextus peridii stipitisque fibrosus, in dissepimenta continuatus.

Fungi arescentes, persistentes, habitu Agarico vel Boletio similes, specie volvati aut annulati, stipitati, in arenosis maritimis obvii.

1. **Gyrophragmium Delilei** Mont. Fl. Alg. I, p. 369, t. 21, f. 2, *Montagnea Delilei* Fries, in litt. *Montagnites Dunalii* Fries Epier. I, pag. 240, *Agaricus ocreatus* Delil. mscr. Fr. Epier. pag. 241, Sorok. Mat. Fl. As. p. 43, t. V, f. 63-64. — Peridio pileiformi, hemisphærico, lurido-fuscescenti, subtus lamellato-cancellato, lamellis in plano ramosis atris peridio continuis tandem a stipite distantibus; sporis globosis, fuscis, sterigmate instructis, 5 μ . diam., levibus.

Hab. in arenosis maritimis Gallie, ad Montpellier (DELILE, DUNAL) Algeriæ, Oran, Bonæ, Mostaganem, Alger (DURIEU) et in Asia (SOROKIN). — Peridium 2-3 cm. altum; stipes suberoso-lignosus, initio brevissimus, 1,5 cm. longus, demum longissimus 20 cm. longus, squamis plerumque vestitus. Cfr. *Montagnites* Fr. in Sacc. Syll. Hymen. I, p. 1140.

SECOTIUM Kunze in Flora 1840, p. 321 (Etym. a *secotos* cellulosus), *Endoptychum* Czern. in Bull. Mosc. 1845, p. 146, *Artymenium* Berk. in litt. — Peridium stipitatum, primo ubique clausum, dein

irregulariter margine inferiori in lacinias eruptum; stipes centralis distinctus, non cellulosus evolvatus, usque ad peridii apicem excurrent; volva demum oblitterata; gleba celluloso-spongiosa, in locula septis membranaceis sinuosis, anastomosantibus divisa; capillitium nullum; sporæ plerumque ovatæ, coloratæ, sterigmatibus fultæ, basidiis clavatis, obovatis aut cylindricis 2-4-sporis; cystidiis oblongis. Fungi habitum Boleti referentes.

1. **Secotium Guinzii** Kunze in Flora 1840, pag. 322, Berk. On two 142
Hym. Fungi p. 2, t. V, Corda Icon. F. VI, t. VI, f. 10-18. — Peridio subhemisphærico vel ovato, inæquali, volva permanenti induto glabro, albo, sicco areolato; stipite inferne obeso, molli, elastico, filamentis subflaccidis constituto; volva universali, basim stipitis et peridium induente, glabra, alba, inferne tandem evanida: sporis limoniformibus, 7 μ . diam., nucleatis apiculatis, flavo-brunneis; basidiis tetrasporis; sterigmatibus longis, acutis.

Hab. in arenosis prom. Bonæ Spei (GUEINZIUS) et in Uitenhage Africæ australis (ZEIHER). — Peridium 5-7 cm. latum; stipes 6-7 cm. longus, sursum 1-1,5 cm. crassus.

2. **Secotium Szabolcsense** Haszl. Gasterom. Hung. p. 11, in Verh. 143
zool. bot. Ges. zu Wien. 1876. — Ovatum, circiter 7,5 cm. altum, leve, glabrum, griseo-albidum; gleba matura castanei coloris; peridio prope basim axis dehiscente et verticaliter in lobos 10-12 rubro, vertice fixo manente; sporis ovatis in cellis cubicis nidulantibus cum stipitello verruciformi deciduis, fuscidulis, 8-12 μ . longis.

Hab. in pratis uliginosis pr. Minussinsk Sibiricæ et in Hungaria. — In specimine sibirico superficies exsiccatione leviter colliculosa apparet.

3. **Secotium Warnei** Peck in Bull. Torr. Club. 1882, n. 1, p. 2. — 144
Peridio subgloboso, ovato vel oblongo, squamoso, albo, griseo aut brunneo, sessili vel breviter stipitato, maturitate basi in 4-6 lacinias longitudinaliter erupto; gleba primo albida, dein flavida, demum olivaceo-brunnea; sporis subglobosis vel late ovato-ellipticis 6-10 μ . longis, coloratis.

Hab. in campis et pascuis Illinois (WARNE), Wisconsin (BUNDY), Iowa (BESSEY), Nova Scotia (Mc KAY), Pennsylvania (BARNETT). — Peridium 2,5-10 cm. altum, 2,5-7 cm. latum. *Secotio Szabolcsensi* Haszl. affinis species (Peck).

4. **Secotium Basserianum** Mont. Flor. Alg. I, p. 373, t. 22 bis, f. 5, 145
Syll. Crypt. n. 1013. — Cespitosum; peridio pulviniformi, levi, alutaceo, basi reflexa stipiti crasso æquali affixo, tandem solubili, la-

cunis gyrosis, brevibus, primitus a stipite liberis, septis crassis; sporis luteo-virentibus.

Hab. ad terram nivosam in castris excelsis prope Tiaret Algeriæ (BASSERRE). — Peridium subgloboso-depressum, rigidum, 1-2 cm. latum; stipes 1-1,5 cm. longus, medio 1 cm. crassus, solidus, fibrosus, peridio concolor.

5. **Secotium acuminatum** Mont. Fl. Alg. I, p. 371, t. 22 bis, f. 4, 146
Sorok. Mat. Fl. As. p. 42, t. IV, f. 49-52. — Solitarium; peridio ovoideo, alutaceo ochraceove, vertice acuminato, epidermide in squamas secedente, basi plicato-repanda stipiti brevi turbinato affixo, tandem soluto; lacunis gyrosis transversim seriatis, septis tenuibus; sporis sphaericis, levibus, luteo-olivaceis.

Hab. ad terram nivosam in castris excelsis, prope Tiaret Algeriæ (BASSERRE) nec non in Rossia (CZERNAJEW) et in Asia (SOROKIN). — Peridium coriaceo-membranaceum, 3-6 cm. altum, 2-3 cm. latum; stipes initio suberosus, solidus, exoletus vero lentus flaccidusque 4-7 cm. longus basi incrassato-bulbosus, sursum attenuatus. Huc spectat sec. Montagne et Sorokin *Endoptychum agaricoides* Czern.

6. **Secotium Thunii** Schulz. Beitr. zur Mykol. p. 14, t. XVI, f. 5. — 147
Peridio plerumque conico, rarius subgloboso, volva coriacea primo albida dein e virescente brunneo, mox basim versus laciniata induto primo albo, dein flavo-brunneo; stipite columella curvo, brevi, irregulariter incrassato, peridii apicem attingenti, flexuosa, a basi bulbosa sensim attenuata; sporis ovato-globosis, apiculatis, 1-guttulatis, levibus, 6 μ . circ. diam., ochraceo-brunneis.

Hab. ad terram in Slavonia. — Peridium 4-6 cm. altum, 3-3,5 cm. latum; stipes 1-2 cm. longus, 1-1,5 cm. crassus.

7. **Secotium texense** B. et C. North Amer. Fungi n. 327. — Sti- 148
pite ventricosus, floccosus, subinde fulvus; peridio ovato, cinereo, basi membranaceo; hymenio atro; sporis globosis 5 μ . diam., levibus, minimis.

Hab. ad terram Western Texas Americæ borealis (POPE). — Stipes circiter 7,5 cm. altus, medio inflatus, 18 mm. crassus, sursum attenuatus; peridium 3 cm. latum altumque, appendiculatum.

8. **Secotium nubigenum** Harkn. in Bull. Calif. Acad. of Sciences 1886, 149
p. 257. — Peridio flavescenti, glabro, irregulariter depresso-globoso sæpius sessili, plus minus siccitate collabascēte; gleba flavido-brunnea; stipite albo, brevissimo, demum flavescenti; sporis ovatis, levibus 8-6, flavido-brunneis.

Hab. ad truncos Pini contortæ, Sierra Nevada Californiæ. — Peridium 2.5 cm. et ultra latum.

9. **Secotium coarctatum** Berk. in Hook. Journ. Bot. 1845, p. 63, t. I, f. 3, Corda Icon. VI, t. VI, f. 25-30. — Minutum, olidum; peridio obovato, umbilicato, margine acuto, coarctato, velo marginali lacerato, appendiculato; stipite gracile cylindraceo levi, glabro, integro hymenium percurrente; sporis minutis 6 μ . longis obovatis, nucleatis, ochraceis, dein cinereis, apiculatis.

Hab. ad terram prope Swan River Australiæ. — Peridium 12-20 mm. latum, 12 mm. altum; stipes 2 cm. altus, vix 2 mm. cr.

10. **Secotium melanosporum** Berk. in Hook. Journ. Bot. 1845, p. 62, t. I, f. 2, Corda Icon. VI, t. VI, f. 19-24. — Peridio irregulari, subgloboso, umbilicato, primitus infra furfuraceo, superne glabro, velo appendiculato, marginali; stipite elongato, subæquali, solido; hymenio stipite percurso; sporis minutis 9 μ . longis ovoideis, stipitellatis, brunneo-nigris.

Hab. ad terram in Australia occidentali. — Peridium 5-7,5 cm. et ultra latum; stipes 5-6,5 cm. longus, 8-12 mm. crassus.

11. **Secotium erythrocephalum** Tul. in Ann. Scienc. Nat. 1844, p. 115. — Gregarium, longiuscule stipitatum stipite tereti, glabro, nudo, candido, anguste fistuloso; peridio innato, simplici, levi, glabro, coccineo; loculis inæqualibus majusculis, septis tenuibus, individuis, distinctis, vacuis, floccis plane destitutis, parietibus basidiis 2-4-sporis effectis; sporis ellipticis, levibus, brunneis, sterigmatibus longiusculis suffultis.

Hab. ad terram in herbosis in Nova Zelandia, Panninsula Banksiana, Waitaki Dunedin, Maungaroa, Wellington nec non in Tasmania.

12. **Secotium olbium** Tul. in Ann. Scienc. Nat. 1845, p. 172, t. IX, f. 1-4. — Perpusillum; peridio sphaerico vel subumbilicato, squamuloso-furfuraceo, ex albido brunnescente, margine crassiore; stipite cylindrico, levi, farto, albo; cellulis gyrosis, angustis, paucis, subfartis; sporis sphaericis, rugulosis, acrogenis, 13-18 μ . d., e cinereo-virente subhyalinis, sterigmate minuto instructis.

Hab. subsolitarium sub foliis deciduis Quercus Suberis fere hypogæum in declivibus apricis prope Olbiam Gallo-provinciæ et pr. Firenze Italiæ. — Fungillus volva destitutus, evolutus turbinatus, 4-6 mm. altus; gleba carnosula primo alba, dein ex toto cinereo-virescens, septis ægre solubilibus, crassis, minutis, pellucidis instructa.

13. **Secotium Malinvernianum** Ces. in. N. Giorn. Bot. Ital. 1869, p. 136. 154

— Mediocre, sordide albidum; peridio obverse piriformi, ovali vel curvo, asymmetrico, obtuso aut apiculato, glabrato; stipite levi, tenui, brevissimo; lamellis interioribus gyrosis, stipatis; sporis sphaeroideis, minutis, levibus, lutescentibus.

Hab. ad terram in Italia.

14. **Secotium excavatum** in Forq. Champ. Super. p. 148. — Peridio subreniformi, volva permanenti molliter aculeolata et tantum partem stipitis superioris obvolvante induto, stipite parum incurvo ex toto cavo, inferne incrassato; sporis obovatis levibus. 155

Hab. locus desideratur. — Peridium 4,5 cm. latum; stipes 6-7 cm. longus, 5-10 mm. crassus. «An spec. cujusdam icon?».

Species tantum nomine nota.

15. **Secotium Gunnii** Berk. in Herb. 156

Hab. Sulphur springs, Tasmania.

POLYPLOCIUM Berk. On two Hym. Fungi p. 3 (Etym. a *poly* plus et *plocos* cirrhus). — Peridium subtus liberum gyroso-cellulosum, demum in processus grossos aculeiformes fatiscens; cellularum parietibus ab hymenophoro nascentibus tandem discretis; volva universalis ampla persistens; stipes distinctus non cellulosus fibris flaccidis compositus cum peridio confluentis; sporæ minutæ, ovatæ, nigrae, floccis tenuibus, pellucidis, parce ramosis immixtæ; basidia polyspora. — Fungi boletiformes, terrestres, foedissime inquinantes. Propter capillitii præsentiam ad *Podaxeas* transeunt.

1. **Polyplocium inquinans** Berk. On two Hymenomyc. Fungi p. 3, t. VI, VII, Corda Icon. VI, t. VI, f. 1-9. — Peridio hemisphaerico, glabro, siccitate areolato, stipite inferne gibboso, sursum attenuato, molli, elastico, e fibris compactis flaccidis fasciculatis composito; volva glabra, demum irregulariter rupta, cupuliformi, alba; cellulis plus minus verticaliter dispositis; sporis ovatis 1-2-guttulatis, 4 μ . diam., rufo-fuscis. 157

Hab. ad ripas fluvii Orange river dicti in Africa austr. (BURKE et ZEYHER). — Peridium 12-13 cm. latum; stipes 6,5 cm. ad voluminem crassus, ad peridium 2,5 cm. circ. crassus, totus 15 cm. longus; volva 7,5 cm. lata. Sec. Corda sporæ 6-8 μ . diam.

2. **Polyplocium californicum** Harkness Fung. Pac. coast. p. 159. — Peridiis griseis, mox ruptis, a stipite gracili, elongato 10-20 cm. longo, 1-1½ cm. crasso distincte separatis; peridio plano vel de- 158

presso, 2-4 cm. lato; hymenio rubiginoso-atro, mox pulveraceo; sporis obscure rufo-brunneis, globulosis, 6-8 μ . diam.

Hab. in arenosis S. Francisco Californiæ. — A *Polyplocio inquinante* Berk. præcipue statura minori, stipite graciliori differt.

CYCLODERMA Klotzsch in Linnæa VII, p. 203 (Ety. a *cyclos* circulus et *derma* cutis). — Peridium duplex, exterius coriaceum, molle, interius discretum papyraceum tenuissimum; columella scyphiformis, centro peridii interioris adnata; capillitium radiatum, columellam et peridium interius jungens; sporis minutis, nudis inspersum. — Fungi radiculosi, stipite nullo.

1. **Cycloderma indicum** Klotzsch in Linnæa 1832, p. 203, t. IX, f. B. 159
— Impresse globosum; exoperidio coriaceo molli, squamoso areolato, ochraceo; columella scyphiphormi, spongiosa, alba; capillitio radiato, æquali, ferrugineo-olivaceo; sporis minutis, globosis, coloribus.

Hab. ad terram in India occidentali. — Nucleis juglandis magnitudine, medio impressum, habitu externo *Sclerodermati vulgari* subsimile, radice spongiosa instructum.

2. **Cycloderma Weddellii** Mont. in Ann. des Sc. Nat. 1856, p. 373. 160
— Subternatum; peridio exteriori subgloboso, pallido, verrucoso, basi in stipitem attenuato, irregulariter apice rupto, interiori papyraceo, separabili, fusco, fragili, glebæ maturæ filamentis in lamellulas a columella centrali peripheriam versus radiantes constipatas contextis atris; sporis sphaericis, levibus, fuliginosis, sessilibus.

Hab. ad terram in Brasilia. A *Cyclodermate indico* Klotzsch peridio subternato, columella sphaerica coloreque lamellarum atro distinctum.

3. **Cycloderma ohiense** Cooke et Morg. in Grevillea XI, p. 95. — Sub- 161
globosum, album, leve; peridio glabro, coriaceo, superne umbonato, inferne radicoso-fibroso; columella subcylindrica, æquali, capillitioque radiante alba; sporis globosis, minutissimis, hyalinis.

Hab. ad terram Ohio Americæ borealis. — Circiter 2,5 cm. d.

MESOPHELLIA Berk. Fl. Tasm. p. 266 (Ety. a *mesos* medius et *phellos* suber). *Inoderma* Berk. Austr. Fungi p. 386, poster. non Kütz. — Peridium crassum, coriaceum, suberosum v. fragile, fibris repentibus ramosis omnino percursum; capillitium fasciculato-anastomosans ad columellam centalem suberosam radians; flocci fle-

xuosi; sporæ breviter fusiformes, leves, hyalinae, floccis immixtæ. Genus *Cyclodermati* Klotzsch affine.

1. **Mesophellia arenaria** Berk. in Linn. Trans. XXII, p. 131, t. 25 C, 162
Inoderma arenarium Berk. Austral. Fungi n. 285. — Peridio crasso elliptico, sæpius depresso, extus floccis albidis obsito; floccis rubro-griseis, radiantibus suberoso; sporis fusoideis, utrinque obtusiusculis, 10-11 μ . longis, fuscidulis.

Hab. in terra sabulosa in Tasmania et Nova Hollandia. — Fungus hypogæus, 5 cm. circ. latus.

2. **Mesophellia ingratissima** (Berk.) De Ton. *Inoderma ingratissimum* Berk. Austral. Fungi n. 286. — Olidum; peridio crustaceo, fragilissimo, subgloboso; floccis tenuibus, fuscidulis; sporis breviter fusiformibus, utrinque apiculatis, 10-12 μ . diam., fuscidulis.

Hab. prope fl. Goulbourn et Victoria Australiae. — Fungus circ. 2,5 cm. latus, odore ingratissimo donatus.

3. **Mesophellia Scleroderma** Cooke in Grevillea XIV, p. 11. — Peridio duro, suberoso, ochraceo, globoso-depresso, extus ad apicem in areolas rhomboideas fissurato, intus olivaceo, centro vacuo; sporis ellipticis, subhyalinis, 10 $\approx$ 4; capillitio obsoleto.

Hab. ad terram in Nova Zelandia (READER). — Peridium 3,5-5 cm. latum.

CAULOGLOSSUM Grev. in Fr. Syst. Myc. III, p. 60 (Ety. *caulos* caulis et *glossa* lingua), *Herculea* Fr. mscr. — Peridium simplex, clavatum, radicans, cum stipite contiguum, dein ad latera lacerato-dehiscens, columella floccosa percursum; sporæ globosæ, coloratæ.

1. **Cauloglossum elatum** Fr. Syst. Myc. III, p. 61, *Clavaria pistillaris* Lour. Coch. p. 696? — Peridio stricto, elongato- et anguste clavæformi dimidia inferiori parte in stipitem teretem subæqualem aut basi leviter incrassatum, leviusculum, glabrum, albidum abeunte; columella stipite crassiori cylindrica, totum fere peridium implente, centro solidiori, ambitu floccoso; sporis globosis, haud conglobatis, denso strato columellam obtegentibus, luteis.

Hab. ad terram in India orientali (KÖNIG). — Stipes 8,5 mm. crassus. Peridii maxima pars discessit, persistentibus tantum basi et apice squamulis, epidermidi stipitis similibus, unde fugacius in hac magis evoluta specie, quam in sequente.

2. **Cauloglossum transversarium** (Bosc) Fr. Syst. Myc. III, pag. 61, 166
Lycoperdon transversarium Bosc in Berl. Mag. V, p. 87, l. 6, f. 9, *Cionium carolinense* Spreng. Syst. Veg. IV, pag. 529. —

Priori minus; stipite parum distincto, basi fibrilloso, peridio magis dilatato ovato-oblongo duplo triplove breviori; peridio magis persistente, non rupto; columella conica, totum peridium percurrenti floccosa; sporis inspersis ut in Lycoperdis.

Hab. in silvis sabulosis in Carolina australi Mexico et Florida Americæ borealis. — Fungus 5-7,5 cm. tantum altus.

3. **Cauloglossum ægyptiacum** (Mont.) Corda Icones Fung. VI, p. 18, 167 t. III, f. 44, *Podaxon ægyptiacus* Mont. Syll. Crypt. n. 1044. — Stipite fuscescente, isabellino, fibroso, torto, lignoso; peridio oblongo ochraceo; gleba ferrugineo-rubra; volva stipite concolori basim hujus circumdante; sporis fusco-purpurascensibus, citriformibus, 12 μ . diam., levibus.

Hab. in arena mobili deserti Gazam inter et Suez Africæ borealis (Bové). — Peridium plerumque 4 cm. altum, 2 cm. latum; stipes 6-7 cm. longus, 5-8 mm. crassus.

PODAXON (Desv.) Fries Syst. Myc. III, p. 62 (Etym. *pous* pes et *axon*, axis), *Podaxis* Desv. — Peridium discretum, subclavatum, radicans basi a stipite dehiscens, percursum columella demum denudata; sporæ conglomeratæ (an omnes?) coloratæ floccis columellæ adfixis intertextæ.

1. **Podaxon carcinomalis** (Linn.) Fr. Syst. Myc. III, p. 62, *Lycoperdon carcinomale* Linn. fil. Suppl. pag. 453. — Peridio ovato-oblongo, albido, basi irregulariter dehiscente; stipite cylindrico, levi, crasso, curvato, basi lacero-dehiscente; sporis fusco-nigris.

Hab. ad caput Bonæ Spei in acervis formicarum, in California, Rio grande, New Mexico nec non Queensland Australia. — Peridium 5-7,5 cm. longum, 2,5 cm. crassum. Ad ulcera cancerenosa sananda adhibetur.

2. **Podaxon loandensis** Welw. et Curr. Fungi Angolenses pag. 288, 169 t. XX, f. 5-7. — Peridio obovato, elliptico, membranaceo, albido, ruguloso, apice obtusiusculo; stipite duro, lignoso, fibroso, torto, intus ex aurantiaco-flavo, subtiliter fibrilloso, siccitate fusco, basi bulboso, capillitio primum albido, quasi molliter caseoso, subcarnosulo, dein floccoso-flavo, demum ex tabacino nigrescente; sporis subpellucidis, globosis, ellipticis vel subturbinatis, 10 $\approx$ 15 μ . longis, primo flavis, dein fuscis.

Hab. frequentissime in pascuis arenosis pr. Penedo agri Loan-densis juxta oceani littus Angolense Africæ nec non in California

Americæ borealis (HARKNESS). — Peridium 4-6,5 cm. longum, stipes 20 cm. circ. altum.

3. **Podaxon calyptratus** Fr. Syst. Myc. III, p. 63, *Lycoperdon aratum* Bosc in Ann. Soc. d'Hist. Nat. I, p. 47, t. 11, *Cionium senegalense* Spreng. Syst. Veg. IV, p. 529. — Radice tuberosa, oblonga, deorsum prolongata; stipite fistuloso, substantia fere lignea, e fibris obliquo-contortis; peridio ovato, columella a stipite percurso, maturo in plures lacinias fisso, in apice squamis superficialibus calyptræ exterioris residuis instructo; sporis subolivaceis.

Hab. ad terram Senegal et Punjab (AITCHESON). — Peridium 10 cm. longum.

4. **Podaxon pistillaris** (Linn.) Fr. Syst. Myc. III, p. 63, *Lyc. pistillare* Linn. Mant. p. 313, *Mitremyces indicus* Spreng. Syst. Veg. IV, pag. 518. — Stipite fibris striato, plerumque longitudinaliter torto; peridio clavato, ovato-oblongo, stipite quadruplo crassiori, duplo longiori, membrana crocea vestito, floccis curvatis, flexilibus collabentibus ferrugineis; sporis globosis, concoloribus dein vinosis.

Hab. ad terram in India orientali et Victoria Australiæ, in acervis Formicarum Africæ australis. — Fungus circ. 2 cm. altus.

5. **Podaxon mossamedensis** Welw. et Curr. Fungi Angolenses p. 288, t. XIX, f. 4-6. — Peridio conico vel oblongo, siccitate flavescente aut nigro fusco et longitudinaliter rugoso; stipite æquali v. apicem versus attenuato, hic illic rubro tincto firmo lignoso, basi bulboso; capillitio fusco, sporis aliquanto pallidiori, non spiraliter lineato; sporis numerosissimis globosis vel subturbatis, tunc pedicello minutissimo aliquando ornatis, 10 μ . diam., nigro-fuscis.

Hab. sporadice in dumetis arenosis ad ripas fl. Majombo pr. Mossamedes Africæ. — Fungus 12-22 cm. altus; peridium 5-10 cm. longum, 3-5,5 cm. latum.

6. **Podaxon elatus** Welw. et Curr. Fungi Angolenses p. 288, t. XIX, f. 4-6. — Peridio elongato-ovato, apice rotundato vel acuminato, vegeto albido, siccitate fusco; stipite lignoso, durissimo, æquali, basi curvato, e mycelio arachnoideo, cartilagineo subaurantiaco emergente; capillitio flavo vel subolivaceo, membrana lineis spiralibus confertis, obscure signata fracturamque spiralem exhibente; sporis ellipticis, sæpissime uno extremo truncatis, 10 μ . longis, flavis, dein fuscis.

Hab. sparsissime in silvis arenosis mixtis inter Lopollo et Mo-niuo in Angola Africæ. — Totus fungus 15-31 cm. altus; peridium 7,5-20 cm. longum; stipes 12-20 mm. latus.

SPHÆRICEPS Welw. et Curr. Fungi Angolenses pag. 290 (Etym. a *sphæra* et *ceps* pro caput). — Peridium album, leve, sphæricum, peripherice et transverse, ut videtur, circumscisso-dehiscens, nec vertice apertum; stipes cylindraceus, dure fibrosus, firmus ex albido badius, centralis, ubique æqualiter faretus, quidquam longitudinaliter striatus; capillitium partim filiforme, partim membranaceo-expansum, elateribus intermixtis; sporæ numerosæ, globulosæ, ferrugineæ.

1. **Sphæriceps lignipes** Welw. et Curr. Fungi Angol. p. 290, t. XVIII, 174 f. 1-2. — Characteres generis; peridio 9 cm. lato; stipite 25-30 cm. longo, circ. 2 cm. crasso; sporis 5 μ . diam.

Hab. in dumetis arenosis præcipue e Tamarice articulata conflatis ad ripas flum. Caroca pr. Cabo Negro in Angola Africae.

Subfam. 2. Diplodermeæ Fr.

Peridium simplex vel duplex, stipitatum vel sessile; gleba floccoso-pulverulenta; capillitium parum compactum, rarius nullum.

TYLOSTOMA Pers. Synops. Fung. p. 139 (Etym. *tylos* cartilago et *stoma* os), *Tulasnodea* Fr. — Peridium stipitatum, duplex, externum primum carnosum, dein secedens, internum dein papyraceum vel coriaceum, persistens et tandem vertice osculo circinato-figurato pertusum, rarius osculo distincto carens et irregulariter dehiscens; stipes longus, carnosus-fibrosus, dein fistulosus; gleba primum carnosus, dein pulverulenta, colorata; capillitium ramoso-fibrosus, continuum v. hinc inde articulado-septatum; sporæ globosæ, sparsæ vel coacervatæ, plerumque asperulæ, coloratæ.

Sect. 1. Eutylostoma.

Osculum rotundatum, regulare, subcartilagineum.

1. **Tylostoma mammosum** (Mich.) Fr. Syst. Myc. III, p. 42, *Tylostoma mammosum* Lév. Champ. Mus. Paris p. 165, Corda Icon. VI, t. III, f. 39, *Lyc. mammosum* Mich. gen. v. 217, n. 10, *L. pedunculatum* Linn. Suec. n. 1276, *Tulost. brumale* Pers. Syn. p. 139. — Stipite fistuloso, subinde (filo centrali in stipitis cavitare), æquali, recto, haud sulcato, squamulis secedentibus plus minus tecto, numquam vero ita, ut ad basim fibrosam volvulam formet, exoleto lignescenti, prorsus glabro; peridio globoso, cortice pulveraceo, secedente, rigescente, albicante, osculo minuto mammoso,

prominente subcartilagineo haud fimbriato; sporis ferrugineis, globosis, 4-5 μ . diam.

Hab. in campis præcipue arenosis, ad terram inter muscos in Italia, Belgio, Germania, Rossia, Gallia, Suecia, Hispania et Lusitania, Britannia, pr. Minussinsk Sibiriae, in America boreali et pr. Rockhampton Australiae. — Peridium 7-10 mm. latum; stipes 3-10 cm. altus, 2 mm. raro 4 mm. crassus. — Var. **squamosum** (Gmel.) Fries loc. cit. *Tylostoma squamosum* Pers. Syn. p. 139, Mich. t. 97, f. 7, *Lycoperdon palmatum* Batsch. *Lycoperdon squamosum* Gmel.: stipite imbricato-squamoso. In Europa, prope Minussinsk Sibiriae, nec non pr. M. Boschberg Africae australis (Mac Owan).

2. **Tylostoma volvulatum** Borsch. in Sorokin Mat. As. t. V, fig. 58- 176
59. — Peridio amplo, ad stipitis insertionem subdepresso, glabro, levi, ore valde prominulo integerrimo; stipite medio ventricoso, cavo, lignescente, cortice in squamas latas pulverulentas, annulatum dispositas et ad basim stipitis volvulam laceratam efformantes soluto; sporis subochraceis.

Hab. in arenosis deserti Kara-Kum Asiae. — Ob osculum prominulum integerrimum *T. mammoso* affine, at stipes potius *T. fimbriati*. Peridium 2 cm. latum; stipes 8-9 cm. longus, usque ad 1 cm. crassus.

3. **Tylostoma leprosum** Kalchbr. in Grevillea IV, p. 72. — Habitus 177
prorsus *Tylostomatis mammosi*; peridio furfure luride umbrino, demum secedente obducto; sporis minutis, vix echinulatis cum capillitis carneo rufescentibus.

Hab. in terra locis apricis Gracemere et Queensland.

4. **Tylostoma Boissieri** Kalchbr. in Revue Myc. Tab. XV, f. 2. — Pe- 178
ridio globoso-depresso, nucis Avellanae majoris amplitudine, glabriusculo, flavescente, basi appendiculâ prominente stipitem amplectente; stipite nudiusculo albo, ad basim volva membranacea, laccera faciliq. disparente aucto; sporis ex argillaceo-sordide rubentibus.

Hab. in arena deserti Aegyptiaco-Syriaci, El arish (W. BARBEY). — Proximum *Tylostomati fimbriato* Fries, a quo statura robustiore et stipitis parte superiore longitudinaliter sulcato-striato differt. Stipes 5 cm. longus, 4 mm. et ultra crassus.

5. **Tylostoma Giovanellæ** Bres. Fungi Trident. p. 63, Tab. LXXII, 179
f. 1. — Peridio subgloboso, papyraceo, glabro, basi zona tomentoso-pilosa cincto, 2-2½ cm. lato, 1½ cm. circiter alto, ore submammoso vel conoideo 2 mm. lato, parum prominulo, mox

lacerato-evanescente; stipite cavo, æquali, basi ut plurimum marginato-bulboso, a peridio discreto et in acetabulum peridii immerso, concolori, lignoso, primitus tomentoso-leproso, dein glabrescenti et maculato-subserobiculato, 6-7 cm. longo, 9-12 mm. crasso; gleba croceo-ochracea; substantia stipitis alba; capillitii floccis cylindraceo-subtortuosis, ramosis, septatis, 3-5 μ . latis; sporis globosis, minutis et laxe echinulatis, flavo-aureis, 5-6 μ . diam.

Hab. locis sabulosis, argillaceo-schistaceis, juxta vias quotannis parce et sporadice obvium, autumnove in agro Tridentino. — Pulchra hæc species ob magnitudinem cum Tylostomatibus exoticis comparanda et penes *Tylostoma Boissieri* Kalchbr. ejus locus systematicus. Ab omnibus Tylostomatibus europæis, cum quibus comparari contigit, probe diversa.

6. **Tylostoma tortuosum** Ehrenb. in Fr. Syst. Myc. III, p. 43. — Stipite 180
 incrassato, tortuoso, sulcato; peridii osculo rotundo, obtuso, integro non mammoso, nudo.

Hab. in desertis arenosis Nubiæ.

7. **Tylostoma obesum** C. et E. in Grevillea t. 100, f. 24. — Stipite 181
 brevi, nudo, deorsum leniter incrassato, obeso; peridii osculo rotundo, obtuso, integro (?); capillitio fusco, levi; sporis globosis, levibus, 6 μ . diam., ochraceo-rufis vel ferrugineis.

Hab. ad terram Colorado et California Amer. borealis. — Fungus circiter 3,5-4 cm. altus; stipes 2 cm. long., 8-10 mm. crassus.

8. **Tylostoma Wightii** Berk. in Lond. Journ. 1842, p. 157. — Peridio 182
 papyraceo, ovato-globoso; stipite subsquamoso, æquali; osculo peridii vix prominulo, appendiculato; sporis laud echinulatis.

Hab. ad terram pr. Madras Indostaniæ. — Totus fungus 4½-5 cm. altus; peridium vix 2 cm. latum; stipes 2,5 cm. longus.

9. **Tylostoma Barlæ** Quél. in Bull. Ass. Franc. p. 17, t. XII, f. 1. — 183
 Peridio membranaceo, spherico, inferne applanato, stipitem annulo angusto tenui cingente, pruinoso, flaveolo-carneo; osculo conico, ochraceo-flavido; stipite fibrilloso-spongioso, dein fistuloso, simul ac inferiori parte peridii cuticula levi, laciniato-excoriata, brunnea induto; sporis ovoideis, 6-7 μ . diam., subtiliter echinulatis, flavidis.

Hab. in pinetis et quercetis Alp. Marit. (BARLÆ).

10. **Tylostoma maximum** Cooke et Mass. in Grevillea XV, p. 94. — 184
 Peridio glabro, ochraceo, osculo rotundo; stipite elongato, æquali concolore, deorsum fibrilloso, sursum striato-sulcato, capillitio aureo-fulvo; sporis globosis, verrucosis, 7 μ . diam., late aureo-fulvis.

Hab. ad terram Gascoyne River Australiæ (M. GRIBBLE). — Totus fungus siccitate pallide ochraceus, peridium 18-20 mm. latum; stipes 17-20 cm. longus, 8-9 mm. crassus; rami capillitii æquales, sporis dimidio crassi, hinc illinc ramulis brevibus, clavatis instructi.

Sect. 2. Schizostoma (Ehrenb.).

Osculum irregulare, ex eruptione peridii productum.

11. **Tylostoma fimbriatum** Fr. Syst. Myc. III, p. 43, Corda Icon. VI, 185 t. III. f. 40, *Lyc. pedunculatum*, Auct. nonnull. Batsch. El. f. 167? *Schizostoma fimbriatum* Lév. in Ann. Sc. Nat. 1846, p. 165. — Peridio squamis deciduis nudo, fuscescente, obtusissimo; stipite ochraceo-fusco, intus albido, a peridio discreto, æquali, subnudo, farcto, medio crassiori, vix lignescenti; osculo peridii plano fimbriato-lacero; sporis pallide fuscis, 3,5-5 μ . diam.

Hab. in arenosis fere totius Europæ, in America boreali et Australia occidentali.

12. **Tylostoma laceratum** (Ehrenb.) Fr. Syst. Myc. III, p. 44, *Schizostoma laceratum* Ehrenb. mscr. — Stipite æquali, levi; peridio laciniato-partito dehiscente; sporis pallidioribus, sublutescentibus.

Hab. in vastissimis calidissimis sabuletis Nubiæ.

13. **Tylostoma Berteroanum** Lév. Ann. Sc. nat. 1845, Mont. in Gay, 187 Fl. Chil. Bot. vol. VII, p. 55, *Tylostoma brumale* Bert. in herb. non Pers. nec alior. — Peridio subgloboso ex albo cinerescente glabro, rotundato centroque umbonato, osculo latiusculo, subpenicellato-fimbriatulo pertuso, inferne applanato et ad stipitis confluentiam profunde umbilicato, circa umbilicum appendice membranaceo-cartilaginea irregulariter lacerato-fimbriatula, fuscescente, anulari donato; stipite tereti fistuloso subæquali cartilagineo-sublignoso, coriaceo extus longitudinaliter striato, levi v. squarruloso-fibrilloso fusco-fulvescenti v. sordide griseo-badio, apice umbilicum peridii intrante atque cum eo concreto, truncato-subrotundato, mycelio invisibili, tenuissimo, sed tenaciter fibrilloso-intricato, globulum terræ magnitudinis fere peridii amplexente donato; gleba, columella destituta, minutissime densissimeque gossypino-pulveracea, fulvo-cinnamomea v. fulva; floccis tenuibus 3-5 μ . crass., ramulosis, septulatis, levissimis, hyalinis; sporis globosis 3-4,5 μ . diam., grosse l-guttulatis, episporio papilloso-asperulo, tabacino-fulvis.

Hab. ad terram prope Concordiam Uruguay (CISNEROS), prope

Chascomus (SPGAZZINI) nec non pr. Rancagua Chili (LÉVEILLE). — Peridium 12-13 mm. latum, 7-10 mm. altum; stipes 2-5 mm. longus, 1,5-2,5 mm. crassus.

14. **Tylostoma exasperatum** Mont. Cuba, p. 317, t. 11. f. 4, Syll. 18

Crypt. n. 1046, Corda Icon. VI, p. 17, t. III, f. 42, *Schizostoma exasperatum* Lév. in Ann. Soc. Nat. 1846, p. 166, t. 165. — Lignicolum, caespitoso-fasciculatum; stipite squamis imbricatis recurvis squarroso; peridii verrucosi ore prominente lacero-dehiscente; gleba ochracea; sporis asperis, limbo hyalino cinctis, 5-8 μ . diam.

Hab. ad ligna putredine consumpta in silvis Cubae (RAMON DE LA SAGRA) et ad terram in insula Ceylon (BERKELEY et BROOME). — Peridium alutaceum, 1 cm. latum altumque; stipes concolor 2 cm. altus, 2 mm. circ. crassus.

15. **Tylostoma pusillum** Berk. in Cesati Born. p. 12, Berk. in Hook. 18

Lond. Journ. 1842, p. 157, t. VII, f. 10, *Schizostoma pusillum* Lév. in Ann. Scienc. Nat. 1846, p. 165. — Rigidum, corneum. badium, indumento furfuraceo luteo detergibili in peridio verruculas fingenti obductum; stipite setulis rigescentibus undique exasperato, sensim in peridium globosum, vertice minute mammillato, abeunte; cavitate diaphragmatibus pelliculosis percursa; sporis subangulosis rufis, echinulatis, 1,5 μ . diam.

Hab. ad ramulos, Sarawak in ins. Borneo et Madras Indostaniæ.

— Habitu *Tylostomatis exasperati* Mont., sed triplo minus. Fungus 18 mm. altus; stipes 14 mm. longus, dimidium vix ultra er.

16. **Tylostoma Meyenianum** Klotzsch Fungi a Meyen. coll. p. 213, 19

t. V, f. 4. — Peridio globoso-depresso, gilvo-alutaceo, levi, glabro, apice plano, in lacinias inæquales dehiscente; stipite solido, fusiformi, glabro, longitudinaliter sulcato-costato, versus apicem transverse rimuloso, concolori; capillitio albido; sporis globosis, sessilibus, uniguttulatis, fulvo-ferrugineis.

Hab. in cacumine montis ignivomi prope Arequipa Peruviae et New Mexico, Rio Grande (WRIGHT). — Peridium 2,5 cm. latum; stipes 10-13 cm. longus, ad basim 3,5 mm. apice 12 mm. crassus.

17. **Tylostoma angolense** Welw. et Curr. Fungi Angolenses p. 290, 19

t. XX, f. 10-11. — Peridio albido, subgloboso, osculo imperfecto; stipite ab apice ad basim sensim diminvente; capillitio ferrugineo; sporis concoloribus, subglobosis vel subellipticis, 5 μ . diam.

Hab. rarissime in collinis arenosis hic illic Euphorbiis cactiformibus obsitis pr. Mossamedes in Angola Africae. — Totus fungus

4-4,5 cm. altus. Forte a *Tylostoma Meyeniano* Klotzsch haud distinctum. Hoc minus stipiteque haud longitudinaliter sulcato.

18. **Tylostoma Leveilleanum** Gaudich. in Voy. Bonit. p. 200, t. 140, 192
f. 4, Corda Icon. VI, p. 16, t. III, f. 41, *Schizostoma Leveilleanum*
Lév. in Ann. Scienc. Nat. 1846, p. 165. — Peridio subgloboso, verrucoso, pallide alutaceo aut ochraceo, vertice rumpente; stipite duro, fibroso, sursum attenuato subcylindraco squamoso-lacero, fistuloso; capillitio tenui ferrugineo; sporis concoloribus, globulosis, echinatis, 5,5 μ . diam.

Hab. ad terram in ins. Sandwich (GAUDICHAUD). — Totus fungus 9 cm. altus; squamæ obscuriores; peridium 3 cm. latum; stipes 5-7 mm. crassus.

19. **Tylostoma granulosum** Lév. in Demidoff Voy. p. 120, t. IV, f. 1, 193
Tylostoma brachypus Czern. in Bull. Mosc. 1845, III, pag. 144, t. II. — Peridio globoso-depresso, brunneo, osculo areolato, mammiformi, aspero, margine lacero denticulato, pallidiori; stipite crassiusculo, rarius squamis tenuibus obsito.

Hab. ad terram fimetosam gregatim in campis Rossicæ. — Peridium usque ad 2,5 cm. latum; stipes plerumque 1-3 cm. longus, 3-8 mm. crassus.

QUELETIA Fr. in A. S. de Stockolm. 1871, Quél. Champ. Jura p. 366 (Etym. a cl. QUÉLET, mycologo gallico). — Peridium simplex, osculo destitutum, a stipite secernibile; stipes e bipartitione basis peridii efformatus; capillitium fugax, brevis, simplex v. bifurcatum; sporæ sphaeroidæ, verrucosæ, breviter caudatæ, flavescentes. — Fungus hypogæo-emergens.

1. **Queletia mirabilis** Fr. in A. S. de Stockholm. 1871, t. IV, Quél. 194
Champ. Jura p. 366, t. III, f. 8. — Alba, dein fuliginea; peridio globuloso, membranaceo, glabrescente-villoso, fragili, primo hypogæo, dein stipitis evolutione emergente, mox deciduo et lacerato; stipite fibroso-carnoso, villosa, in lacinias contortas irregulares disrupto; gleba carnosa alba, dein pulverulenta, e rufo crocea; sporis breviter stipitellatis verrucosis, globosis, 10-15 μ . diam., flavescentibus.

Hab. ad terram post pluvias pr. Pont de Sochaux Gallicæ (PERRIZET DE VAUDONCOURT). — Peridium 3-4 cm. latum; stipes 1-2 cm. longus, basi usque ad 4,5 cm. crassus, apice circ. 2,5 cm. crassus.

BATTARREA Pers. Syn. p. 129, (Etym. a cl. BATTARRA, cui dicatum

genus). *Dendromyces* Libosch. — Peridium e membrana duplici, gelatina distenta, compositum, volviforme, lobato-dehiscens, discretum a receptaculo pronascente, stipitato, pileato, superne villosopulverulento, peridii membrana interiori disrupta calyptrato. — Peridium subterraneum radicatum. Genus mirabile, fructificatione quidem hujus familiæ, at vegetatione fere *Ithyphalli*, hinc in Systemate e vegetatione genus Phalloideum. Recedit vero ab *Ithyphallo* morphosi subterranea et stipite strigoso-fibroso.

1. **Battarreæ phalloides** (Dicks.) Pers. Synops. p. 129, t. III, f. 1, *Lycoperdon phalloides* Dicks. Crypt. Brit. 1, p. 24. — Volva ovata, bicorticata, albida, mucilagine repleta, sub terra penitus recondita; stipite æquali, lacerato-strigoso, cylindrico, recto, carnoso, mucilagine repleto, primo brevi, postea mira vi et celeritate sursum elongato; peridio campanulato, inferne glabro, levi, superne tecto strato pulveris crassi fusci, qui portione volvæ disruptæ quasi calyptra operitur; sporis brunneis.

Hab. in aggeribus arenosis Angliæ et Napoli Italiæ, San Francisco Amer. borealis (TORREY), in Sibiria, Shark Bay et Murchison River. — Peridium 5 cm. circ. latum; stipes 1 cm. et ultra crassus, 15-20 cm. sub terra reconditus.

2. **Battarreæ Stevenii** (Libosch.) Fr. Syst. Myc. III, p. 7, *Dendromyces Stevenii* Lib. Monogr. t. 1, 2. — Volva in terra latenti non descripta; stipite ventricosus, tota superficie squamis oblecto, quæ corticem offerunt laceratam, intus cavo, fibris nitidissimis sericeis diaphanis per totam longitudinem stipitis parallele positis, in medio autem cavitatis ex his funiculus, qui medullam format, quæ fibras in pileum et corticem emittit; desumpto cortice (squamis) strata 1 mm. fere crassa ex fibris albidis longitudinaliter decurrentibus partem lignosam obtegunt, quam 2 mm. crassam, subspongiosam, flavescens observatur; peridio subplano, medio elevato, coriaceo, tenui, vix spongioso, inferius albo levi, superne cellulari paleaceo, luteo-brunneo, pulveraceo; sporis copiosissimis, diaphanis, concoloribus.

Hab. in arenosis ad fl. Wolga et pr. Minussinsk Sibiriae. — Stipes usque ad 35 cm. longus, circ. 12 mm. crassus; squamæ 25 mm. longæ, 2-7 mm. latæ.

3. **Battarreæ Guicciardiniana** Ces. Not. Mycol. p. 1, Rev. Myc. 1880, t. 1, f. 1-5. — Peridio eximie hemisphærico-convexo, levi; stipite squamis subimbricatis oblecto, cylindræo, leniter incurvo, carnoso basi attenuato, intus cavo, valde elongato; volva ovata, irregula-

riter lobata; sporis globosis, verruculosis, cellulis spiralibus intermixtis.

Hab. ad terram in Horto D. Paolinae Guicciardini-Serristori, Firenze Italiae. — Fungus usque ad 38 cm. altus; peridium 8,5 cm. latum. Habitus fere *Battarrea Gaudichaudii* Mont.

4. **Battarrea Gaudichaudii** Mont. Ann. 2, II, p. 76, t. 4, f. 1, Syll. 198
Crypt. n. 1045, Corda Anleit. t. E 50, f. 4-5. — Stipite ventricoso lignoso, squamis imbricatis oblecto, basi attenuato a pileo discreto, intus cavo; sporis fusco-purpureis, globosis, levibus, floccis immixtis.

Hab. in ripis exsiccatis fluminis Rimæ pr. Lima in Perù (GAUDICHAUD). — Peridium 2,5 cm. latum; stipes 6 cm. longus, sursum 6 mm. crassus.

5. **Battarrea Muelleri** Kalchbr. in Grevillea X, p. 9. — Tota alba, e 199
sporibus delapsis demum ferruginea; peridio exteriori, interiori campanulato-mitrato, insidente stipiti solido, longissimo, sursum leniter incrassato, paleaceo squamoso; paleis subimbricatis, lineari-lanceolatis, deorsum directis (pendulis); sporibus globosis, verruculosis 4 μ . diam., cum fibris curtis fragilibus, spiralibus, parce intermixtis, pure ferrugineis.

Hab. ad terram in Australia, Spencer Golf. (leg. TEPPER comm. MUELLER.). — Species mirabilis generis miri! Peridium 3-4 cm. latum; stipes ad 30 cm. longus, basi $\frac{1}{2}$, apice 1 cm. crassus. A congeneribus *B. phalloides* Fr., *B. Steveni* Fr., *B. Gaudichaudii* Mont., jam stipite suo, toto squamis paleaceis vestito, optime differt.

HUSSEYA Berk. in Lond. Journ. 1847, p. 508 (Etym. a cl. HUSSEY cui dicatum genus). — Peridium stipitatum papyraceo-corneum, osculo determinato profunde radiato-sulcato, extus velo universali cartilagineo-viscoso serius reflexo et stipiti adhærenti vestitum; endoperidium nullum obsoletumve; capillitium discretum totam peridii cavitatem implens, extus sterile compactum coloratum, intus magis laxum subhyalinum; sporæ numerosissimæ globosæ echinatæ. — Fungi terrestres Mitremycetem referentes.

1. **Husseya insignis** Berk. Lond. Journ. 1847, p. 508, t. XVIII, f. 3. — 200
Exoperidio globoso-lentiformi, glabro, osculo conico, profunde radiatum sulcato, endoperidio obsoleto vel nullo; stipite basi bulbiformi, sulcato, tunica crassa viscoso-cartilaginea tecto, annulum irregularem ad stipitem efformante; capillitio distincto, purpureo, reticulato; sporibus globosis, echinulatis.

Hab. in insulis Ceylon et Borneo. — Stipes 2,5-4 cm. altus, 6-7 mm. crassus.

2. **Husseyia pachystelis** Ces. Born. p. 13. — Exoperidio sessili, crasso, coriaceo, levi, glaberrimo, tandem reflexo lobatoque; endoperidio globoso, papyraceo?, stipite crasso columnari intus cavernoso suffulto, osculo mammoso stellatim fisso dentibus conniventibus; gleba sporifera totum peridium replente, in fungo juvenili vel adhuc clauso; columella nulla.

Hab. ad Sarawak in insula Borneo. — Exoperidii aperti diam., 5-8 cm., endoperidii circ. 2 cm. Stipes 3,5-4 cm. altus, 1 cm. crassus. «An *Husseyia insignis* varietas?».

MITREMYCES Nees. Syst. p. 136 (Etym. *mitra* et *myces* fungus), *Gyropodium* Hitchk., *Calostoma* Desv. — Exoperidium apice stipitis crassi, longi papyraceo-affixum, corneum, osculo determinato, squamis coloratis ornato clauso extus calyptra basi disrupta squamosum, intus in ambitu inane, centro endoperidium globosum, discretum, tantum squamis osculi adfixum gerens; capillitium nullum vel obsoletum; sporæ flavescentes vel subhyalinæ.

1. **Mitremyces lutescens** Schwein. Car. n. 345, tab. 2, f. 1, *Lycop.* 203 *heterogeneum* Bosc in Berl. Mag. V, p. 87, t. 6, f. 10 (squalida), *Scl. callostoma* Pers. Journ. Bot. 2, pag. 15, t. 2, f. 2? *Gyrop. coccineum* Hitchcock. l. c. t. 3. — Basi stipitiformi ampla, cylindrica aut conoidea, deorsum præmorsa aut in aliquot crassos et obtusos lobos divisa, e fibris crassis longis, tortis, cartilagineis, siccitate corneis, anastomosi confluentibus formata, lacunosa, rufescente; peridii calyptra crasse membranacea, planiuscula, lutescente; peridio globoso, demum et collabascente glabro, lutescente solitario aut 2-4 simul; osculo coronato squamis divergentibus anastomosi junctis, elevatis, plicatis, eleganter coccineis; endoperidio duplo minori, lanuginoso, luteo, pulvere globuloso sulphureo referto.

Hab. ad terram argillaceam in America boreali et in insula Ceylon Indostaniæ. — Peridium vix 2,5 cm. latum; stipes 5-10 cm. longus, 2,5 cm. et ultra crassus. «An huc spectat *Mitremyces coccineus* Berk.?».

2. **Mitremyces Ravenelii** Berk. On some new Fungi p. 130, t. XXV, 20 B. — Pusillus; exoperidio in verrucas parvas liberas vel coherentes dehiscente stipite brevi, fibrilloso; endoperidio glabro, pallido, dentibus triangularibus, coccineis apice instructo, udo cavitatem exoperidii fere ex toto replente; floccis copiosis, albis, apice pro-

cessibus racemulosis terminatis; sporis ovatis, 10-11 μ . longis, guttulatis, levibus.

Hab. ad terram in Carolina australi Americæ (RAVENEL). — Totus fungus 12 mm. circ. altus, exoperidium 9-10 mm. latum. Ab aliis speciebus endoperidio fere ex toto cavitatem exoperidii replete distinctus. — Var. **minor** Berk. North Amer. Fungi n. 339: stipite brevi, exoperidio in areolas minutas rupto. Ad terram Cæsar's Head Carolinæ inf. (RAVENEL). Minutus 1-9 mm. alt.

3. **Mitremyces Junghuhnii** Schl. et Müll. in Bot. Zeit. 1844, p. 401, ²⁰⁴ tab. III B. — Exoperidio subgloboso, livide flavido-ochraceo, verruculis sparsis, irregularibus, obscurioribus obsito, basi substipitato vel fibroso-adnato; osculo majusculo, dentibus 5-6 subconcoloribus margine rubro tinctis; endoperidio oblongo, pallido; sporis globulosis, verruculosus.

Hab. in terram prope Tapoclang in insula Java (JUNGHUM) et prope Gunong Poe in ins. Borneo (CESATI).

4. **Mitremyces luridus** Berk. in Hook. Journ. Bot. 1845, p. 65, t. I, ²⁰⁵ f. 5, Decades of Fungi n. 61. — Pusillus, subsessilis; exoperidio globoso, sordide flavo-brunneo, rugoso, granulis sparsis minutis nigris obsito, massa brevi, atra, anastomosante suffulto; osculo nigro, 4-5 dentibus instructo; endoperidio pallide flavo, rarius candido; sporis ellipticis 1-2-guttulatis, filamentis paucis immixtis.

Hab. ad terram arenosam in Australia occidentali (DRUMMOND). — Exoperidium 9 mm. latum. *Mitremyceti fusco* Berk. similis, *M. Junghuhnii* S. et M. proximus.

5. **Mitremyces fuscus** Berk. Fung. Flora Van Diem. p. 325. — Brun- ²⁰⁶ neus, simplex vel cæspitosus; calyptra hemisphærica intus pallide rufo-brunnea, margine denticulato; exoperidio tenui, corneo, sursum granulato-squamoso processibus mycelio stipitiforini pertinentibus, anastomosantibus subcylindræis, cartilagineis inserto, dentibus 4-6 rubro-lineatis marginatisque, subinde partim flavo maculatis endoperidio albo; sporis nucleum solidum formantibus, ovoideis, sordide-albis.

Hab. in silvis Van Diemen's Land (LAWRENCE) in Victoria et Tasmania.

6. **Mitremyces viridis** Berk. Fung. Hook. tab. DCCCLXIX B. Hook. ²⁰⁷ Journ. Bot. 1851, p. 201. — Peridio amplo stipiteque lacunoso costato cartilagineo viridibus, squamis osculi margine coccineo-granulatis; sporis globosis fortiter granulatis.

Hab. ad terram Victoria et in Himalaya.

7. **Mitremyces cinnabarinus** (Corda) De Ton., *Calostoma cinnabari-* 208
num Corda Anleit. t. C. f. 38, 10. — Exoperidio globoso, osculo
 lato instructo dentibus circ. 7 obtusiusculis; stipite crasso, longiu-
 sculo, striatulo; sporis globosis, levibus.

Hab. ad terram in . . .

Species tantum nomine nota.

8. **Mitremyces coccineus** Berk. Ann. Nat. Hist. III, t. VII, f. 1. Forte 209
 idem ac *Mitremyces lutescens*.

GEASTER Mich. Nova Plantarum Genera p. 220 (Ætym. a *ge* terra
 et *astrum*), *Myriostoma* Desv., *Plecostoma* Desv., *Geastrum* Pers.,
Sterrebeckia Link., *Actinodermium* Nees., *Lycoperdi* sp. auct.
 var. — Peridium globosum primo clausum stratisque binis distin-
 ctis compositum; exteriore (*exoperidio*) carnosio stellatim laciniato,
 plerumque simplici, rarius tunica altera aucto; interiore (*endope-*
ridio) globoso vel depresso, papyraceo, centrali, sessili vel pedi-
 cellato, plerumque osculo unico apicali, rarissime plurimis sparsis
 instructo; gleba e floccis sporigeris e columella vel e basi endo-
 peridii exsurgentibus efformata; columella plus minus evoluta, sæpe
 evanescente; sporæ globosæ, plerumque asperulæ, olivaceo-fusæ.

Clavis analytica specierum.

(Species asterisco notatæ ut varietates vel subspecies sunt potius habendæ).

I. Endoperidium plurimis pedicellis suffultum (Columnati). — Heterogea-
 ster Speg.

a. Oscula plurima in quoque endoperidio. *G. coliformis*.

b. Osculum unicum in quoque endoperidio. *G. columnatus*.

II. Endoperidium pedicello unico suffultum vel sessile.

A) Exoperidium in strata duo scissile, alterum obverse fornicatum sen
 calyceiforme, apicibus laciniarum utriusque strati inter se cohærentibus (For-
 nicati).

* Endoperidium pedicello valde distincto suffultum; peristomium sul-
 cato-striatum. *G. fornicatus*.

** Endoperidium subsessile; peristomium haud sulcato-striatum.

a. Peristomium fimbriato-floccosum. *G. radicans*.

b. Peristomium irregulariter lacerum. *G. Welwitschii*.

B) Exoperidium ad basim endoperidii cupula membranacea sæpe irregu-
 lari auctum (Cupulati).

a. Peristomium fimbriato-floccosum. * *G. triplex*.

b. Peristomium irregulariter lacerum. *G. duplicatus*.

C) Exoperidium nec in strata duo ut in A scissile nec cupulam ad basim
 endoperidii efformans.

* Peristomium sulcato-plicatum vel pectinato-striatum (Striati).

† Endoperidium vel pedicellus tantum vel utrique annulo basali instructi. *G. Bryantii.*

†† Endoperidium pedicellusque annulo carentes.

§ Endoperidium basi sulculis radiantibus excavatum, pedicellatum.

a. Pedicellus levis. *G. tenuipes.*

b. Pedicelli basis e plicis endoperidii impressa. *G. biplicatus.*

§§ Endoperidium basi sulculis non excavatum, sessile vel pedicellatum.

* Endoperidium pedicello longo, distincto suffultum. *G. Schmideli.*

** Endoperidium sessile vel subsessile.

1. Peristomium apice fimbriatum vel sericeum.

a. Endoperidium centro umbilicato-depressum; fimbriæ fasciculato-subconvolutæ. *G. umbilicatus.*

b. Endoperidium centro non umbilicato-depressum; fimbriæ minus evidentes. *G. striatus.*

— Endoperidium omnino sessile; exoperidium extus subglabratum.

* *G. elegans.*

— Endoperidium subsessile; exoperidium extus furfuraceum. *G. striatulus.*

2. Peristomium apice non fimbriatum nec sericeum.

a. Endoperidium alutaceo-canescens, leve (?); peristomium plano-conicum (species boliviana). *G. ambiguus.*

b. Endoperidium pallidum, subtiliter scabrum; peristomium conicum (species australiana). *G. Drummondii.*

** Peristomium fimbriato-floccosum vel ciliolatum, areola circulari distincte radiato-fibrillosa (Fimbriati).

† Species xylophilæ; endoperidium extus verruculosum vel tomentosum-granulatum, rarius subsericeum.

§ Endoperidium ardosiacum-plumbeum; sporæ atræ.

a. Subiculum alutaceum; exoperidium verrucosum. *G. mirabilis.*

b. Subiculum album; exoperidium furfuraceum. *G. subiculosus.*

§§ Endoperidium brunneum vel rufum.

a. Exoperidium intus pallidum (species australiana). * *G. lignicola.*

b. Exoperidium extus fulvum, intus nigricans; sporæ glabræ, pellucidæ (species ex ins. Java). *G. javanicus.*

c. Exoperidium extus subsericeo-album, intus rufo-fascium

G. papyraceus.

†† Species terricolæ.

§ Endoperidium pedicello valde distincto suffultum.

* Species minores; endoperidium albidum rarius brunneolum.

a. Endoperidium iuverse campanulatum, basi plana; lacinie exoperidii 7-9 revolutæ; peristomium rima marginali destitutum. *G. minimus.*

b. Endoperidium obpiriforme; lacinie exoperidii 4-10 revolutæ; peristomium rima marginali cinctum. *G. marginalis.*

** Species majores; endoperidium umbrinum vel fusco-brunneum rarius albidum.

1. Endoperidium distincte pedicellatum; sporæ plerumque 3,5-4 μ . diam.

X. Endoperidium leve; sporæ 3,5-4 μ . diam. *G. limbalis.*

— Sporæ minores, 2-2,5 μ . diam.

* *G. peruvianus*.

XX. Endoperidium plerumque laud leve.

a. Parum furfuraceum, subinde punctiformi-foveolatum; laciniae exoperidii flavo-brunneæ.

G. Cesatii.

b. Cum pulvere granuloso, candido tectum; laciniae exoperidii sordide pallidæ.

* *G. granulatus*.

2. Endoperidium sessile vel subsessile; sporæ 2,2-3,5 μ . diam., luteo-olivaceæ.

G. fimbriatus

— Sessile; columella pirinverseeformis.

* *G. tunicatus*.

— Subsessile; columella crassa, conica.

* *G. vulgaris*.

— Sessile; exoperidium extus albido-reticulatum.

* *G. Michelianus*.

— id., exoperidium extus rimis albis, longitudinaliter parallelis vittatum.

* *G. vittatus*.

— id., exoperidium extus argenteum; lacinii acutis; osculum circulis pallescentibus cinctum; columella brevis, conica.

* *G. mammosus*.

— id., exoperidium extus albido-luteum; lacinii cuspidatis.

* *G. capensis*.

— id., exoperidium flaccidum, alutaceum, basi saccatum.

* *G. saccatus*.

— id., exoperidium flaccidum, brunneum, basi saccatum; columella longiuscula, clavata.

* *G. lageniformis*.

3. Endoperidium sessile; sporæ 4,5-7 μ . diam., olivaceo-subfuliginææ.

G. Spegazzinianus.

XXX. Peristomium papilliforme, glabrum (Papillati).

a. Endoperidium oblongo-ovatum, sessile; laciniae 4-8 revolutæ.

G. floriformis.

b. Endoperidium globosum, sessile; laciniae 8 explanatæ, siccitate involutæ,

G. pusillus.

XXXX. Peristomium sive dentatum, semper areola circulari radiato-fibrilloso destitutum, dentibus subinde fimbriato-laceris sive irregulariter aut stel-latim deliscens (Exareolati).

† Exoperidium in lacinias paucas (usque 8) fissum.

§ Laciniae extus verrucoso-spinulosæ.

G. Scleroderma.

§§ Laciniae extus subglabræ.

* Endoperidium sessile.

1. Laciniae rufescentes vel fuscae; peristomium eximie dentatum; columella parva, subglobosa.

G. rufescens.

— Exoperidium crassum, profunde 5-partitum; dentes peristomii striatulo-fimbriati.

* *G. Beccarianus*.

— Exoperidium tenue, 5-6-fidum; laciniae extus umbrinae vel fuscae, intus albidae.

* *G. Bovista*.

— Exoperidium 5-fidum; laciniae longae, acutae.

* *G. Kalchbrenneri*.

2. Laciniae intus strato nigro obtectae, vix rimosae; exoperidium 7-8-fidum.

G. lugubris.

** Endoperidium basi subpedicellatum; laciniae 4-8; columella globosa, basi angustata.

* *G. Schaefferi*.

††† Exoperidium in lacinias numerosas (7-20 et ultra) fissum; endoperidium semper irregulariter deliscens, sessile.

a. Laciniae extus glabratae, sublignosae; endoperidium reticulo evanescente saepius obductum.

G. hygrometricus.

b. Laciniae extus fibrilloso-squamosæ; endoperidium laud reticulatum.

G. fibrillosus.

XXXXX. Species minus notæ.

a. Sporæ umbrino-purpureæ

G. djakovensis.

b. Sporæ fusco-purpureæ.

G. Macowani.

c. Sporæ leves.

G. dubius.

d. Sporæ

G. Linkii.

e. Sporæ

G. stellatus.

1. **Geaster coliformis** (Dicks.) Pers. Synops. pag. 131, De Ton. 210
Rev. Geast. pag. 6, tab. A, I, *Lycoperdon coliforme* Dicks. Plant.
Crypt. Brit. I, pag. 2, t. III, f. 4, Sowerby Engl. Fungi tab. 313,
Myriostoma coliformis Corda Anleit. tab. D, fig. 16-17, *Geaster*
coliformis Fries Syst. Myc. III, pag. 12, Grevillea II, tab. XV,
f. 1, Hoffmann Ueber *Geaster coliformis* in Botan. Zeitung 1873,
n. 24, t. IV. — Exoperidio 4-10- (plerumque 7-fido, intus brun-
neo, non rimoso at frequenter ruguloso), extus pallidiori, flavo-
brunneo, plerumque squamoso aut inflexo (endoperidio tecto) aut
late explanato aut etiam reflexo; endoperidio eximie depresso,
brunneo-plumbeo, nitente verruculoso, inferne plurimis pedicellis
cylindræis, angulosis vel subcompressis suffulto, superne oscula
numerosa circularia, subinde elliptica gerente; osculis irregulari-
ter sparsis, primitus papilliformibus, dein parum elevatis, cillis te-
nellis ornatis; capillitio brunneo; sporis globosis, verruculosis, 5-6
 μ . diam., brunneis.

Hab. in arenosis Norfolk et Suffolk Britanniae (SOWERBY, PLO-
WRIGHT, COOKE), pr. Katwijk et Haarlem, Neerlandiae (DE VRIES e
van EEDEN sec. OUDEMANS) pr. Darmstadt Germaniae (O. BUCHNER,
WINTER) et pr. Karchow Polonae (CZERNAJEV). — Exoperidium
usque ad 11 cm. latum, endoperidium 4,5 cm. latum; oscula 3-50,
1-3 mm. lata; pedicelli 2-5 mm. alti.

2. **Geaster columnatus** Lév. Champignons du Muséum de Paris p. 161, 211
De Ton. Rev. Geast. pag. 7. — Exoperidio usque medium 7-8-
fido, coriaceo, membranaceo; endoperidio ovato, papyraceo, verru-
culoso, pedicellis 6-8 distinctis suffulto; peristomio conico, fimbria-
to, capillitio obscure rufo; sporis subglobosis, verruculosi, umbrinis.

Hab. ad terram, Chili (GAY in herb. Mus. Paris). — Exope-
ridium expansum usque ad 12 cm. latum.

3. **Geaster fornicatus** (Huds.) Fries Syst. Myc. III, pag. 12, Grevil- 212
lea II, tab. XV, f. 2, Bischoff f. 3635, Morgan Americ. Geasters
p. 964, f. 1, Winter Die Pilze p. 912, f. 5, De Ton. Rev. Geast.

pag. 7, t. I, *B, Lycoperdon fornicatus* Huds. Flor. Angl. p. 644, Bryant Lycop. f. 15, Sowerby Engl. Fungi tab. 198, *Lycoperdon coronatum* Schaeff. Icones tab. 183, *Lycoperdon fenestratum* Batsch Elench. tab. 168, *Geastrum quadrifidum* De Cand. Flor. Franc. II, p. 267, Nees Syst. der Pilze und Schwamme tab. XII, f. 128, *Plecostoma fornicatum* Corda Anleit. tab. D, f. 12-15, Icones V, pag. 65, t. IV, f. 43, — Exoperidio duplici, plerumque 4-fido, rarius 5-pluri-fido, albido, siccitate fuscescente, cortice exteriori ad terram manente, calyciformi, sæpe in 4-5 lobos usque ad medium fisso, parte exoperidii persistente extus glabra, mox revoluta-fornicata; endoperidio globoso-acuminato vel obpiriformi, griseo-cæruleo vel brunneo, inferne pedicello brevi, albido, frequenter subcompresso suffulto; peristomio semper prominulo, conico-cylindræo, ciliato, subtiliter sulcato; columella gracili, subclavata, capillitio brunneo; sporis subsphæroideis, reticulatis, 3,5-5 μ . diam., brunneo-fuscis.

Hab. ad terram inter folia coniferarum in Gallia, Belgio, Nederlandia, Austria, Hungaria, Bohemia, Germania, Anglia, Rossia et Fennia Europæ; in Stat. Unit. et Carolina infer. Americæ borealis. — Plerumque gregarius, raro solitarius; exoperidium 1-3 cm. altum, 1-2 cm. latum. — Var. **multifidus** Fr. loc. cit., Schmidel Icones t. XXXVII, f. 11-14, *G. multifidum* Pers. Dispos. p. 6. A typo differt laciniis exoperidii numerosioribus. Hinc illinc cum specie.

4. **Geaster radicans** Berk. et Curt. North Amer. Fungi n. 328, De Ton. Rev. Geast. pag. 8. — Exoperidio duplici, in strata duo discernibili; demum fornicato, e fibris radicanibus oriundo, rufo, endoperidio subgloboso, levi, rufo, brevissime stipitato; peristomio sericeo; sporis globosis, minute echinulatis.

Hab. ad terram in Carolina inferiori Amer. bor. (RAVENEL) et in insula Cuba Antillarum. — Exoperidium 4-5 cm. latum, endoperidium 17 mm. circ. latum. *Geastro fornicato* peraffinis.

5. **Geaster Welwitschii** Mont. Syll. Cryptog. n. 1048, De Ton. Rev. Geast. p. 8. — Exoperidio duplici, utroque 4-fido, superiore fornicato extus glabro, pallido, intus crasso, rimoso, fusco, inferiore incarnato, brevissimo; endoperidio sphærico, subsessili, pallido; osculo lacero, peristomio haud prominulo.

Hab. in ollis ad floriculturam inservientibus in R. Horto botanico Lisboa Lusitaniæ (WELWITSCH). — A *G. fornicato* endoperidio subsessili osculoque lacero ut in *G. hygrometrico* differt.

6. **Geaster triplex** Jungl. Nova gen. et sp. Plant. Floræ Javanicæ, 215

Pugillus I in Fidskr. voor Natur. Geschied. VII (Leyde 1840) p. 287 cum icone, Morgan Americ. Geasters p. 965, f. 2, De Ton. Rev. Geast. pag. 8, t. I, *C. Geaster cryptorhynchus* Haszl. in Grevillea III, pag. 162, t. 47? — Exoperidio crasso, carnoso-squamuloso, ad medium in strata duo soluto, externo in lacinias 5-7 acutas, revolutas fisso, interno cupulæformi, margine repando-reciso; endoperidio membranaceo, sessili, castaneo, globoso vel depresso; peristomio conoideo fimbriato-floccoso; capillitio brunneo; sporis globosis, verruculosus, 2,5-3,5 μ . diam., concoloribus.

Hab. in silvis umbris septentrionalibus M. Panggerangi insulæ Java ad altitudinem 1000-1700 metr. (februario). in silvis maritimis pr. Haarlem Neerlandiæ (van EEDEN sec. OUDEMANS), in Hungaria (HASZLINSKY sec. OUDEMANS), in arenosis pr. Cincinnati et Detroit Amer. bor. (MORGAN, FOERSTE), in agro Tridentino (BRESADOLA). — Exoperidium adhuc clausum usque ad 3 cm. latum, expansum vero apices laciniarum oppositarum 6-12 cm. distant; endoperidium 1,5-3 cm. latum. «An status abnormis *G. fimbriati*?».

7. **Geaster duplicatus** Chev. Flor. Paris p. 359, De Ton. Rev. Geast. 216 p. 8, t. II *P. Lycoperdon stellatum* Bull. t. 471, f. O, *P. Geastrum diderma* Desv. Journ. Bot. II, p. 102, *Geaster vulgaris* Corda Icones V, pag. 64, t. IV, f. 42. — Exoperidio multifido, laciniiis angustissimis, acutis, extus rufescentibus, intus pallidioribus; endoperidio sphærico, sessili, griseo, tunica tenui, concolori, demum irregulari calycis instar cincto; sporis globosis, verruculosus, fuscis.

Hab. ad terram in silvis Galliæ et Bohemiæ. — Forte *G. hygrometrici* varietatem sistit, at membrana calyciformi ad basin endoperidii differt.

8. **Geaster Bryantii** Berk. Outlines p. 300, De Ton. Geast. p. 9, t. I, *D.* 217 *Geaster orientalis* Haszl. in Grevillea VI, p. 108, t. 98, f. 15, *Lycoperdon* etc. Schmidel Icones tab. XXXVII, f. 11-12. — Exoperidio multifido (plerumque 10-fido), coriaceo, expanso, dein involuto, intus griseo-brunneo vel brunneo, levi; laciniiis inæqualibus, acutis; endoperidio e globoso inferne attenuato vel subobpiriformi, atro-cæruleo vel pallide cæruleo-griseo, hinc illinc brunneolo maculato; pedicello cylindraco vel compresso, albido aut brunneolo, basi apiceque annulo (ætate provecta evanido) instructo, suffulto; peristomio conico, sulcato-plicato, minime aut indistincte marginato; capillitio brunneo; sporis globosis, echinulatis, 4-6 μ . diam., brunneolis.

Hab. ad terram in paludosis in Britannia et Germania (WINTER), pr. Bordeaux Galliæ (GILLET, FORQUIGNON et MERLET), Schohararia et New-York Americæ borealis (PECK, MORGAN) et Peradenya in ins. Ceylon Indostaniæ (BERKELEY et BROOME). — Exoperidium usque ad 8 cm. latum. — ***G. calyculatus** Fuckel Symb. Myc. pag. 37. Endoperidio breviter piriformi vel globoso, laciniis subrevolutis, margine annulari destituto in stipitem longum, sæpe gracilem, basi annulo membranaceo cinctum abeunte. In pinetis, sæpe ad nidos formicarum in Germania (FUCKEL, WINTER, SYDOW) — ***G. Kunzei** Winter Die Pilze p. 911. Endoperidio ut in subsp. calyculata Fuck. basi annulato at stipite annulo membranaceo inferne destituto. In silvulis in Germania.

9. **Geaster tenuipes** Berk. in Hook. Journ. Bot. XII, 1848, p. 576, 218 Hook. Fl. Tasm. II, t. 183, f. 9, De Ton. Rev. Geast. p. 9, *Geaster plicatus* Berk. On exotic Fungi p. 399, *Geaster striatus* var. *plicatus* Kl. mscr. in herb. Hooker, *Geaster Schmideli* Vittad. forma Sacc. in herb., Sacc. Fungi Veneti novi vel critici series XII in Michelia II, pag. 245. — Exoperidio molli, papyraceo, pallide umbrino, levi, laciniis circ: 7, acutis; endoperidio longe pedicellato, globoso, obscure umbrino, levi, profunde basi sulculis radiantibus ornato; peristomio depressioni circulari cincto, conico, plicato-sulcato; capillitio e floccis 4-6 μ . latis, fuligineis efformato; columella altiuscule conica; sporis globosis, muriculatis 4,5-5 μ . diam., brunneo-fuligineis.

Hab. ad terram Madras Indostaniæ (Doct. WIGHT sec. BERKELEY) et in silva Cansiglio Italiæ borealis (SPEGAZZINI sec. SACCARDO), in Tasmania (BERKELEY).

10. **Geaster bicipatus** Berk. et Curt. in Proceed. Amer. Acad. of 219 Arts and sciences IV (1860), p. 124, n. 115, De Ton. Rev. Geast. pag. 10. — Exoperidio tenui, irregulariter multifido, e mycelio floccoso oriundo; endoperidio subgloboso, pedicellato, nigrescente; basi pedicelli e plicis endoperidii impressa; peristomio plicato, apice fimbriato.

Hab. in insulis Bonin.

11. **Geaster Schmideli** Vittad. Monogr. Lycoperdin. p. 157, t. I, f. 7, 220 De Ton. Rev. Geast. p. 10, t. I M, *Geaster Rabenhorstii* Kunze in Rabenh. Fungi Europæi n. 2011, *Geaster umbilicatus* Quélet Champ. du Jura II, t. III, f. 9 non Fries, *Geaster Quéletii* Hazsl. Bemerk. deutsch. ungar. Geast. p. 136, *Geaster limbatus* Grevillea II, t. XVII, f. 1. — Exoperidio ad medium 5-8-fido, laciniis

crassis, revolutis, basi integra, plane convexa, subfornicata, extus tenuibus, papyraceis, albido-rufescentibus, intus ceraceo-mollibus, strato albido-pallido, secedente; endoperidio globoso-ovato, basin versus constricto, pedicellato, griseo-brunneo; peristomio orbiculo marginato, depressiusculo, plicato, apice subfimbriato-lacero; columella crassa, floccosa, ultra endoperidii centrum non excurren- te; capillitio laxo, columellæ endoperidioque adnato, fusco-fuligineo; sporis globosis, verruculosi, 4,5-6 μ . diam., fuligineo-rufescentibus.

Hab. locis sabulosis aridis et nemorosis in Italia septentrionali (VITTADINI), in Gallia et Germania. — « *G. umbilicatus* Quêl. et *G. Quêletii* Haszl., teste Bresadola in litt., potius ad *G. fornicatum* pertinere videntur ».

12. **Geaster umbilicatus** Fries. Syst. Myc. III, p. 14, Morgan Americ. 221
Geasters p. 966, f. 4. Non Quêlet. De Ton. Rev. Geast. pag. 10, t. I, E, *Geaster mammosus* in Grevillea II, tab. XIX, f. 1, *Lycoperdon multifidum* Retz. Scand. n. 1987. — Exoperidio multipartito, laciniis inæqualibus, sublanceolatis, mollibus, subexpla- natis, intus fuligineo-umbrinis: endoperidio globoso vel globoso- depresso, sessili, centro umbilico orbiculari depresso marginato, sub- inde sulculato; peristomio conico, plicato-striato, apice fimbriato, pe- ristomii Tortulæ ad instar subtorto; capillitio brunneo; sporis glo- bosis, 3,5-4 μ . diam., pulcherrime umbrinis.

Hab. ad terram humosam in Scandinavia et Hungaria; locis variis Americæ borealis; Chili et Rio de Janeiro Brasilæ Amer. austr. (GAUDICHAUD in herb. MUSEI PARIS. sec. LÉVEILLÉ).

13. **Geaster striatus** De Cand. Flor. Franç. II, p. 267, De Ton. Rev. 222
Geast. p. 10, t. I, G, Grevillea II, t. XVI, f. 1, Morgan Americ. Geasters p. 965, f. 3, *Lycoperdon coronatum* Scop. Flor. Carniol. II, p. 491, *Lycoperdon pedicellatum* Batsch Elench. p. 151, *Geaster Archeri* Berk. in Hook. Fl. Tasm. II, p. 264, t. 183, f. 9 bis. *Gastrum coronatum* B. Pers. Synops. Fungor. p. 132, *Gastrum pectinatum* Pers. Syn. loc. cit.? — Exoperidio sæpius ultra me- dium multifido, laciniis usque ad 8 subæqualibus, acuminatis, co- riaceo-membranaceis, explanatis vel demum subrevolutis, intus levibus, fuscis; endoperidio globoso, subpedicellato, subinde sessili, umbrino, primitus punctulato aut levi; peristomio conico, elevato- prominente, sulcato-striato; capillitio brunneo-pallido, laxiusculo; sporis globosis, verruculosi, 3,5-5 μ . diam., fuscis.

Hab. ad terram in nemorosis siccis pr. Roma Italiæ (LANZI), in Gallia, Britannia, Germania, Nederlandia, Austria, Hungaria,

Slavonia et Polonia, in America septentrionali, Queensland aliisque locis Australiæ (COOKE, BERKELEY), prope Alger Africæ (TRABUT in herb. Sacc.).

14. **Geaster elegans** Vittad. Monogr. Lycoperdin. p. 159, t. I, f. IV, 223

De Ton. Rev. Geast. pag. 11, f. I, N, *Geastrum badium* Pers. Journ. Bot. II, pag. 27 sec. Vittad. — exoperidio 4-7-fido, basi integra, convexa, obverse cupuliformi, laciniis revolutis, intus strato ceraceo-molli, subpulposo, fragili, sæpius rimoso-diffracto, albido vel carneolo, facile secedente obductis, extus strato flexili, tenui, raro glabrato; endoperidio ovato-rotundato, sessili, flaccido, non nitido, albido-cinereo; peristomio conico, elevato-prominente, orbiculo basilari plane destituto, plicato-sulcato, apice fimbriato-lacero; capillitio molli, fusco; columella longiuscula, clavata; sporis globosis fusco-rufescentibus, 4-4,5 μ . diam.

Hab. ad terram locis aridis prope Guardabiate, Roncaro et Milano Italiæ borealis (VITTADINI), in Gallia, in agro tridentino (BRESADOLA). — «Forte *G. striati* mera varietas».

15. **Geaster striatulus** Kalchbr. in Grevillea IX, pag. 3, De Ton. 224

Rev. Geast. pag. 11, tab. I, F, *G. striatus* var. *minor* Fries Syst. Mycol. III, p. 14, *G. striatus* var. *minimus* Wallr. Flor. Crypt. Germ. n. 2274, *Geastrum minimum* Chevall. Flor. Paris pag. 360, t. X, f. 3 non Schweinitz. *Geastrum badium* Pers. in Desv. Journ. Bot. II (1809), pag. 27, t. IX? *Geaster avellaneus* Kalchbr. Gasterom. novi vel minus cogniti tab. V, f. 4. — Minimus; exoperidio paucifido, subcoriaceo, laciniis usque ad 6, leviter revolutis, extus furfuraceis, intus levibus, umbrinis aut ferrugineo-fuscis; endoperidio subconoideo-globoso, subsessili, levi, pallescente, papyraceo; peristomio conico, prominente, sulcato; capillitio cinereo-fusco; sporis globosis, 5 μ . diam., fuscis.

Hab. ad terram in siccis et ericetis prope Portici Italiæ (COMES), prope Paris Galliæ (CHEVALLIER), pr. Berlin Germaniæ (WILDENOW, SCHLECHTENDAL); Brisbane, Queensland (BERKELEY et BROOME) nec non in Nova Hollandia meridionali (KALCHBRENNER, M. C. COOKE). — Nucis avellanæ magnitudinem metiens.

16. **Geaster ambiguus** Mont. Flor. Boliv. p. 47, Syll. Cryptog. n. 1017, 225

De Ton. Rev. Geast. pag. 11. — Exoperidio simplici, coriaceo, multifido, rigescente, laciniis subinvolutis, 8-10, lanceolatis, extus glabris; endoperidio subgloboso, sessili, papyraceo, alutaceo-canescente; peristomio plano-conico, plicato-striato.

Hab. ad terram in provincia Chiquitos Bolivie (AL. d'ORIGNY).
— *Geastro Drummondii* peraffinis.

17. **Geaster Drummondii** Berk. Decades of Fungi n. 58, t. I, f. 4, De 226
Ton. Rev. Geast. pag. 12, t. I, Q. — Exoperidio simplici, rigido,
explanato, multipartito, intus brunneo; laciniis plerumque 8, sub-
æqualibus, acutis; endoperidio globoso, subtiliter scabro, sessili,
pallido; disco plano, peristomio conico, plicato; capillitio brunneo;
sporis concoloribus.

Hab. ad terram Swan River (S. HANNAFORD) et Geelong Au-
straliæ (BERKELEY), in Australia occidentali et Victoria (M. C.
COOKE). — A *Geastro umbilicato* præsertim exoperidio rigido et
forma peristomii differre videtur.

18. **Geaster mirabilis** Mont. Cryptog. Guyan. n. 595, t. VI. f. 8, De 227
Ton. Rev. Geast. pag. 12, t. I, L. — Minimus, xylophilus; exo-
peridio cupulari-aperto, tenui, rigido, fragilissimo, subseffido; la-
ciniis tandem deciduis, cupula persistente; endoperidio sphærico-
depresso, sessili, ardosiaci-plumbeo, disco orbiculari, concavo, acute
marginato; peristomio conico, sericeo; columella evanescente; spo-
ris 3,5-5 μ . diam., atris.

Hab. ad ligna putrescentia humi jacentia, Cayenna Americæ
meridionalis (LEPRIEUR); in ins. Ceylon Indostaniæ (BERKELEY et
CURTIS), Quisucula et Casengue Angola Africae (WELWITSCH et
CURREY). — Species profecto mirabilis ob formas, quas in serie
continua vegetationis maxime varias induit. Mycelium basi aluta-
ceum ad lignum longe lateque explicatur, ex quo surgunt indivi-
dua plura, plus minus approximata, interdum et aggregata. Junior
fungus albus et obovatus, a *Lycoperdo* haud dissimilis. Tum exo-
peridium 5 ad 8 mm. diametro metiens, integrum est adhuc et
verrucis crassis, concoloribus, nempe albis, ovoideo-acuminatis coo-
pertum intusque pallidum, columella filiformi instructum et cel-
lulis linearibus flexuosis, radiantibus repletum ita ut in hoc vege-
tationis statu speciem *Cyclodermatis* aut *Secotii* juniorem esse
videre tibi videatur. Tandem apice in lacinias quinas, flaccidas, ir-
regulares, patentes aut revolutas, deciduas ad medium usque fin-
ditur et inferne basis integra cupulariformis permanet. Endoperi-
dium globoso-depressum, ardosiacum, diametro 5 mm. æquans, flac-
cidum, collabens, centro umbilicato, marginato. Osculum conicum,
sericeum, primitus clausum, dein late apertum. Columella evane-
scens. Sporæ atræ, sessiles.

19. **Geaster subiculosus** Cooke et Massee in Grevillea 1887, p. 97. 228

— Gregarius, late obovatus, subiculo albo, effuso, xylostromioides enatus; exoperidio furfuraceo, lignicolori, multifido, laciniis plurimis acutis, rigidulis, demum reflexis fissurato; endoperidio obscuriori, sessili, globoso, levi, osculo leviter umbonato, fimbriato; capillitio sporisque atro-umbrinis; floccis flexuosis, simplicibus, variabilibus, attenuatis; sporis levibus, globosis, 4 μ . diam.

Hab. ad ligna putrescentia Trinity Bay Australiæ. — *G. mirabili* Mont. et *G. lignicolæ* Berk. proximus quod truncicola at subiculo denso distinctus. Exoperidium 12-20 mm. latum.

20. **Geaster lignicola** Berk. in Linn. Journ. XVIII, p. 386, De Ton. 22
Rev. Geast. pag. 12. — Exoperidio tomentoso-granulato, pallido, irregulariter rupto; endoperidio brunneo; peristomio fimbriato; capillitio fusco,

Hab. ad truncos Rockhampton Australiæ (Thozet). — Forte idem ac *G. mirabilis* Mont.

21. **Geaster javanicus** Lév. Champignons du Muséum de Paris p. 161, 22
De Toni Rev. Geast. pag. 12. — Exoperidio fulvo, verruculoso, intus nigricante, usque ad medium 6-fido, mycelio denso, contextu fulvo basi instructo; laciniis obtusis; endoperidio globoso, sessili, papyraceo, rufo; peristomio conico, fimbriato-penicillato; sporis levibus, pellucidis.

Hab. ad truncos plus minus terra obtectos in ins. Java (ZOLLINGER in herb. Mus. Paris). — Nucis avellanæ magnitudinem metiens.

22. **Geaster papyraceus** Berk. et Curt. in Proceed. Amer. Acad. of 2
Arts and Sciences IV (1860) p. 124, n. 116, De Ton. Rev. Geast. p. 13. — Gregarius, e mycelio albo oriundus, intus e rufo fusco; endoperidio brunneo, sessili; peristomio depresso, sericeo-fibroso.

Hab. ad truncos putrescentes in insula Ceylon Indostaniæ, in Japonia et in ins. Bonin.

23. **Geaster minimus** Schwein. Syn. Fung. Carol. n. 327 non Chev. 2
Morgan Americ. Geasters p. 967, f. 7, De Ton. Rev. Geast. p. 13, tab. I, H. — Exoperidio plerumque 7-9-fido; laciniis ex basi integra fornicata eleganter revolutis, ubi terram attingunt fusciscentibus, subtus candidis; endoperidio breviter at distincte pedicellato pisi fere magnitudine, basi plano-ovato, candido, glabro; peristomio plano-conico, ciliis connexis, demum revolutis apiceque discretis instructo; capillitio brunneo-fusco e floccis 2-3 μ . latis, flavescens efformato; columella brevi, tereti; sporis globulosis, echinulatis, 3,5-4,5 μ . diam., fuliginis.

Hab. ad terram nudam in locis graminosis Newfield N. J. (EDLIS), Aiken Carol. inf. (RAVENEL) aliisque Americæ borealis locis (BERKELEY, MORGAN), in ins. Guadelupa (LHERMINIER in herb. Mus. Paris. sec. LÉVEILLÉ), in ins. Ceylon Indostaniæ (BERKELEY et BROOME), Paramatta N. S. Wales, Queensland, Victoria etc. Oceaniæ (BERKELEY, COOKE), in ins. Borneo? (CESATI). — Exoperidium expansum usque 3 cm. diam. metiens; endoperidium 8-10 mm. latum, 9-11 mm. altum. *Geastro marginato* Vitt. affinis.

24. **Geaster marginatus** Vittad. Monogr. Lycoperdin. pag. 163, t. I, ²³³
f. IV, De Ton. Rev. Geast pag. 13, t. I, I. — Exoperidio usque ad medium 4-10-fido, laciniis inæqualibus, fornicato-revolutis, intus strato ceraceo-molli, subpulposo, albido aut pallide carneo, fragili, rimoso-inciso, facile secedente, extus strato floccoso-membranaceo, tenuissimo, albido-pallido; endoperidio ovato vel subgloboso, pedicellato, papyraceo, tenui, nitido, griseo, albido-fuligineo siccitate brunneo; peristomio plano-conico, ciliato-fimbriato, griseolo, rima circulari, marginali circumscripto; capillitio tenui, columellæ peridioque adnato, e floccis 3,5-4 μ . latis, flavidis efformato; columella breviter conica; sporis globosis, echinulatis, 4-4,5 μ . d., fuligineo-rufescentibus.

Hab. in locis aridis et silvis Feletto (SACCARDO), Pavia et Milano (VITTADINI) Italiæ borealis, in agro Tridentino (BRESADOLA), Jura et Alp. marit. Galliæ (BARLA sec. QUÉLET). — Endoperidium 4-10 mm. altum, 4-7 mm. latum. A *Geastro minimo* Schw. endoperidii forma et rima circa peristomium differre videtur.

25. **Geaster limbatus** Fries Syst. Myc. III, pag. 15, De Ton. Rev. ²³⁴
Geast. p. 13, t. II, A, Bischoff Kryptogamen Kunde f. 3636-3637, *Geastrum coronatum* Pers. a. Synops. p. 132, *Geastrum multifidum* De Cand. Flor. franç. II, pag. 267. — Exoperidio usque ad medium multifido, coriaceo, explanato. demum subrevoluto; laciniis usque 10, latis, inæqualibus, acutis, intus levibus, sordide brunneis, dein flavo-vel griseo-brunneis; endoperidio globoso, plicato, pedicello brevi, crasso, subcompresso suffulto, umbrino-nigrescente; peristomio depresso-conico, circulo pallescente cincto, fimbriato-ciliato; capillitio obscure brunneo e floccis luteolis efformato; columella subnulla vel obsoleta; sporis globosis, verruculosis, 3,5 μ . diam., brunneolis.

Hab. ad terram præcipue in pinetis in agro Tridentino (BRESADOLA), Finistère (CROUAN) aliisque Galliæ locis (CORDIER), in Britannia, Hungaria (KALCHBRENNER), Germania, Alabama, Caro-

lina inf. etc. Americæ borealis (COOKE, MORGAN), Somerset East Africae meridionalis (MAC OWAN sec. KALCHBRENNER). — *Geastro rufescenti* Pers. similis at pedicelli præsentia et peristomio fimbriato-ciliato differt. — Exoperidium expansum usque ad 7 cm. latum.

26. **Geaster peruvianus** Cooke Fungi of Peruvian Andes in Grevillea XIII (1885), p. 4, De Ton. Rev. Geast. pag. 14. — Exoperidio coriaceo, paucifido, explanato; endoperidio subgloboso, pedicellato, umbrino; peristomio discoideo, depresso, subacuto, pallidiori, fimbriato-ciliato; capillitio profuso, crassiusculo, fusco; sporis globosis, 2-2,5 μ . diam., pallide fulvis.

Hab. ad terram in Andis Peruviae (herb. KEWENSIS). — *Geasteris Bryantii* Berk. magnitudinem metiens; exoperidium 4-6-fidum. «An *G. limbati* mera forma sporis minoribus donata?».

27. **Geaster Cesatii** Rabenh. in Botanische Zeitung 1851, p. 628, De Ton. Rev. Geast. pag. 14. — Exoperidio usque ad medium 5-10-fido, laciniis revolutis, levibus, flavo-brunneis; endoperidio ovato, albo, griseo vel brunneolo, breviter at semper pedicellato, levi v. parum furfuraceo, punctiformi-foveolato; peristomio late conico, fibrilloso; sporis globosis, verruculosis, 3,5-4 μ . diam., brunneo-pallidis.

Hab. ad terram arenosam in silvulis prope Vercelli Italiae (CESATI), in Germania (WINTER) et Nederlandia (OUDEMANS). — Exoperidium 5-20 mm. latum.

28. **Geaster granulosus** Fuckel Enum. Fung. Nassoviae pag. 41, De Ton. Rev. Geast. pag. 14. — Exoperidio coriaceo, multifido, fornicato, laciniis acuminatis, triangularibusve, rimosis, sordide pallidis; endoperidio subgloboso, breviter pedicellato, umbrino cum pulvere granuloso, candido tecto; peristomio late conico, distincte marginato, filamentoso; sporis globosis, uniguttulatis, verruculosis, 5-6 μ . diam., brunneis.

Hab. ad terram in pinetis et silvulis Germaniae (FUCKEL, WINTER), prope Somerset East Africae australis (MAC OWAN sec. KALCHBRENNER). — Exoperidium usque ad 10-fidum, etiam 2,5 cm. diam. metiens. Teste cl. Bresadola in litt., forte ad *G. marginatum* Vitt. ducenda species.

29. **Geaster fimbriatus** Fries Syst. Myc. III, p. 16, De Ton. Rev. Geast. p. 15, t. I, P., Berk. Outlines p. 300, t. XX, f. 4, Grevillea II, t. XVII, f. 2, Morgan Americ. Geasters p. 967, f. 8, *Geaster novo-hollandicus* Müll. sec. Berk. *Lycoperdon Geaster* Batsch

Elench. p. 151, *Geaster australis* Berk. in Hook. Flor. Tasm. II, pag. 275, t. 183, f. 10, *Geaster multifidus* auct. pro parte. — Exoperidio simplici, 5-15-fido, explanato, flaccido; laciniis ovatis, intus levibus, pallide brunneis, strato superiore secedente, extus brunneo-fuscis; endoperidio subgloboso, sessili, flaccido-molli, levi, absque circulo pallidior, albido-flavo vel umbrino; peristomio indeterminato, piloso-fimbriato; capillitio brunneolo e floccis 3,5-4,5 μ . latis, flavescentibus efformato; sporis globosis, levibus vel subtiliter verruculosis, 3-3,5 μ . diam., fuliginosis.

Hab. ad terram in campis et silvis Portici (COMES) et pr. Roma (LANZI) Italiæ, in agro Tridentino (BRESADOLA), in Gallia, Alsatia et Lotharingia, Belgio, Nederlandia, Germania, Austria, Hungaria et Britannia, in Carolina inferiori Americæ borealis, in ins. Cuba Antillarum (BERKELEY), Rio Janeiro (GARDNER sec. BERKELEY), in Brasilia (TRAILL sec. BERKELEY) Amer. meridionalis, Casalalé in Angola (WELWITSCH et CURREY), pr. M. Boschberg (MAC OWAN sec. KALCHBRENNER) et Natal (WOOD sec. M. C. COOKE) Africae, Tasmania, New Zeland, Victoria, Queensland Oceaniae (M. C. COOKE, BERKELEY). — Laciniis explanatis usque ad 7 cm. latus.

30. ***Geaster tunicatus*** Vittad. Monogr. Lycoperdin. p. 18, t. III, f. III, 239 De Ton. Rev. Geast. p. 15, t. II, F, *Geaster fimbriatus* Tulasne Sur les genres Polysaccum et Geaster in Ann. Scien. Nat. 1842, pag. 135, t. V, f. 8-13 non Fries; *Geaster lageniformis* Cooke Handbook n. 1079 non Vittad. — Exoperidio 6-9-fido, revoluti, subflaccido; laciniis latiusculis, crassis, acutis, intus strato ceraceo-molli, 2-4 mm. crasso, fragili, ex albido carneo, facile secedente, extus strato tenui, papyraceo, albido; endoperidio globoso-mammiformi, sessili, tenui, fuligineo, non nitido; peristomio levi conico-elevato, haud determinato, apice floccoso-lacero, zona pallidiori subobsoleta circumscripto, capillitio laxo, tenui, endoperidio columellæque adnato, e floccis flavo-fuligineis efformato; columella pedicellata, pirinversiformi; sporis globulosis, minutissime granulatis, 2,5-3, μ . diam., e flavido fuligineis.

Hab. ad terram inter plantas varias prope Milano Italiæ borealis (VITTADINI), in Anglia (BERKELEY et BROOME) et Gallia (CORDIER). — «An *G. fimbriatus* mera varietas?».

31. ***Geaster vulgatus*** Vittad. Monogr. Lycoperdin. p. 164, t. I, f. III, 240 De Ton. Rev. Geast. pag. 16, t. II, M. — Exoperidio simplici, 1-8-fido, revoluti, subflaccido; laciniis inæqualibus crassissimis, intus strato ceraceo-molli, subpulposo, 2-5 mm. crasso, albido-ru-

bescente, fragili, plerumque rimoso-diffracto ac facile separabili, extus strato tenui, flexili, subinquinato; endoperidio submammi-formi, pedicello sæpe compresso, subæquali, floccoso-compacto, a strato corticis crasso circumcincto haud visibili, suffulto, flaccido, non nitido, brunneo vel fuligineo; peristomio elevato, concolori, haud determinato, levi, apice fimbriato-lacero; capillitio laxo, columellæ et endoperidio adnato, e floccis 4-7 μ . latis, flavescentibus efformato; columella crassa, conica, ultra endoperidii centrum excurrente; sporis globosis, subtilissime muriculatis, 2,5-3 μ . diam., fuligineo-lutescentibus.

Hab. in nemorosis et pinetis prope Roncaro et Milano Ital. bor. (VITTADINI), in agro Tridentino (BRESADOLA), in Alpibus maritimis Galliæ (BARLA sec. QUÉLET), prope Haarlen Neerlandiæ (VAN EEDEN sec. OUDEMANS). — *G. fimbriato* Fr. affinis et forte hujus varietatem sistens, *G. rufescenti* Pers. similis. Exoperidium adhuc clausum 2-3 cm. latum, endoperidium 1,5-2 cm. diam., pedicellus 2-4 mm. altus, sæpe strato crasso circumcinctus ideoque haud visibilis.

32. **Geaster Michelianus** W. G. Smith in Garden. Chron. n. 18 (1873), 241 p. 603 cum icone, Grevillea II, p. 35, t. XIII, De Ton. Rev. Geast. pag. 16, tab. II, N, *Geaster tunicatus Michelianus* in Erb. Critt. Ital. ser. I, n. 879 et II, n. 343. — Exoperidio pallide alutaceo, crasso, carnoso, plerumque 5-6-fido, laciniis subæqualibus, extus brunneis, eleganter pallide reticulatis; endoperidio ardosiacò-alutaceo, sphærico, subsessili; peristomio prominente obtuse dentato, endoperidio pallidiori; capillitio fusco e floccis 4,5-5 μ . latis, flavido-fuligineis efformato; sporis globosis, tuberculoso-echinulatis, 2,5-3 μ . diam., olivaceo-fuscis.

Hab. ad terram Genova et Albissola marina (PICCONE, BAGLIETTO) Italiæ borealis; Anglesea Britanniæ (sec. BERKELEY et BROOME), in Germania et Hungaria?. — *Geastro tunicato* valde affinis. « An *G. fimbriati* mera varietas? ».

33. **Geaster vittatus** Kalchbr. Gasteromycetes novi vel minus cogniti. 242 p. 10, t. V, f. 2, De Ton. Rev. Geast. pag. 16, t. II, D. — Exoperidio membranaceo-coriaceo, fornicato, in 8 circiter lacinias regulares, ex ovato longe acuminatas fisso, pagina ejus inferiori (externa) subglabra, alutacea, longitudinaliter rimosa ut albo vittata appareat, superiori (interna) strato carnoso, tenui, continuo, haud rimoso tecta, cinereo-fusca; endoperidio globoso, sessili, peristomio late conico, fimbriato-ciliato, fuscidulo; capillitio denso, fusco; spo-

ris globulosis, subtiliter echinulatis, 3-3,5 μ . diam., griseo-olivaceis.

Hab. ad terram in Australia (De MUELLER sec. KALCHIKBRENNER), Miami Valley, Ohio Americæ borealis (MORGAN). — Exoperidium horizontaliter explanatum 9 cm. diametrum metiens, endoperidium 2 cm. latum. *G. saccato* et *G. lageniformi* proximus. «An *G. fimbriati* forma?».

34. **Geaster mammosus** Chev. Flor. Paris. p. 359, Fries Syst. Myc. III, 243 p. 17, Vittadini Monogr. Lycoperdin. p. 155, t. I, f. IX, De Ton. Rev. Geast. pag. 17, t. II, G, *Lycoperdon stellatum* Rehl Flor. Cantabr. p. 980, *Lycoperdon carolinum* Batsch Elench. p. 151. — Exoperidio rigido, in 5-10 lacinias æquales, acutas ad basim partito, superne castaneo, levi, subtus argenteo, hygrometrico; endoperidio sphærico, insigniter depresso, sessili, lutescenti-albo aut pallide stramineo, levi, flaccido; peristomio discolori, conico-acuto, ciliato-subfimbriato, circulis pallescentibus cincto; capillitio denso, molli, brunneo, partim columellæ partim superficiei internæ endoperidii adnato; columella brevi, basi obtuse conica; sporis globosis, sublevibus, plerumque 2,5-3 μ . diam., pallide fuscis.

Hab. silvis montanis, ericetis, sepibus ad terram prope Lardirago et Milano (VITTADINI), in silva alpina Cansiglio (SACCARDO) et in agro Romano (LANZI) Italiæ, in Germania, Austria et Hungaria (HAZSLINSKY), Lusitania (COLMEIRO), Gallia (CHEVALLIER) et Britannia, Retki-gei Slavoniæ (SCHULZER et KANITZ) pr. Haarlem Nederlandiæ (VAN EEDEN sec. OUDEMANS), in America boreali? (HARKNESS, PECK). — «An *G. fimbriati* varietas?».

35. **Geaster capensis** Thüm. in Mycoth. Univ. n. 715, De Ton. Rev. 244 Geast. pag. 17. — Exoperidio explanato, ad ultra medium 7-11-fido; laciniiis cuneatis, apicibus longissimis, cuspidatis, plus minusve sed semper reflexis, fuscis, subtus albido-luteis, margine pallidiore, sublimbato, in excisuris fibro-ciliatis; endoperidio plus minus globoso, subplicato, sessili, apice depresso-umbilicato, castaneo, in circulo ciliato-fimbriato, tenui, levi, dilute griseo-fusco, papyraceo; capillitio laxo, tabacino; sporis globosis, levibus vel subechinulatis, 2-3 μ . diam., fuscidulis.

Hab. ad pedem arbustorum in silvis montis Boschberg prope Somerset East Africæ meridionalis (MAC OWAN). — Exoperidium plerumque 3-3,5 cm. latum (expansum), endoperidium 14-16 mm. latum. A *G. limbato* Fr. endoperidio sessili superne depresso differt. «An *G. fimbriati* simplex forma?».

36. **Geaster saccatus** Fries Syst. Myc. III, p. 16, Grevillea II, t. XX, 245

Morgan Americ. Geasters p. 968, f. 9, non Spegazz. De Ton. Rev. Geast. pag. 18, t. II, H, *Lycoperdon coronatum* Plumier Fougères de l'Amérique tab. 167, f. 9. — Exoperidio 6-9-fido, tenui, molli, flaccido; laciniis membranaceis, æqualibus, patentibus, e basi latiori in acumen prælongum angustatis, siccitate longitudinaliter revolutis apiceque tortis, basi integra, saccata endoperidium quasi cupula includente; strato externo laciniarum textura, mollitie et colore alutæ, interno tenui, arido, subrimoso; endoperidio globoso, collapsio, nudo, pallido, sessili; peristomio acuto, flocculoso-fimbriato v. sericeo, circulo lato orbiculari determinato, plano-ruguloso insidente; capillitio e floccis filiformibus, 4-5 μ . latis, dilute fuliginis efformato; sporis globosis, minute guttulatis et echinulatis, 2,5-3 μ . diam., e fuligineo subhyalinis.

Hab. ad terram New York, Alabama, Ohio, Truro, Florida, Canada, Jowa Carolina infer. S. U. aliisque Americæ borealis locis; in insula Cuba Antillarum; Venezuela, Guyana, Brasilia, Chili Amer. australis; in insula Ceylon Indostaniæ; Clarence River, Brisbane Queensland, N. S. Wales, Richmond River, Tasmania, in ins. Pennant Oceaniæ. — Exoperidium expansum usque ad 5,5 cm. latum, endoperidium 2-2,5 cm. diam. *Geastro lageniformi* Vitt. proximus et affinis. «An *G. fimbriati* subspecies»?.

37. **Geaster lageniformis** Vittad. Monogr. Lycoperdin, p. 160, t. I, 246

f. 2, Grevillea II, t. XIV, f. 1, Morgan Americ. Geasters p. 958, f. 10, De Ton. Rev. Geast. p. 18, t. II, B. non Cooke — Exoperidio ad medium plerumque 6-9-fido; laciniis revolutis, e basi latiore saccata, endoperidium cupulæ ad instar includente in acumen prælongum angustatis, tenuibus, flaccidis, siccitate apice in spiræ modum contortis, intus strato ceraceo-molli, fragili, pallide carneo secedente, extus strato lineolis, longitudinalibus albicantibus exarato; endoperidio subsphærico, sessili, molli, membranaceo, flaccido, non nitido; peristomio plano-conico, ruguloso-striato, subsericeo, disco orbiculari cineto; capillitio laxo columellæ parietibusque adnato; columella longiuscula, clavata; sporis sphæroideis, granulatis, levibus, 2,5-3 μ . diam., luteo-olivaceis.

Hab. ad terram in nemoribus prope Roncaro et Milano Italiæ borealis (VITTADINI), in Alp. maritimis Galliæ (BARLA sec. QUÉLET), Miami Valley Ohio Amer. borealis (MORGAN), Twed River Australiæ (M. C. COOKE). — Exoperidium expansum usque ad 7 cm.

latum, endoperidium circ. 15 mm. diam. « An idem ac *G. saccatus* ideoque *G. fimbriati* subspecies? ».

38. **Geaster Spegazzinianus** De Ton. Rev. Geast. pag. 19, tab. II, L. 247

G. saccatus Speg. Fung. Argent. Pug. IV, p. 97, n. 243 non Fries, — Exoperidio 8-16-stellatim laciniato-fisso, laciniis arcute involutis, basi saccata; endoperidio globoso, sessili, membranaceo-subcartilagineo, tenacello, gilvo; peristomio umbonato-acute, penicillato, sericeo-subfimbriatulo, saturatiore, indeterminato; gleba fibrosulo-gossypina ac pulverulenta, brunneo-subfuliginea; columella brevissima, umboniformi, parum distincta; sporis globosis, dense papilloso-muriculatis, 4,5-7 μ . diam., olivaceo-subfuligineis.

Hab. ad terram in Rep. Argentina Americæ meridionalis (SPEGGAZZINI). — Primitus terra totaliter infossus, rarius terræ superficiem attingens, adhuc clausus globosus, 15-25 mm. diam., dense cum aliis aggregatus, mycelio late per terram excurrente denso et strigose fibroso-tomentosulo, demum (apertus) terra expulsus. A *G. saccato* et *G. lageniformi* imprimis sporis majoribus differt. — Var. **minor** Speg. Fungi Guaranitici pug. I, pag. 44. Peridiis dense aggregatis, mycelio late per terram excurrente, dense et strigose fibroso-tomentosulo albo insidentibus v. semimmersis; cortice crassiusculo, subflaccido, 8-10-laciniato-fisso, sed tantum ad medium usque, laciniis triangularibus, acutis, extus albis, intus fuscis; endoperidio tenue membranaceo, globoso (4-8 mm. diam.) sessile, plumbeo-umbrino, osculo supero umbonato-acute, indeterminato, penicillato-sericeo; gleba fibrosulo-gossypina, pulverulenta, brunneo-fuliginea; sporis globosis, 3-4 μ . diam., papilloso-asperulis. Ad monticulos seu nidos Thermitum vetustos in campestribus pr. Carapegnà (SPEGGAZZINI).

39. **Geaster floriformis** Vittad. Monogr. Lycoperdin. p. 167, t. I, f. V, 248

De Ton. Rev. Geast. pag. 19, t. I, O. — Exoperidio 5-8-fido, eleganter revoluta, subtenui; laciniis strictis, sublanceolatis, intus strato tenui, ceraceo-cartilagineo, carneo-fuligineo persistenti, hygrometrico, extus strato tenui, albido, subnitido, eximie fibroso; endoperidio ovato-oblongo, papyraceo, sessili, albido-cinereo, nitido; peristomio minuto, papilliformi, haud determinato; capillitio laxo, columellæ peridioque adnato, e floccis 6-7 μ . latis, pallide flavis efformato; columella tenui, compressa, filiformi e basi usque ad apicem endoperidii excurrente; sporis globosis, echinulatis, 3,5-4 μ . diam., brunneolis.

Hab. locis aridis sabulosis La Torretta prope Pavia et Milano

Italiæ borealis (VITTADINI), in Gallia (QUÉLET), pr. Melbourne et Queensland Australiæ (M. C. COOKE). — Parvulus, *Geast. pusillo* Fr. proximus.

40. **Geaster pusillus** Fries Plantæ Preissiaue II, p. 139, De Ton. Rev. 249
Geast. pag. 19. — Exoperidio 8-fido, laciniis explanatis, siccitate involutis, flaccidis; endoperidio globoso, sessili, levi, candicante; peristomio papillato-prominente.....; sporis floccisque atro-fulgineis.

Hab. in solo arenoso ad fluvium Canning (Herb. PREISS n. 2695) et W. Australia (M. C. COOKE). — A *Geast. minimo* Schwein. peristomio levi differt.

41. **Geaster Scleroderma** Mont. Cryptog. Guyan. p. 139, n. 593, Syll. 250
Crypt. n. 1049, De Ton. Rev. *Geast.* pag. 20. — Exoperidio ad medium paucifido, laciniis crassiusculis, rigidis, extus verrucis pyramidato-subspinulosis persistentibus instructis, exsiccatione fragilibus, rufis, intus strato tenui, umbrino-fusco, parum hygroscopico, haud rimuloso obductis; endoperidio subgloboso, sessili, tenui, flaccido, levi aut subpuberulo, umbrino vel nigrescenti, apice inæqualiter lacero vel stellato-dehiscente; capillitio laxo; columella pistiliformi aut obpiriformi, 7-8 mm. longa, pallida; sporis globosis, 3,5 μ . diam., atro-fuliginosis.

Hab. ad terram nudam pr. Cayenne in America meridionali (LEPRIEUR). — Junior et nondum perfecte evolutus *Sclerodermati verrucoso* simillimus; stipes nullus adest, at exoperidium radices crassissimas latissime expansas, intricatas, albas emittit. Exoperidium usque ad 2 cm. diam. metiens.

42. **Geaster rufescens** Pers. Synops. Fung. pag. 134, Grevillea II, 251
 p. XIX, f. 2, Morgan Americ. Geasters p. 968, f. 11, De Ton. Rev. *Geast.* p. 20, tab. II, I., *Lycoperdon recolligens* Sowerby Engl. Fung. t. 80, *Lycoperdon stellatum* Bull. Champ. t. 471, f. 1. — Exoperidio rigido, plerumque 6-fido; laciniis demum revolutis, rufescentibus; endoperidio primitus saccato-incluso, subovato, sessili nudo, levi, pallido; peristomio determinato, dentato exareolato; capillitio brunneo; columella subglobosa, parva; sporis sphaeroides, levibus vel subtiliter granulatis, 3-4,5 μ . diam., brunneolis.

Hab. ad terram in pascuis et pinetis pr. Recoaro Italiæ borealis (sec. POLLINI), in Gallia, Belgio, Germania et Britannia, pr. Cernigow Rossia (BORSCHOV), in Hiberia et ins. Balearibus (COLMEIRO), in Hungaria (HASZLINSKY, KALCHBRENNER), in Austria (SCHIEDERMEYER), in Carolina infer. aliisque Americæ bor. locis (BERKELEY,

MORGAN), N. S. Wales et Australia occidentali (BERKELEY, M. C. COOKE). — Exoperidium laciniis explanatis 12 cm. etiam diam. metiens. Sec. De Candolle meram *G. hygrometrici* varietatem sistit.

43. **Geaster Beccarianus** Passer. in Nuovo Giorn. Botan. Italiano VII, 252 pag. 183, De Ton. Rev. Geast. pag. 20. — Exoperidio usque ad medium 5-fido; laciniis ovato-acutis, siccitate revolutis, strato interno tenui; endoperidio ovato-globoso, flaccido, sessile; peristomio obtuse dentato, dentibus striato-fimbriatulis; columella obsoleta; sporis globosis, parce granulosis, 3-5,5 μ . diam., fuscis.

Hab. pr. Keren Abyssiniæ in Africa (BECCARI). — *G. rufescens* minor, exoperidio crassiori laciniisque angustioribus. A *G. fimbriato* peristomio dentato differre videtur. «An *G. rufescens* varietas?».

44. **Geaster Bovista** Klotzsch Fungi in orbis terraquei circumnavig. a F. Meyenio collecti, p. 243, De Ton. Rev. Geast. pag. 21. — Exoperidio usque ad medium 5-6-fido, laciniis tenuibus, flaccidis, bifidis, extus umbrinis aut saturate fuscis, intus sordide albis; endoperidio globoso, sessili, tenuissimo, papyraceo, glabro, nitido, argenteo-cæsi; peristomio subplano, demum irregulariter dentato-lacero, nudo; capillitio argillaceo-fusco; sporis globosis, uniuucleatis, pallide fuscis.

Hab. ad terram circa Pisacomam in altis Peruviae. — Exoperidium vix 14 mm. latum. «An *G. rufescens* varietas?».

45. **Geaster Kalchbrenneri** Haszl. System. der Trichogasteres in 254 Verhandl. K. K. Zool. Bot. Gesellsch. in Wien. 1876, De Ton. Revis. Geast. pag. 21. — Exoperidio 5-fido, laciniis longis, acutis; endoperidio globoso, sessili, peristomio brevi, filamentoso, in dentes diviso; sporis globosis, verrucosis, 5 μ . diam.

Hab. in Hungaria (HASZLINSKY). — *G. Beccariano* Pass. et *G. Bovistæ* Kl. affinis ideoque forte *G. rufescens* varietatem sistens.

46. **Geaster lugubris** Kalchbr. Gasteromycetes novi vel minus cogniti 255 p. 10, t. V, f. 3, De Ton. Rev. Geast. pag. 21, t. II, O. — Exoperidio 7-8-fido, laciniis anguste lanceolatis, apice passim bifidis, intus strato tenui, continuo vix rimoso, nigro tectis; endoperidio globoso-depresso, basi umbilicata sessili, glabriusculo, argillaceo-fuscescente, vertice albo; peristomio parum prominente, subtiliter fibrilloso, in porum irregularem fatiscente; capillitio umbrino; sporis globosis, verrucosis, 3,5 μ . diam., umbrinis.

Hab. pr. fluvium Eder, Changoi in Mongolia boreali Asiæ (J. N. POTANIN). — Exoperidium adhuc clausum globosum, leve, 12-14 mm. diam. metiens.

47. **Geaster Schaefferi** Vittad. Monogr. Lycoperdin. p. 166, t. I, f. 1, 256
De Ton. Rev. Geast. pag. 21, t. II, C. — Exoperidio 4-8-fido, laciniis subrevolutis, basi integra convexo-conica, fornicata, strato interno crassiusculo, ceraceo-molli, fragili, levi vel rimoso-diffracto, facile separabili, strato externo floccoso-membranaceo, flexili; endoperidio globoso, pedicello strato laciniarum crasso interno immerso ideoque haud visibili suffulto, flaccido, tenui, leviusculo, albedo-fuligineo; peristomio subprominente, orbiculo basilari plane destituto, concolori, dentato, dentibus lacero-fimbriatis; capillitio molli, columellæ parietibusque adnato, fusco; columella globosa, basi angustata; sporis globosis, fusco-fuligineis.

Hab. ad terram in nemore pr. Roncaro Italiæ borealis (VITTADINI). — «Forte *G. rufescentis* varietatem stipitatam sistit».

48. **Geaster hygrometricus** Pers. Synops. Fung. p. 135, Nees Syst. 257
t. XII, f. 127, Bischoff. Krypt. Kunde t. LXXIII, f. 3632-3634, Grevillea II, t. XIV, f. 2, Inzenga Funghi Sicil. cent. I, n. 29, f. 4, Vittad. Monogr. Lycoperdin. p. 168, t. 1, f. 8, Cordier Champ. de France p. 211, t. 56, f. 1, Morgan Americ. Geasters p. 969, f. 12, De Ton. Rev. Geast. pag. 21, t. II, E. — Exoperidio usque ad basim, 7-20-fido, rarius 6-fido, laciniis rigidis extus canescentibus, sublignosis, glabratis, intus strato crasso, subdiscreto, persistente, subfusco, ceraceo, exoleta valde rimoso obductis, extus griseis vel griseo-brunneis, siccitate arcte involutis; endoperidio compresso, sessili, subreticulato quandoque levi, brunneo vel griseo, deinum apice inæqualiter lacero vel stellatim fisso; capillitio laxo, pallide brunneo; columella obsoleta; sporis globosis, verruculosi, 7-10 μ . diam., brunneo-rufis.

Hab. ad terram, in campis et silvis in Italia, Gallia, Austria, Slavonia, Hungaria, Germania, Belgio, Nederlandia, Hispania, Rossia, Anglia et Lusitania; pr. Alger Africæ borealis (TRABUT in herb. SACC.) et Somerset East Africæ australis (MAC OWAN et TUCK sec. KALCHBRENNER), prope Minussinsk in Sibiria (THUEMEN) et pr. Saharunpore Indiæ in Asia (DUTHIE sec. M. C. COOKE), in Amer. bor. et Uruguay (WINTER), Amer. austr.; pr. Rockhampton Australiæ (THOZET sec. BERKELEY, M. C. COOKE). — Laciniæ exoperidii valde hygrometricæ; exoperidium expansum usque ad 8 cm. diam. metiens.

49. **Geaster fibrillosus** Schwein. Synops. Fungor. Carol. n. 330, De 258

Ton. Rev. Geast. pag. 22. — Exoperidio multifido, laciniis numerosissimis, acuminatis, involutis, extus fibrilloso-squamosis, sæpe eleganter areolatis, intus rufescentibus; endoperidio subgloboso, sessili, haud reticulato, levi, laceratim dehiscente; sporis flavidis.

Hab. ad terram in Carolina (SCHWEINITZ) et Pennsylvania (MORGAN) Americæ borealis. — Exoperidium circ. 5 cm. diam. metiens.

Species minus notæ.

50. **Geaster djakovensis** Schulzer Deset Dana u Diakova in Sep. 259

Abd. aus LXIV Kuj. Rada jugoslavenske Akad. znanosti umjetnosti matem. prirodoslovn. vazzeda, Agram 1882, p. 6, De Ton. Rev. Geast. pag. 22. — Involucro fugacissimo; exoperidio 7-partito; laciniis triangularibus, tenuissimis, coriaceis, substantia carnosâ, crassa tectis, utrinque pallidis, demum revolutis; endoperidio globoso, dilute umbrino, nec striato nec nitido; peristomio conico, nec plicato nec dentato; capillitio fusco; sporis globosis, verruculosus, subinde pedicellatis, 2-2,8 μ . diam., umbrino-purpureis.

Hab. solit. in silva Gaj pr. Djakova Slavoniæ mens. Septemb. (SCHULZER). — Endoperidium circ. 14 mm. latum.

51. **Geaster Macowani** Kalchbr. Fungi Macowaniani p. 5, Grevillea 260

X, p. 107, De Ton. Rev. Geast. p. 23. — *G. fornicato* similis at triplo major; exoperidio 4-fido, laciniis ovato-lanceolatis; endoperidio breviter stipitato, glabriusculo; peristomio.....; sporis fusco-purpureis.

Hab. ad terram cap. Bonæ Spei in Africa australi (MAC-OWAN).

52. **Geaster dubius** Berk. Fungi of Challenger n. 130, De Ton. Rev. 261

Geast. pag. 23. — Exoperidio crasso, globoso, levi, subtiliter pulverulento-cervino, centro depresso, demum aperto, mycelio substipitiformi suffulto; floccis fuscis; sporis globosis, minimis, levibus.

Hab. ad terram Paramatta (BERKELEY) et N. S. Wales (M. C. COOKE) Australiæ. — Exoperidium vix 14 mm. latum. Forte formam haud bene evolutam alius speciei sistit.

53. **Geaster Linkii** Spreng. Syst. IV, p. 518, De Ton. Revis. Geast. 262

p. 23, *Sterrebeckia Geaster* Link Diss. II, p. 44, *Actinodermium Sterrebeckii* Nees Syst. pag. 136. — Exoperidio e carnosâ rigescente multifido; endoperidio lutescenti, sessili, substellatim rimoso; capillitio e floccis fuscidulis efformato.

Hab. in arenosis Italiæ, Hispaniæ et Lusitaniæ (LINK) et Pennsylvania Americæ borealis (SCHWEINITZ sec. MORGAN). — Sæpe 3-4 individua gregatim exsurgunt. «An potius *Schlerodema*?».

54. **Geaster stellatus** (Oed.) Wallr. Flor. Crypt. Germ. n. 2279, De Ton. Rev. Geast. p. 23, *Lycoperdon stellatum* Oed. Flora Danica t. 360, *Lycoperdon multifidum* Schreb. Spic. pag. 113. — Exoperidio 8-10-fido, laciniis tenuibus, explanatis vel subinvolutis, pallidis, demum caducis; endoperidio globoso, subsessili, viridulo.

Hab. inter muscos pr. Leipzig Germaniæ et in Dania. — Forte ad *Geast. Schaefferi* Vitt. ducendus.

DIPLOCYSTIS Berk. et Curt. On Cuban Fungi p. 344 (Etym. a *diplos* duplex et *cystis* vesica) *Discisceda* Czern. in Bull. Moscou 1845, p. 153. — Fungus e strato communi oriundus. Peridium duplex: exoperidium coriaceum, pateriforme, ore magno quasi circumscisso apertum; endoperidium membranaceum, osculo parvo ciliato; capillitium laxum; sporæ globosæ, umbrinæ.

1. **Diplocystis Wrightii** Berk. et Curt. Cuban Fungi n. 499. — Dense gregaria; exoperidio (evacuato) peziziformi, margine leniter inciso; endoperidio delicate filamentoso, sæpe ut in *G. fimbriato* aperto; floccis umbrinis; sporis concoloribus, 6-6,5 μ . diam.

Hab. ad ligna emortua, putrescentia in insula Cuba. — Exoperidium 8-9 mm. latum.

2. **Diplocystis? collabascens** (Czern.) De Ton., *Discisceda collabascens* Czern. in Bull. Moscou 1845, p. 153. — Exoperidio molli, plicato.

Hab. sub terra sabulosa pr. Kharkow Rossiæ.

3. **Diplocystis? compacta** (Czern.) De Ton., *Discisceda compacta* Czern. in Bull. Moscou 1845, p. 153. — Exoperidio firmo.

Hab. sub terra sabulosa pr. Kharkow Rossiæ. — Forte a præcedente indistincta.

4. **Diplocystis? mollis** (Czern.) De Ton., *Discisceda mollis* Czern. in Bull. Soc. Nat. Moscou 1845, p. 154, indscripta.

Hab. in montibus Caucaso (Prof. KALENICZENKO).

DIPLODERMA Link. Diss. II, 44 (Etym. a *diplos* duplex et *derma* cutis) non Kjellm. — Peridium duplex, exoperidium fibroso-ligne-scens, clausum, endoperidium discretum, cartilagineum, nucleo centrali lignoso; capillitium radiatum. — Genus quoad locum dubium, forte ad Sclerodermeas referendum.

1. **Diploderma tuberosum** Link. Diss. II, p. 44, *Scleroderma tuberosum* Spr. Syst. IV, p. 520. — Peridio subgloboso, fusco-lutescenti, floccis sporisque fuscis.

Hab. in arenosis Europæ australis.

2. **Diploderma glaucum** Cooke et Mass. in Grevillea 1887, p. 99. — 269

Subglobosum, glauco-cinereum; exoperidio fragili, mox secedente; endoperidio tenui, flavescente, sicco fragili, levi, ab exoperidio omnino discreto; capillitio simplici, contorto, intertexto; sporis glaucis, ellipticis, glabris, $10 \approx 5 \mu$.

Hab. ad terram Scamander River Australiæ (WINTLE). — Peridium 2,5 cm. latum, siccitate fragillimum; flocci sporis tenuiores, radiantes.

3. **Diploderma suberosum** Cooke et Mass. in Grevillea 1887, p. 100. 270

— Depresso-globosum deorsum in stipitem brevem attenuatum; exoperidio suberoso, persistenti, ochraceo; endoperidio cartilagineo, nigrescenti; capillitio simplici, recto, radiato, hyalino; sporis ochraceis, globosis, glabris, 3-4 μ . diam.

Hab. ad terram Brisbane Queensland. — Peridium 3,5-4 cm. diam., nucleus centralis solidus minor ac in *Diploderma glauco* C. et M.

TRICHAETER Czern. in Bull. Soc. Nat. Moscou 1845, p. 149 (Etym. a *thrix* capillus et *aster* astrum). — Peridium duplex, utrumque stellatim dehiscens; exoperidium coriaceum, squamosum; stipes nullus; endoperidium crassum, fragile, fuligineo-villosum, connatum, demum secedens, extus sporis conspersum; capillitium globosum, compactum sporis conspersum, post exoperidii dehisceniam denudatum; sporæ fuliginæ. — Fungi ad terræ superficiem evoluti. Generi *Battarrea* quodammodo analogus.

1. **Trichaster melanocephalus** Czern. in Bull. Soc. Nat. de Moscou 271 1845, pag. 150. — Obpiriformis, glaber, squamulis irregularibus subindistinctis obsitus, extus brunneus, intus ater, prima ætate carnosus, albidus.

Hab. ad terram in umbrosis Rossicæ. — Fungus cæspitosus vel solitarius, 5-8 cm. altus, 3,5-5 cm. latus.

BROOMEJA Berk. in Lond. Journ. 1844, p. 193 (Etym. a cl. mycologo britannico BROOME, cui dicatum fuit genus). — Peridium duplex, utrumque persistens; exoperidium incompletum, confluenso stromatiforme individuorum plurimorum commune, suberosum, ab endoperidio, ejus basin tantum induit, discretum; endoperidium papyraceum, apice fimbriato-dehiscens; capillitium laxum, endoperidio undique adnatum; sporæ floccis nodosis immixtæ, globosæ, echinulatæ, coloratæ. — Fungi gregarii, odori, massam confer-

tam ex individuis plurimis constantem efformantes, quorum singulorum basis in exoperidio communi immergitur sed puncto tantum affigitur.

1. **Broomeja congregata** Berk. in Lond. Journ. Bot. 1844, p. 193, 272 t. VI A, Dec. of Fungi n. 10. — Exoperidio stromatiformi, suberoso, griseo, rubro maculato, superne plurima endoperidia gerente; endoperidiis papyraceis, subtiliter granulatis, udis castaneis, dein pallidioribus, rufo tinctis; osculo fimbriato, in depressione orbiculari sito; capillitio centrum versus convergente e floccis simplicibus, nodulosis efformato; sporis globosis, numerosis, multinucleatis, ochraceo-rufis, echinulatis, 10-11 $\approx$ 8-9.

Hab. in ligno putrescente Albany Amer. bor. (BACKHOUSE), Somerset East (MAC OWAN) et Port Natal (WOOD) Africae australis. — Fungus insignis, caryophilli vel Anisi odore; massa fungina 12-15 cm. lata, usque ad 150 individua amplectens; exoperidium 6-7 mm. crassum, endoperidium 1 cm. circ. altum, 8 mm. latum.

2. **Broomeja guadalupensis** Lév. Fragm. mycol. p. 129. — Conferta; 273 exoperidio (volva) cupulato, cartilagineo, flavicante, osculo lobatodentato; endoperidiis globosis, sessilibus, membranaceis, albis, demum nigricantibus, apice fimbriato dehiscentibus; sporis globosis, hispidulis, brunneo-fuscis floccisque concoloribus.

Hab. ad terram in ins. Guadalupe (herb. Mus. PAR.). — Endoperidium 8-10 mm. latum.

COILOMYCES Berk. et Curt. Exotic Fungi p. 279 (Ety. a *coilos* cavus et *myces* fungus). — Peridium simplex, papyraceum, extus implexo-sericeum (rudimenta exoperidii); capillitium e peridio undique radians, intus cavum, parietibus lacunæ cribrosis; sporæ minute globosæ. — Peridia aggregata vel confluentia, mycelium commune tenue, saltem non crassum suberosum. Genus *Broomejæ* analogus et mycelium crustam crassam siccam non efformans; differt etiam capillitio intus regulariter cavo.

1. **Coilomyces Schweinitzii** Berk. et Curt. Exot. Fungi p. 279, t. I, 274 f. 1, *Onygena Lycoperdon* Schwein. mscr. — Peridiis aggregatis vel una confluentibus, e mycelio communi, tenui, sæpius membranaceo exsurgentibus, ovato-attenuatis, papyraceis, albis, cortice opaco-sericea tectis; capillitio centro regulariter excavato, parietibus poris numerosis obsitis; sporis subglobosis, minutis.

Hab. ad ligna putrescentia Surinam. — Peridia 6-9 mm. alta.

Subfam. 3. *Lycoperdeæ* Fr.

Peridium tenue, membranaceum, sessile vel stipitatum, cortice adhærenti præditum vel destitutum; gleba cellulis haud excavata, basi sterili instructa vel destituta; capillitium floccosum.

LANOPILA Fr. *Fungi Natalenses* p. 31 (Etym. a *lana* et *pila*). — Peridium sessile, simplex, tenuissimum, papyraceum, extus nudum et glabrum, haud definite v. sponte dehiscens; capillitium in pilam compactam, elasticam, a peridio discretam, densissime intertextum; sporæ globosæ, floccis tenellis levibus mox inspersæ.

1. **Lanopila Wahlbergii** Fr. *Fungi Natal.* p. 31. — Peridio omnino 275 simplici, extus nudo, levigato, chartaceo, tenaci, persistenti, osculo carente, sponte vero dehiscente, intus compacto, densissime intertexto, basi sterili nulla; sporis globosis, fuliginosis.

Hab. in terra ad Port Natal (WAHLBERG). — Fungus globosus vel ovatus, mollis, elasticus, arrhizus, demum secedens et mobilis, ut *Bovista*, pugni magnitudine.

2. **Lanopila? stuppea** (Berk.) De Ton. *Bovista stuppea* Berk. North 276 Amer. *Fungi* n. 330. — Ellipsoidea, sessilis; peridio extus albido, intus spadiceo; capillitio stuppeo, spadiceo; sporis parvis pedicellatis, 5 μ . diam.

Hab. ad terram Texas Americæ borealis (WRIGHT). — Peridium 5 cm. latum, 3 cm. altum.

3. **Lanopila? tabacina** (Sacc.) De Ton. *Bovista tabacina* Sacc. Mi- 277 chelia II, p. 565. — Globosa, majuscula, subarrhiza; peridio membranaceo-coriaceo, extus nitide plumbeo, denique varie fisso; gleba compacto-lanosa, elastica, tabacina; floccis rigidulis pluries dichotomo-ramosis, atro-fuliginosis, sursum pallidioribus, ramis majoribus, 10-12 μ . cr.; sporis globosis minutis, levibus, uniguttatis, 3,5-4 μ . diam. luteo-olivaceis, apiculo brevissimo auctis.

Hab. ad terram, Canada (LE METAYER COMM. LETENDRE). — Totus fungus 4-5 cm. latus.

4. **Lanopila? argentina** Speg. *Fungi Argent.* Pug. IV, n. 247. — Pe- 278 ridio arrhizo majusculo 3-6 cm. diam., globoso v. sæpius hinc inde depresso, cortice interiore tantum præsentente papyraceo-membranaceo, tenaciusculo, tenuiusculo, levissimo, non rarius concentrice rugoso, glaberrimo, pulchre intenseque gilvo-castaneo v. fulvo-fuligineo, primo gleba adnato, dein facile ab ea integra secedenti ac

frustulatum evanescenti; gleba lanoso-gossypina, compactiuscula, elastica, pulvere sporifero farta, diu cortice orbata persistenti intense fuligineo-subolivascens v. olivascens; floccis dense intricatis, gracilibus, 3 μ . crassis, parcissime septulatis, fuligineo-olivaceis, levissimis; sporis capillitio inspersis, globosis, 6-7 μ . diam., excentrice grosse 1-guttulatis, dense ac majusculè papillulato-scarbis, intense fuliginis.

Hab. ad dunas antiquissimas in planitie pampeana sparsas, non rara, Tuyù in Rep. Argentina. — Species generi *Lasiosphaeria* Reichdt. facile adscribenda, sed ulterius inquirenda. Specimina semper senescentia et videntur vegetatione subterranea (?) donata.

ERIOSPHÆRA Reich. Fungi pag. 135 (Etym. *erion* lana et *sphaira* sphaera), *Lasiosphaeria* Reichardt non Cass. — Peridium ignotum, verisimillime simplex, caducissimum moxque evanescens; capillitium ab eo discretum, in statu adulto perfecte liberum et totum fungum formans, in pilam elasticam laneam densissime intertextum; sporæ globosæ, verruculosæ, floccis tenellis levibus mox inspersæ; basidia clavata, tetraspora. — Genus *Lanopilæ* proximum at peridio haud persistente immo caducissimo diversum.

1. **Eriosphaera Fenzlii** Reich. Fungi p. 135, t. XX, 3. — Capillitio 270 globum magnum efformante, ferrugineo, e floccis ramosis, levibus, 5,5 μ . latis, densissime contextis constituto; sporis globosis, 7,5 μ . diam., verrucosis, e griseo fusciscentibus.

Hab. loco ignoto, forte ex India orientali. — Pila 30 cm. et ultra lata.

BOVISTA Dill. Nov. gen. pag. 76 cm. (Etym. a *bovista* h. e. Lycoperdon), *Globaria* Quéll. Champ. Jura et Vosg. pag. 370, *Endoneuron* Czern. in Bull. Mosc. 1845, pag. 151, *Sackea* Rostk. in Sturm. D.C. Fl., *Lycoperdi* sp. auct. nonnull. — Peridium globosum, membranaceo-papyraceum, persistens, sessile, cortice ceraceo-carnoso vel membranaceo-floccoso, fragili, deciduo tectum; osculum limbratum aut nullum; capillitium persistens, basi densius nec sterile; sporæ sphaericæ, plerumque longiter caudatæ.

1. **Bovista plumbea** Pers. Syn. Fung. p. 137, *Lycoperdon plumbeum* 280 Vittad. Monogr. Lycoperd. pag. 174, *Sackea plumbea* Rostk. in Sturm. DC. Fl. t. XVI, *Lycoperdon ardosiacum* Bull. Champ. t. 192, *Lyc. sphaericum* etc. Mich. Gen. t. 97, f. 6, *Bovista furfuracea* Pers. Syn. pag. 138, *Lycoperdon furfuraceum* Batsch

Elench. t. 115. — Peridio sphæroideo, papyraceo, ex albo plumbeo, cortice basi subpersistenti, osculo angusto; gleba primo albidâ, dein rubescente, odorata, demum fusco-purpurea, pulverulenta; sporis sphæroideis vel obovoideo-sphæroideis, e flavido fuscis 4-6 μ . pedicellatis, verruculosi.

Hab. in graminosis et pratis Europæ et Americæ borealis; pr. Minussinsk Sibiricæ et prope Adventbay, in insulis Azoris. — *Bovista nigrescenti* minor; peridium plerumque 2-4 cm. diam.

2. **Bovista tomentosa** (Vittad.) De Ton., *Globaria tomentosa* Quél. 281
 Enchir. p. 239, *Lycoperdon tomentosum* Vittad. Monogr. Lycoperd. p. 179, t. I, f. X, non Welw et Curr. — Peridio subcorticato, rotundato, basi depresso, tenuissimo, sessili, persistente, fusco-castaneo, cortice primo albido, dein fragili et evanescente; osculo minuto; gleba primo compacta, nivea vix cellulosa dein flavescens, demum fusco-olivacea, pulverulenta; capillitio laxo, subfriabili, æquali, fusco-fuligineo; sporis pedicellatis, globosis, fusco-olivaceis.

Hab. in pratis humo semiimmersa pr. Milano Italiæ borealis. — *Bovista plumbeæ* affinis.

3. **Bovista purpuracea** (B. et C.) De Ton., *Lycoperdon purpuraceum* 282
 Berk. et Curt. F. North Pac. Exp. n. 118. — Pusilla, subglobosa, e purpurascenti brunnea, basi subaculeata, sursum innato-squamulosa; basi sterili obsoleta; sporis luteo-olivaceis.

Hab. ad truncos putrescentes in insulis Bonin. — *Bovista plumbeæ* proxima.

4. **Bovista brunnea** Berk. Fl. new Zel. II, p. 189. — Globosa; peri- 283
 dio papyraceo-flexili, brunneolo; cortice innato omnino evanescente; capillitio sporisque pallide argillaceo-olivaceis.

Hab. ad terram inter muscos, prope Manowatu River Novæ Zeelandiæ (COLENSO) et N. S. Wales Australiæ. — *B. plumbeæ* subaffinis.

5. **Bovista? suberosa** Fr. Syst. Myc. III, p. 26, *Lycoperdon sube-* 284
rosus Bonord. in Bot. Zeitung 1857, p. 595, *Endoneuron suberosus* Czern. in Bull. Moscou 1845, p. 152. — Peridio subgloboso, sessili, compacto, crassissimo, firmo, suberoso, levi, fusco, intus vinoso-purpurascens; cortice evanido maculasve albas marcescentes relinquente, osculo nullo distincto, laceratione vero in lobos paucos, crassos dehiscente; capillitio valde compacto, obscure olivaceo; sporis concoloribus.

Hab. ad terram in Germania, Russia et Gallia. — Peridium

8 cm. et ultra latum, 2 mm. fere crassum. Sec. cl. Quélet est *Bovista plumbea* varietas. «An potius ad genus *Scleroderma* ducenda?».

6. **Bovista ammophila** Lév. in Ann. Scienc. Nat. 1848, p. 129, t. IX, 285
f. 5. — Peridio globoso-turbinato, tomentoso, verruculoso, albo, mycelio funiculiformi suffulto; sporis globosis, levibus, olivaceis, longepedicellatis, floccis tenuissimis immixtis.

Hab. ad terram basi truncorum in Italia, Gallia et Britannia nec non in California Americæ borealis. — Peridium 3-4 cm. latum. *Bovista plumbea* affinis.

7. **Bovista mundula** (Kalchbr.) De Ton. *Lycoperdon mundulum* Kalch. 286
in Grevillea IX, p. 3. — Peridio, velo floccoso disparente, glabro, albo, nucis avellanæ magnitudine; sporis cum capillitio carneo-rufis, 4 μ . diam.

Hab. in Australia (CURDIE). — Fungus nucis avellanæ magnitudinem metiens. A simili *B. plumbea* præsertim colore sporarum differt.

8. **Bovista tunicata** Fr. Syst. Myc. III, p. 25. — Globosa; peridio 287
papyraceo-flexili, plumbeo-griseo, lacero-dehiscente, extus membrana tenuissima, intus levissima concolori, extus hinc illinc fuscescente, discreta tunicato; capillitio soluto, subcompacto, olivaceo-fuligineo, totum peridium replente; sporis olivaceo-fuligineis, 5 μ . diam.

Hab. in graminosis prope Svenstorpsmolla Sueciæ et in Germania, Italia, Finmarekia et Gallia. — Peridium 2-3 cm. latum.

9. **Bovista glauco-cinerea** Speg. Fungi Argentini IV, n. 249. — Me- 288
diocris, globulosa, basi appendiculato-radicata, levissima, griseo-subplumbea, opaca; exoperidio absenti; endoperidio tenui-membranaceo, cartilagineo, subfragili, levissimo, glaberrimo, extus griseo-subplumbeo, intus atro-cinereo, gleba farcto atque ab ea absolute distinctissimeque discreto, basi sterili destituto, primitus integro dein per ætatem irregulariter lacero et frustulatim evanescenti; gleba molli, capillitio tenuissimo, gossypino, compactiusculo, sporis pulverulentis repleto, homoganeo composita, primo alba, dein centro pulchre cinereo-subglauca v. cinereo-subcærulescente, peripherice cinereo-fuscescenti; floccis hyalinis, 4 μ . cr., levibus, parce septulatis; sporis globosis, 3-8 μ . diam., ecaudatis, grosse 1-guttulatis, reticulato-papillulosis, glauco-subhyalinis.

Hab. ad terram sabulosam in dunis maritimis antiquis per plantam pampeanam sparsis, Tuyù in Rep. Argentina. — Species

pro *B. plumbea* Pers. facile primo visu adhibenda, mox tamen eximie distinguenda. Peridium 25-30 mm. diam.

10. **Bovista nigrescens** Pers. Dispos. p. 6, *Lycoperdon nigrescens* 289 Wahlb. Fl. Suec. n. 2267, *Lycoperdon Bovista* Sow. Engl. Fung. t. 331, *Lycoperdon globosum* Bolt. Fung. t. 118, *Lycoperdon arrhizum* Batsch Elench. t. 29, f. 116, *Sackea nigrescens* Rostk. in Sturm DC. Fl. t. XV. — Peridio subsphæroideo vel transversim elongato, tenaci, sessili, vix radicante, papyraceo, nitido, primo albo, demum nigrescenti, cortice initio levi, demum toto evanescente tecto, osculo lacero instructo; gleba initio alba, compacta, dein fuscescente, pulverulenta; capillitio æquali, subcompacto, fuscidulo; sporis sphæroideis vel subovoideis, longe pedicellatis, e fusco dilute purpureis, 5-6 μ . diam., pedicello 10 $\approx$ 1,5 hyalino.

Hab. in graminosis, pascuis silvisque fere totius Europæ nec non in Asia. — Solitaria vel gregaria, passim peridiis contiguïs, magnitudine varia, plerumque 3-5 cm. diam. — Var. **tenella** Sacc. Mich. II, p. 565: typo minor, nempe 1,5-2 cm. cr., extus rufo-nigricans, nitidula; gleba ochraceo-tabacina; floccis ramosis, fuliginosis, tortuosis, 8-10 μ . cr.; sporis globosis, levibus 3-4 μ . diam., pallide fuscis, 1-guttulatis, cauda persistenti, filiformi, hyalina, 10 $\approx$ 1 auctis. Ad terram Canadæ Americæ borealis (LE METAYER).

11. **Bovista uruguayensis** Speg. Fungi Argentini Pug. IV, n. 251. 290 — Parvula, globuloso-depressa, antice posticeque depressa, superne levis atque in centro ostiolo rotundo, parvulo pertusa, inferne breviter sed majusculè papilluloso-tomentosula sæpeque exoperidii residuis vestita, cinerea vel cinereo-gilva; cortice crassiusculo, tantum ad basim plus minusve regulariter subcupulatum persistenti, sordide fusco, fragili; peridio crasso, griseo v. fusco-griseo ubique concolori, coriaceo, rigido ac per ætatem parce subrimoso-reticulato, superne ad centrum osculo sat regulari, parvulo, gossypino-subfimbriatulo donato, levissimo, opaco, inferne tomento rigidulo breviusculo, denso, scrupuloso velutino atque sæpius peridii exterioris residuis cupulatum plus minusve vestito; gleba pulveraceo-gossypina, dilute olivascenti, peridio adnata; floccis gracilibus, 3 μ . crass., simplicibus, ramulosis, vix hinc inde papillis ornatis, tabacino-olivaceis; sporis globosis, 3-5 μ . diam., grosse 1-guttulatis, dilute olivaceis, levissimis, exappendiculatis.

Hab. ad terram arenosam pr. Concordia Uruguay (J. CISNEROS). — Species *B. cervinæ* Berk. affinis et primo intuitu pro *G.*

hygrometrico exoperidio orbato facile adhibenda. Peridium 10-15 mm. latum, 8-10 mm. altum.

12. **Bovista cervina** Berk. Fung. Darw. p. 447. — Parva, globosa; peridio membranaceo, pallido, cervino, cortice rigidiuscula; osculo minuto, subrotundo; capillitio sporisque concoloribus.

Hab. ad terram in America australi, prope caput Bonæ Spei Afr. austr. et Peradenya insulæ Ceylon.

13. **Bovista delicata** Berk. et Curt. F. N. Pac. Exp. n. 177. — Pussilla, globosa; exoperidio verrucis minimis consperso, tandem rimoso-deglubente; sporis argillaceis, subroseis, longe pedunculatis.

Hab. ad terram, Hong-Kong. — *Bovistæ cervinæ* Berk. similis.

14. **Bovista Muelleri** Berk. in Linn. Journ. XVI, p. 171. — Rufescens, subglobosa; exoperidio in particulas minutas rupto, endoperidio levi, sicco ruguloso, osculo minuto, subdentato; sporis eximie processibus hyalinis rugosis; capillitio pallide lilacino.

Hab. Herbert's Creek et Darling Range Queensland (E. M. BOWMAN). — *Bovistæ cervinæ* similis.

15. **Bovista brasiliensis** (Fr.) De Ton., *Lycoperdon brasiliense* Fr. Syst. Myc. III, p. 40. — Cæspitosa; peridio membranaceo, fibris radicato, persistente, globoso, punctato-scabro, osculo angustato obtuso; gleba sine basi sterili, e floccis laxis fomentariis absque columella constituta; sporis fuligineis.

Hab. ad truncos in Brasilia (BEYRICH) nec non in Indostania Asiæ. — Peridium 2-3 cm. latum.

16. **Bovista kerensis** (Passer.) De Ton., *Lycoperdon kerense* Pass. in N. Giorn. Bot. It. VII, p. 184, Mart. Flor. Bogos. p. 135. — Peridio flaccido, tenuissimo, fusco-plumbeo, persistente, osculo angusto deliscente, cortice nitidiusculo, levi vel apicem versus granulis innatis disseminato; basi sterili nulla; sporis fusco-purpureis, longe pedicellatis.

Hab. ad terram prope Keren in Abyssinia Africæ. — Fungus sessilis vel obovatus, ciceris vel avellanæ magnitudine; *Lycoperdo pusillo* et *B. dermoxanthæ* affinis at sporarum characteribus peridique colore diversus.

17. **Bovista dermoxantha** (Vittad.) De Ton., *Utraria dermoxantha* Quél. Enchir. p. 241, *Lycoperdon dermoxanthum* Vittad. Monogr. Lycop. p. 178, t. II, f. 1. — Peridio sessili, tenuissimo, flaccido, subirregulari, basi interdum plus minus plicato, persistente, osculo angustato dehiscente, cortice primo albido et granuloso, dein in areolas minutas furfuraceas diviso tecto; gleba primo alba, molliu-

scula, odore croci sativi, dein flavescente demumque olivaceo-fuliginea, floccoso-pulverulenta; capillitio tenuissimo, laxo, fuligineo-lutescente; sporis luteo-virentibus, globosis, aculeolatis.

Hab. in graminosis Italiæ borealis. — Fungus 8-25 mm. latus, radice simplici, tenui, longiuscula, filiformi instructus.

18. **Bovista nuciformis** Wallr. Fl. Crypt. Germ. n. 2259, Winter Die 297
Pilze p. 907. — Peridio sphærico utrinque obtuso, nuciformi, cortice exteriori membranaceo, scarioso, floccoso-pulverulento, subsistente internumque argenteo-griseum diutius obvelante, vertice demum recluso; floccis parvis, subtilissimis; sporis breviter caudatis, ochraceo-sulphureis.

Hab. ad terram semitarum collium s. promontiorum graminosorum Germaniæ. — Nucis avellanæ majusculæ molem et figuram exacte refert, corticem externum diu servat et demum primum ex verticis osculo patulo sporas ochraceo-sulphureas profundit et erratica avolat.

19. **Bovista defossa** (Vittad.) De Ton., *Globaria defossa* Quél. En- 298
chir. p. 239, *Lycoperdon defossum* Vittad. Monogr. Lycoperdin. p. 177, t. II, f. 2. — Sessilis, globoso-diformis; peridio cortice albedo, tenaci, tecto, rigenti, persistenti, osculo angustato deliscenti, albedo, demum fuligineo; gleba granuloso-compacta, primo nivea, dein e citrino croceo-umbrina, demum fusco-olivacea, pulverulenta; capillitio denso, subcompacto, æquali, fuligineo-rufescente; sporis globosis, pedicellatis, fusco-olivaceis.

Hab. in arenosis vix sub terra in Italia boreali. — Peridium 2-3 cm. latum, 1,5-2 cm. altum.

20. **Bovista pampeana** Speg. Fung. Argentini IV, n. 252. — Medio- 299
cris, subglobosa, sursum rotundato-subacutata, centro non vel vix umbonatula, subregulariter ostiolato-perforata; exoperidio exteriori absenti, endoperidio sæpius crassiusculo, primo flexili, vere coriaceo-lento, dein subpergameneo, castaneo vel atro-castaneo, levissimo, glaberrimo, gleba farcto, absque basi sterili, primo integro, clauso, dein superne ostiolo rotundo, sæpe sed non semper zona indeterminata, gilvescenti ac minutissime subvelutina ornato, indeterminato, margine flocculoso-sublacero pertuso, inferne frustulis parvis exoperidii ornato; gleba pulveracea, gossypino-tomentosula a peridio subdiscreta, homogenea, sordide intenseque fusco-subolivacea vel gilvo-olivascens; floccis gracilibus, 3 μ . cr., levibus, parcissime septulatis, crassiuscule tunicatis, ramulosis; sporis globosis, 10-11 μ . diam., dense majusculæque papillosis, opace

asperis, fuligineis, cauda earum diametrum non vel vix æquante, flexuosa, terete, pellucida ornatis.

Hab. in dunis antiquissimis per planitiem pampeanā sparsis Tuyū. — An *B. fusca* Lév. huc ducenda? Peridium 2,5-3 cm. diam.

21. **Bovista bicolor** Lév. Champ. Mus. Paris p. 162. — Peridio glo-³⁰⁰
boso, papyraceo, glabro, sursum badio deorsum lurido, vertice rum-
pente, cortice exteriori niveo secedente; capillitio sporisque echinu-
latis, fulvis, 5 μ . diam., pedicellatis.

Hab. ad terram, Bombay Indostaniæ (herb. Mus. PAR.), pr. Pe-
radenya in insula Ceylon, Nikobar. — Peridium 7 cm. et ultra
latum.

22. **Bovista Cisneroi** Speg. Fungi Argentini IV, n. 248. — Majuscu-³⁰¹
la, globoso-depressa v. globoso-subturbinata, sursum obtuse ro-
tundata, deorsum rotundato-coarctata, levissima non v. vix basi
parce breveque subradiatim plicatula, amœne aurantia; exoperi-
dio absenti; endoperidio tenui-membranaceo, cartilagineo-tena-
cello, levissimo vel antice minutissime ac laxè punctis albis exa-
sperato, superne castaneo-fulvo v. castaneo-croceo, inferne lute-
scenti-fulvo v. fulvo-aurantio, gleba farcto eaque arcte adnato, basi
sterili nulla, primo integro dein per ætatem ad partem superiorem
irregulariter ac subreticulatim lacero-dehiscenti; gleba elastica, ca-
pillitio tenuissimo, gossypino-compactiusculo, homogæneo composita,
pulvere sporigero inspersa, primo lutea, dein centro cinereo-fulva
et peripherice crocea vel aurantio-subsanguinea; floccis fulvis, gra-
cilibus, 3 μ . crass., simplicibus, levibus, parce septulatis; sporis glo-
bosis, 3-5 μ . diam., ecaudatis, excentrice 1-grosse guttulatis, levi-
bus (an minutissime laxèque rugulosis?), fulvo-croceis.

Hab. ad terram aridam sabulosam prope Concordiam Uruguay
(J. CISNEROS). — Species *B. bicolori* Lév., affinis, sed ut videtur
ab ea satis recedens. Peridium 4-7 cm. diam., 3-4 cm. altum.

23. **Bovista velutina** Berk. et Br. Ceylon Fungi n. 715. — Globosa,³⁰²
spadicea, velutina, e mycelio membranaceo albo oriunda; endope-
ridio tenui, capillitio sporisque fuscis, 3,5 circ. μ . diam., levibus.

Hab. ad truncos emortuos, in insula Ceylon. — Peridium 12-13
mm. lat.

24. **Bovista argentea** Berk. Exotic Fung. p. 400. — Ovoidea, de-³⁰³
pressa; peridio exilissimo, papyraceo, nitente, non argenteo; spo-
ris et capillitio rufo-brunneis.

Hab. ad terram Madras Indostaniæ (D. WIENT). — Peridia
majora 6,5-7 cm. diam., minora 5,4 cm. diam., 2,5 cm. circ. alta.

25. **Bovista? clavata** Fr. Syst. Myc. III, p. 23. — Obconico-clavata; ³⁰⁴
peridio papyraceo, levi, tenaci, fusciscenti, lacero-dehiscenti; capillitio compacto; sporis fusco-purpureis vel umbrinis.

Hab. ad terram in Skaptafield Islandiæ (THIENEMANN). — Peridium 10 cm. altum, 5 cm. apice latum, deorsum attenuatum nec in stipitem constrictum. «Forte *Lycoperdon*, enim capillitium in basi stipitiforini est substerile».

26. **Bovista scrobiculata** (Ces.) De Ton., *Lycoperdon scrobiculatum* ³⁰⁵
Ces. Born. p. 12. — Peridio subsphærico, badio, scrobiculato, intus sporarum gleba fusca fere ex toto repleto; basi sterili inconspicua; sporis globosis, levibus, luteolis, nucleo centrali obscuriori, 12 μ . diam.

Hab. ad culmos putrescentes Sarawak in insula Borneo. — Parvula, magnitudinis et faciei *Lycogalactis epidendri*, ad culmos putrescentes. Nonne status juvenilis *Lycop. alveolati* Lév.?

27. **Bovista spinulosa** Peck in Bot. Gazette 1879, pag. 170. — Glo- ³⁰⁶
bosa, sessilis, alba, dein flavo vel brunneo tincta; peridio crasso firmo, subcorneo, superne in frustula latiuscula secedente; floccis pallidis, plerumque ramosis, hinc illinc spinuligeris, sordide olivaceo-brunneis; sporis concoloribus, globosis, 10–12 μ . diam., minute verrucosis.

Hab. in apricis ad finum New Mexico (C. W. J. RISH). — Peridium 5–10 cm. latum.

28. **Bovista castanea** Lév. Champ. Mus. Paris p. 162. — Peridio ³⁰⁷
globoso, pergameneo, nigro, subtus byssoideo, cortice exteriori....; gleba compacta sporisque læte olivaceis, longe pedicellatis.

Hab. ad caput Bonæ Spei (DRÈGE in herb. Mus. Par.). — Peridium circ. 3 cm. latum.

29. **Bovista lepidophora** (E. et E.) De Ton., *Lycoperdon lepidophorum* ³⁰⁸
Ell. et Ev. Journ. Mycol. 1885, p. 88. — Obovata vel subglobosa; peridio cortice crasso, in fragmenta polygonia areolatim rumpente, papyraceo, tenui, olivaceo-brunneo, sursum irregulariter rupto evanidoque; capillitio absque basi sterili e floccis gracilibus, 3–5 μ . latis, sublevibus et plus minus dichotomo-ramosis efformato; sporis globosis, echinulato-verrucosis, brevissime pedicellatis, 4–5 μ . diam., flavescente-olivaceis.

Hab. ad terram prope Huron Dakota Americæ borealis (MISS NELLIE E. CROUCH). — Peridium 15 cm. altum, 20 cm. latum; fragmenta corticis secedentia 3–4 cm. lata, 1 mm. crassa.

30. **Bovista subterranea** Peck in Bot. Gaz. 1879, p. 216. — Sub- ³⁰⁹

gregaria, sub terra immersa; peridio globoso, cortice albo, fibris mycelicis obsito, secedente tecto glabro; floccis elongatis, gracilibus, flexuosis, simplicibus vel parce ramosis, brunneis; sporis globosis, 6-7, 5 μ . diam., verruculosi, brunneis.

Hab. ad terram herbosam Dakota Americæ borealis (C. W. IRISH). — Peridium 2,5 cm. circ. latum.

31. **Bovista circumscissa** Berk. et Curt. North Amer. Fungi n. 331. 310
— Minor, subglobosa; exoperidio subcoriaceo secedente, endoperidio furfuraceo, osculo subsericeo; sporis globosis, 4 μ . diam., levibus, demum rugulosis, sessilibus, argillaceis.

Hab. in hortis silvulisque ad terram Maine (J. BLAKE) et Colorado (T. S. BRANDIGN) Amer. bor. — Peridium 18-20 mm. latum.

32. **Bovista Pila** Berk. et Curt. North Amer. Fungi n. 329. — Sub- 311
globosa, pallida, subtiliter tomentosa; basi sterili nulla; capillitio sporisque brunneis, globosis, breviter pedicellatis, levibus, 5 μ . d.

Hab. ad terram inter plantas herbaceas Wisconsin (LAPHAM), Oneida (WARNE), Sandlake et Albany (PECK) Americæ borealis. — Peridium 3,5-4 cm. latum.

33. **Bovista spumosa** Lév. Champ. exot. p. 219. — Peridio globoso, 315
tenui, cortice spumoso, denso, albo, demum evanescente tecto; floccis fuscis; sporis concoloribus.

Hab. ad terram in insula Sumatra (KORTHALS). — Cortice adhuc tecta ovi magnitudinem metiens, dein tantum nucis.

34. **Bovista abyssinica** Mont. Syll. Crypt. n. 1051. — Radicata, ob- 313
ovata; peridio papyraceo, plumbeo-fuligineo, cortice in verrucas albas, minutas, tandem secedentes abeunte; strato sterili obsoleto, osculo determinate orbiculari; capillitio sporisque pedicellatis, olivaceo-fuliginosis.

Hab. ad septentrionem montis Selki in Abyssinia (FERET et GALINIER).

35. **Bovista dubiosa** Speg. Fungi Argentinii IV, n. 250. — Parvula, 314
globosula, antice rotundata, postice acutato-subrotundata, verruculosa, basi callosa, varie ac plus minusve appendiculato-radicata; cortice sublevi v. parce verruculoso, albo, tenui, facillime evanescenti; peridio tenuissime membranaceo, primo albo dein pallido fulvo-olivascienti, frustulis exoperidii usque ad senectutem plus minusve tecto, gleba farcto eaque adnato, basi sterili vere destituto sed inferne incrassatulo-callosa, primo integro dein irregulariter lacero-dehiscenti; gleba primo carnosa, succosa, alba, dein lutescenti-virescente postremo fulvo-olivacea, gossypino-floc-

culosa, pulvere sporarum repleta; floccis tennibus, 3-5 μ . crass., ramulosis, levibus, olivascentibus; sporis globosis, 3-5 μ . diam., crassiuscule tunicatis, excentrice 1-grosse guttulatis, levissimis, cauda recta, rigidula, tenui, earum diametrum semel v. bis æquante donatis.

Hab. ubique vulgata per planitiem pampeanā inter gramineas in locis sterilibus, sed rarius bene evoluta, Tuyū Amer. austr. — Peridium 18-24 mm. diam.

36. **Bovista Queletii** (Schulz.) De Ton., *Globaria Queletii* Schulz. in 315
Hedw. 1885, p. 149. — Fornicata, subtus impressa in centro protuberantia minuta conica 2,2-6 cm. et parum ultra in diam., 1-3 cm. alta, albida, glabra, levi, vertice areolata et dilutissime umbrina, tandem tota umbrina; gleba ex albo lutea, tandem griseo-fusca, tota fertili; sporis concoloribus, globosis, 3 μ . diam., estipitatis.

Hab. gregatim in pascuis post densas pluvias in Slavonia.

37. **Bovista Bresadolæ** (Schulz.) De Ton., *Globaria Bresadolæ* Schulz. 316
in Hedw. 1885, p. 149. — Acuminato-ovoidea, vertice compressa, 4 mm. lata, rimiformi-aperta, 1,5-2 cm. alta, subtus 8-11 mm. crassa, ex albo lutescente-fuscescente, deinde fusca, tandem fulva; exoperidio mox rupto in granula minima arcte cohærentia immutabile-albis; endoperidio tenaci; stipite solido, 3 mm. crasso, 2 mm. alto, albo, radiculis concoloribus in muscis immersis; tota gleba fertili, ex albo dilute griseo-fusca; sporis concoloribus, globosis, nec stipitatis, 3-4 μ . diam.

Hab. gregatim ad Carpinos Betulos vivas valde muscosas in Slavonia.

Species incerta.

38. **Bovista? candida** Schwein. Carol. n. 333. — Peridio albo, extus 317
byssoides in frustula abeunte, intus glabro; gleba lutescente; sporis ferrugineis.

Hab. in graminosis silvaticis Carolinæ Americæ borealis — Peridium persistens. Ad Lycoperda accedere videtur, forsan vero tunica interiori instructa. A *Lyc. giganteo*, cum quo jungit Sprengel, diversissimam esse, nullum dubium.

CALVATIA Fries Summa Veget. Scand. p. 442 (Etym. a *calvo*). — Peridium duplex, stipitatum, utrumque membranaceum at concre-

tum; exoperidium corticatum, superne secus plicas undulatas dehiscens; capillitium compactum; sporæ pedicellatæ.

1. **Calvatia craniiformis** (Schw.) Fr. Summa Veget. Scand. p. 442, 318
Bovista craniiformis Schwein. Syn. Fung. Am. bor. p. 256. — Stipitata; stipite obconico crasso, brevi, vix radiculoso aut saltem parum, expanso in capitulum peridiosum applanato-turbinatum, superne subdepressum, plicato-undulatum exacte referens cranium humanum; statu immaturo colore gaudet expallido-subcarneo; exoperidio membranaceo, furfure minuto tecto, deciduo, plagis magnis irregularibus; membranaceo glabro; endoperidio repleto floccis densissimis adherentibus; sporis pedicellatis floccis infixis copiosis, cum floccis lutescenti-ochraceis demum griseis.

Hab. gregatim in Pomariis Americæ borealis. — Stipes 6-7 cm. crassus, peridium 30 cm. et ultra latum, in stipite plicæ rariores observantur.

2. **Calvatia paludosa** (Lév.) De Ton., *Bovista paludosa* Lév. Champ. 319
Mus. Paris. p. 163. — Gregaria; peridio subgloboso subtus plicato-lacunoso, cortice albo tomentosulo secedente obtecto, demum nudo fusco-nigricante, stipite deorsum attenuato concolori; sporis globosis, glabris, longe pedicellatis capillitioque olivaceis.

Hab. in sphagnetis circa Malesherbes (herb. Mus. Par.). — Peridium 3-6 cm. latum; stipes 2-5 cm. longus, sursum lacunosus, deorsum faretus.

LYCOPERDON Tourn. Inst. p. 563, t. 331, em. (Etym. a *lycos* lupus et *perdon* flatus), *Utraria* Quél. in Champ. Jura et Vosg. p. 366, *Langermannia* sp. Rostk. *Bovista* sp. auct. nonnull. — Peridium plerumque utrifforme, membranaceum, papyraceum, cortice externo sæpius deciduo, furfuraceo, verrucoso vel aculeolato, plus minus regulariter apice dehiscens; gleba basi sterili instructa; capillitium tenuissimum; sporæ globosæ, breviter caudatæ, coloratæ. — Generi *Bovista* proximum, peridii basi sterili sporisque plerumque breviter caudatis distinctum.

A) Species leiosporæ.

Species sporis levibus donatæ vel quoad sporas dubiæ. — Sporas subinde rugulosas præbent *Lycoperdon gemmatum* et *Lycoperdon excipuliforme*.

1. **Lycoperdon gemmatum** Batsch Elench. Fung. p. 147, *Lycoper-* 320
don Proteus Bull. Champ. pag. 143, *Lycoperdon Bovista* Bolt.
Fung. tab. 117, *Lycoperdon verrucosum* Rupp. Jen. pag. 356,

Utraria gemmata Quél. Enchir. pag. 242. — Peridio stipitato, rarius subsessili, membranaceo, persistenti, cortice adnato, farinaceo spinulisque inæqualibus, brevibus, crassiusculis, erectis fragilibus facileque derasis dense obsesso, apice ore rotundo, minuto, prominente, verruciformi dehiscente, primitus albido, dein lutescenti-ferrugineo; gleba alba, dein flavo-virescente, demum griseo-brunnea; stipite cylindraceo, crasso, leviusculo; sporis sphæroideis, levibus, 4-5 μ . diam., olivaceo-luteis, demum olivascente-fusculis, sub lente dilute flavidis.

Hab. locis silvaticis, præcipue ad truncos putridos in Islandia, Norvegia, Suecia, Lusitania et ad terram in Italia, Gallia, Germania, Britannia, Austria, Slavonia, Fennia, prope Minussinsk Sibiriae, prope Somerset East Africae australis, Queensland, Maungaroa et Waitaki, Tasmania Australiae, in Indostania Asiae, California et Costa Rica. — Peridium primitus subcylindraceum vel clavatum, dein vulgo medio stipitato-constrictum, altit. 4-8 cm. demum fuliginoso-pallescens, columella centrali, cylindracea, filamentis composita præditum. Vulgo cæspitosum, 3-7 cm. latum. Adsunt plures varietates. — Var. **perlatum** (Pers.) Fr. Syst. Myc. III, p. 37, *Lycoperdon perlatum* Pers. Syn. p. 148: peridio rotundato-depresso, basi tereti, haud plicata suffulto, verrucis compactis demum caducis areolasque pentagonas relinquentibus obsito, albido vel carneo vel fuligineo. In silvis in Italia, Belgio, Gallia, Germania et Suecia. Peridium 5-6 cm. altum. — Var. **echinatum** (Pers.) Fr. Syst. Myc. III, p. 37, *Utraria echinata* Quél. Enchir. p. 241, *Lycoperdon echinatum* Pers. Syn. p. 147, *Lycoperdon muricatum* Willd. Fl. Berol. p. 411: peridio turbinato, substipitato, verrucis spinosis, validis, subdistantibus obsito, sæpius umbrino; capillitio violaceo-brunneo; sporis concoloribus 5-6 μ . diam., echinulatis. Ad terram in fagetis Italiae, Galliae, Britanniae, Germaniae et Sueciae. Forma **echinellum** Berk. et Br. Ceyl. Fungi n. 721: minus echinatum, rufum, basi parva instructum; sporis globosis, 5 μ . diam., leviusculis. Ad terram prope Peradenya in insula Ceylon. — Var. **molle** Pers. Syn. p. 150 (*Lycop. molle*), Peck Unit. Stat. Lycop. pag. 26: peridio breviter excipuliformi, sordide lutescenti minutissime verruculoso, dein deterso nitente, basi sterili mediocriter laxe cellulosa; gleba olivascente; floccis ramosis, 2,5 μ . diam. flavo-melleis; sporis globosis, minute asperulis, 3,5-4,5 μ . diam., concoloribus. Ad terram in Italia, Belgio, Gallia et Germania, in America boreali, prope Minussinsk Sibiriae. — Peridium 1,5-4 cm. la-

tum. *Lyc. excipuliformis* var. *flavescenti* Quél. simillimum. — Var. **papillatum** (Schaeff.) Fr. Syst. Myc. III, p. 38, *Lycoperdon pratense* Pers. p. parte, *Lycoperdon papillatum* Schaeff. Bavar. t. 184, *Lycoperdon cepaeforme* Chev. Flor. Par. p. 353: peridio subrotundo, saepius obtuso, sessili, papilloso et furfuraceo-pulverulento, albido vel griseo. In campis praecipue graminosis in Italia, Belgio, Gallia, Suecia et Germania, prope Minussinsk Sibiriae. A *L. pusillo* caute dignoscendum.

2. **Lycoperdon excipuliforme** Scop. Carn. p. 488, *Lycoperdon gem-* 321
matum var. *excipuliforme* auct., Fries Atlas Sver. tab. 73, fig. 1, *Utraria excipuliformis* Quél. Enchir. pag. 241. — Peridio albo, subglobo, superne appanato-rotundato, inferne brevissime conico-subturbinate, plicato-sulcato, primo albo, sursum grosse verrucoso, dein olivascens, sublevi; apice osculo minuto, rotundo dehiscens; cortice exteriori albo, crasso, superne in verrucis 3-4-gonis, majusculis fracto, inferne sublevi, frustulatim deciduo, cortice interiori primo albo, carnosulo, dein olivaceo-fulvescente nudo tenui-membranaceo, subpapyraceo, cum gleba continuo, basi dimidium fere peridium inferum occupante, alba, majusculis cellulosa, gleba basi peridioque adnata, primo carnosula alba, dein lutescente, postremo olivascens flocculoso-pulverulenta; floccis gracilibus, 4-5 μ . crass., levissimis, ramulosis, parce septatis, chlorinis; sporis globosis 5-5,5 diam., grosse 1-guttulatis, dilute olivascens, levibus vel minute echinulatis, basidiis obovatis, bisporis.

Hab. ad terram in pratis et silvis in Italia, Germania, Belgio, Suecia, Fennia, Lusitania et Gallia, pr. Minussinsk Sibiriae, Canada Amer. bor. et pr. Alger Africae. — Peridium usque ad 20 cm. altum; stipes concolor, plicato-sulcatus: — forma **flavescenti** Quél. Champ. Jura p. 368: minus, tenue, stramineum dein, cortice deciduo, citrinum. Gregatim in muscosis et graminosis Jura Galliae. Sec. Winter varietatem *Lycop. gemmati* sistit. — Var. **platense** Speg. F. Arg. IV, p. 105: peridio magis globuloso, minori 18-20 cm. diam., 14-16 cm. crass., basi non vel vix plicato-sulcatulo; cortice exteriori ubique subaequaliter in verrucis gracilibus, longiusculis, acutis, densissimis constricto; cortice interiori dilute gilvo-olivascens, tenuissime papyraceo, etiam in senectute frustulis corticis exterioris vestito, basi cellulosa, bene evoluta, albescente, vix tertium inferum, peridii occupante; gleba cortice adnata, cum base peridioque continua, fulvo-virescente v. tabacino-olivascens, flocculoso-stipata, pulverulenta; floccis gracilibus 3-5 μ . crass., ramulosis, septatis, oliva-

ceis; sporis globosis 3-5 μ . diam., grosse 1-guttulatis, levissimis, chlorinis. In pratis praecipue locis subarenosis sterilibusque (an ad radices graminearum?) in pampa prope los Montes Largos, Tuyu in Republica Argentina. Haec forma inter *L. gemmatum* Batsch et *L. asperum* (Lév.) media est, at facillime omnes ad unam satis variabilem reducendae videntur.

3. **Lycoperdon foetidum** Bonord. in Botan. Zeitung 1857, p. 629. — 322
Peridio polymorpho, brunneo v. badio, saepe difformi, aculeis simplicibus compositisque angulatis deciduis, areolas reticulatas relinquentibus, horrido, dein subumbonato osculoque limbato dehiscente; capillitio griseo-brunneo; sporis minutis, globosis, levibus, olivaceo-rufis vel fusco-virescentibus.

Hab. in silvis Germaniae. — Peridium 2-6 cm. altum. *Lycoperdo gemmato* proximum.

4. **Lycoperdon Kalchbrenneri** De Ton., *Lycoperdon marginatum* 323
Kalchbr. in Thüm. Fung. it. Mong. n. 64 non Vittad. — Peridio globoso-depresso, basi late turbinato, passim plicato, in peripheria marginata subacuto notato, granulis angulatis vel stellato-mucronatis ornato, albido-fuscescenti; sporis globosis, subglabris, 2,5 μ . diam., cum capillitio cinereo-umbrinis.

Hab. in humo silvarum acerosarum Mongoliae borealis, Thianschan orientalis (POTANIN). — Peridium 2-4 cm. diam. Specimina modo exoleta adsunt, sed ob marginem, qui haud fortuitus videtur, et colorem sporarum obscurum, ad variet. *Lyc. gemmati* vix referri possunt.

5. **Lycoperdon Bovista** Linn. Spec. Plant. n. 1653 pr. p. Fr. Syst. Myc. 324
III, p. 29, *Lycoperdon maximum* Schaeff. Icon. t. 191, *Lycoperdon giganteum* Batsch Elench. f. 165, *Lycoperdon Proteus* Sow. Engl. Fungi t. 332 non Bull. *Bovista gigantea* Nees Syst. f. 124, *Langermannia gigantea* Rostk. in Sturm DC. Fl. p. 23, t. 10, *Bovista maxima* Dill. Diss. p. 176. — Peridio subsphaeroideo, sessili, sursum fragili, areolatim rumpente demum superne evanescente, primitus griseo-albido, dein lutescente, demum olivascente-griseo, cortice floccoso, distincto, capillitio raro, evanescente; sporis sphaeroides, levibus, olivascentibus, dein fuscescentibus, 4 μ . diam.

Hab. locis graminosis apricis in Italia, Germania, Gallia, Britannia, Islandia, Finmarkia, Suecia, Belgio; Bethlehem et Greenbush Americae foederatae, in Asia et in insula Java; a Fennia meridionali usque ad Lapponiam rossicam passim indicatur. — Circiter 1 dc. in diam. Variat multo majus diam. 2 dc. vel ultra, al-

bum (*L. giganteum* Auct.). In statu juvenili edule. Inodorum, insipidum.

6. **Lycoperdon furfuraceum** Schaeff. Icon. t. 294, *Lycoperdon pusillum* 32
Batsch Elench. II, p. 228, *Bovista pusilla* Pers. Syn. Fung. p. 138, *Lycoperdon cepiforme* Bull. Champ. t. 435, f. 2, non Chev. *Lyc. Bovista* Bolt. Fung. t. 117, f. c., *Lyc. pratense* Schum. Emum. II, p. 193, *Lycoperdon polymorphum* Vitt. Mon. Lycop. p. 183, t. II, f. 8, *Globaria furfuracea* Quél. Champ. Jura p. 370, t. III, f. 6, *Utraria furfuracea* Quél. Enchir. p. 241. — Peridio subsphæroideo, sessili, flaccido, persistenti, osculo angusto dehiscenti, cortice floccoso, in squamulas adpressas rupto, secedente, primitus albo, dein lutescente tandem sordido aut lutescente vel albido-fusco, capillitio laxo olivaceo, basi sterili parum distincta; sporis sphæroideis, levibus, olivaceo-fuscescentibus, sub lente dilute flavidis, 4 μ . diam.

Hab. in vervactis, campis apricis sterilibus etc. ad terram in Italia, Fennia, Gallia, Austria, Belgio, Germania, Anglia, Islandia, Suecia, in Carolina et Canada Americæ borealis, pr. Somerset East Africæ australis, Peradenya in insula Ceylon, pr. Minussinsk Sibiriae, Queensland N. S. Wales, King George's Sound Australiæ, in insula Java. — Fungus radicans terræ semiimmersus, semper absque stipite, 1-5 cm. latus, edulis. Species ad genus *Bovista* transitum faciens.

7. **Lycoperdon leprosum** Berk. et Rav. in Peck Mon. Lycop. p. 29. 32
— Peridio globoso, sessili, albo, squamoso-leproso; capillitio virescenti-flavo; sporis globosis, 4 μ . diam., levibus, concoloribus.

Hab. ad truncos muscosos Aiken in Carolina inferiori Americæ borealis (RAVENEL). — *Lycoperdo pusillo* simile at capillitio pallidiori sporisque distinctum.

8. **Lycoperdon microspermum** Berk. Decades of Fungi n. 350. — Pe- 32
ridio subgloboso, obtuso, extus radicante, toto flaccido, persistente, ore minuto rotundo dehiscente, primo rufo-brunneo indistincte rimoso, squamulis acutis demum exasperato, pallidiori, sursum glabro; strato sterili parvo, capillitio uniformi; columella obsoleta; sporis minutissimis, globosis, olivaceo-viridulis, levibus, rarius pedicellatis.

Hab. ad terram Darjeeling. — Peridium 8-25 mm. latum. *L. pusillo* affine.

9. **Lycoperdon emodense** Berk. in Hook. Journ. Bot. 1854, p. 172. 32
— Peridio ovato, furfuraceo-granuloso, brevissime stipitato, osculo magno, irregulari rupto; capillitio griseo; sporis 3,5 μ . diam., argillaceis.

Hab. ad terram Sikkim, East Nepal Indiæ (D. HOOKER). — Fungus 2 cm. latus, 2,5 cm. altus; squamæ vel granuli umbrino-brunnei, minutissimi. A *Lycoperdo microspermo* sporis præcipue, distinctum.

10. **Lycoperdon xanthospermum** Berk. in Hook. Journ. Bot. 1854, 329 p. 172. — Globosum, astipitatum; peridio tenuissimo, flavescente, maculis brunneis corticis exterioris reliquis notato, capillitio flavo; sporis concoloribus, minute pedicellatis, 3,5 μ . diam.

Hab. ad terram, Khasia Indiæ (D. HOOKER). — Peridium 2,5 cm. latum. *Lyc. emodensi* affine at exoperidio sporisque distinguitur.

11. **Lycoperdon reticulatum** Berk. Fl. New Zel. p. 190. — Globosum, 330 deorsum attenuatum; peridio subtiliter reticulato demum glaberri-
mo; sporis globosis (*Lycop. pusilli*).

Hab. ad terram in Nova Zelandia (COLENSO) nec non pr. Melbourne et Victoria Australiæ. — Affine *L. pusillo*.

12. **Lycoperdon Wrightii** B. et C. North Amer. Fungi n. 334. — Glo- 331
bosum, sessile primum subtiliter echinatum, verruculis cito seceden-
tibus glabrum ore sericeo apertum; capillitio sporisque globosis, le-
vibus, 4 μ . diam., argillaceis.

Hab. ad terram, Connecticut Amer. bor. (WRIGHT). — Peridium 18-20 mm. latum: — var. **separans** Peck. U. S. Lycop. p. 21, *Lycoperdon separans* Peck: maius, peridio subgloboso v. lentiformi, 22-60 mm. lato, echinato, spinulis substellatis v. verrucis pyramidatis, deciduis peridiumque leve vel velutinum relinquentibus. Worcester Amer. borealis; — var. **atro-punctum** Peck. loc. cit.: majus, 20-45 mm. latum, peridio subgloboso, albo, verrucis vel spinulis brunneis vel nigris. Cum specie.

13. **Lycoperdon cruciatum** Rostk. in Sturm D. C. Fl. 18, p. 19, t. VIII. 332
— Peridio globoso, basi stipitiformi, brevi, extus aculeis brevibus, crassis obsito, 3-4 apicibus coherentibus ideoque cruciformibus; cortice in fragmenta magna evanescente; sporis flavo-brunneis, levibus.

Hab. in truncis Pinorum in Germania et Rhode Island (OLNEY). — Peridium 2,5-3 cm. latum. *Lycoperdo Wrightii* proximum.

14. **Lycoperdon stellatum** Cooke et Masee in Grevillea 1887, p. 97. 333
— Sessile, subglobosum; peridio tenui, flaccido, primum verrucis crassis stellatis spinosis tecto, demum in fragmenta secedente dein superficie glabro, osculo minute-lacerato; capillitio sporisque sordide olivaceis; floccis subrigidis, sparse ramosis; sporis globosis, glabris, 5 μ . diam.

Hab. ad terram, Israelite Bay. S. W. Australiæ (MISS. BROOKE).

— Flocci sporis æquilati, basi sterili continui. Peridium 3,5-4 cm. latum. *Lycoperdo cruciato* affine.

15. **Lycoperdon calvescens** B. et C. North Amer. Fungi n. 335. — 33

Subglobosum, primum echinato-verruculosum, verruculis cito secedentibus subtiliter velutinum; capillitio sporisque globosis levibus primitus pedicellatis, dein ecaudatis, 4 μ . diam., argillaceis.

Hab. ad terram, Connecticut Americæ borealis (WRIGHT). — Peridium circ. 3 cm. latum e basi radiculosa brevi exsurgens. *Lyc. Wrightii* peraffine.

16. **Lycoperdon plicatum** B. et C. F. N. Pac. n. 120. — Parvum, sub- 33
rotundum, ex albo pallide fuscum, subtus plicatum; cortice verruculoso sursum fatiscente evanido; sporis levibus, brevissime pedunculatis.

Hab. ad terram in Japonia.

17. **Lycoperdon muricatum** Bonord. in Bot. Zeit. 1857, p. 612. — Pe- 33
ridio lentiformi vel obconico, in basim brevissimam scrobiculatam contracto, primum albo et in superiori facie aculeis triquetris coronato, dein umbonato et denudato-fusco, osculo rotundato dehiscente; capillitio obscure brunneo; sporis globosis, maiusculis, levibus, fuscis.

Hab. in silvis Germaniæ et Austriæ. — Peridium 2-5 cm. latum.

18. **Lycoperdon pedicellatum** Peek 26 Rep. p. 73. — Peridio subpi- 33
riformi, albido, cortice persistenti, spinis angulatis, densis basim versus minoribus obsito; capillitio ochraceo-viridi vel sordide olivaceo, sporis concoloribus, pedicello 3-5-ies longiore instructis, 4-4,5 μ . diam., levibus.

Hab. ad terram trunosque putrescentes Croghan et Center Americæ borealis. — Peridium circiter 2,5 cm. latum. *Lycop. piri-formi* simile.

19. **Lycoperdon pulcherrimum** B. et C. North Am. Fungi n. 336. — 33
Obovatum, verrucis pyramidatis echinatis, albis exasperatum, basi glabro, plicato, osculo nullo, capillitio sporisque globosis, levibus, pedicellatis, olivaceis, 4 μ . diam.

Hab. ad terram in Pennsylvania Amer. bor. (WICHENER). — Peridium circ. 2,5 cm. latum.

20. **Lycoperdon leucotrichum** Dur. et Mont. Syll. Crypt. n. 1055. — 33

Peridio membranaceo, tenui, fragili, undique aculeis strati corticalis mollibus sparsim evanidis vestito lutescente, vertice laciniatim de-

hiscente, laciniis persistentibus aut frustulatum elabentibus; capillitio albo, tandem a basi cellulosa solubili; sporis sessilibus, lutescenti-olivaceis, levibus.

Hab. ad terram circa Bone, Eidough Africae (DURIEU).

21. **Lycoperdon Kakavu** (Zippel) Lév. Champ. exot. p. 220, *Bovista* ³⁴⁰
Kakavu Zippel in herb. — Peridio rotundato-depresso, basi plicato, verrucis granulosis tecto; stipite firmo, sursum dilatato-obconico, furfuraceo; capillitio tenuissimo, olivaceo-fusco; sporis concoloribus, globosis, levibus.

Hab. ad terram prope M. Gédhé in insula Java. — Fungus 10 cm. circiter altus.

22. **Lycoperdon Gunnii** Berk. Fl. Tasm. p. 265. — Sessile, subglo- ³⁴¹
bosum, minutissime stellato-verrucosum, columella brevi; sporis longe pedunculatis, 4-5 μ . diam., globosis, levibus, olivaceis.

Hab. in pascuis, New Norfolk in Tasmania (GUNN). — «An potius *Bovista*?»

23. **Lycoperdon granulatum** Wallr. Fl. Crypt. Germ. n. 2265. — Pe- ³⁴²
ridio subgloboso in basin plicatam attracto membranaceo fusco duriusculo fragili, cortice continuo in verrucas exiguas tessellatas asperas contracto, floccorum columella basilari compacta obovata; sporis cinereo-olivaceis.

Hab. in ericetis nemorosis Germaniae. — *Bovistam nuciiformem* mole ac figura, colore et superficie *Ceraunium granulatum* refert.

24. **Lycoperdon fuscum** Bonord. in Botan. Zeit. 1859, p. 626, Winter ³⁴³
Pilze p. 902. — Minutum; peridio piriformi vel conico-attenuato, primo albo-flavescente, superne aculeis mox deciduis granulosque floccosos relinquentibus obsito, dein gibboso, flavo-virescente, demum flavido-brunneo, apice osculo rotundato vel lacinulato instructo; capillitio flavo-brunneo; sporis minutis, globosis, longiuscule pedicellatis, levibus, subconcoloribus.

Hab. in silvis Germaniae. — Var. **carneo-fuscum** Bonord. loc. cit.: piriforme, gibbosum, maturitate flavum sursum flavido-rufum, umbone obscuriori, dein pallidiori nitenteque. Cum specie. — Var. **flavo-fuscum** Bonord. loc. cit.: minus, album, dein flavum, demum flavido-brunneum vel isabellinum, sericeo-nitens; sporis brunneis capillitioque flavo-brunneo. Cum specie. — Var. **glauco-fuscum** Bonord. loc. cit.: matur. valde gibbosum, griseo-virescens, stipite albo, peridio aculeis angulatis, magnis deciduis obsito. Cum specie.

25. **Lycoperdon Fontanesii** Dur. et Mont. Fl. d'Algér. I, p. 381, t. ³⁴⁴

XXII, *Lycoperdon complanatum* Desf. Fl. Atlant. II, p. 135. — Peridio globose subturbinate vel late obovato, basi angustata grosse plicato, membranaceo-areolato, e mycelio in radicem solidam, crassissimam condensato prodeunte, initio albo, demum fuscescente, vertice fragilissimo frustulatum secedente, cortice verrucis mollibus, elongatis, stellatis, apice coadunatis, undique obsito; floccis raris divaricato-ramosis fusciculis, basi sterili ampla crassa centro convexula, subtus lacunosa, a capillitio mox discreta, contextu denso minute celluloso fusco-purpureo; sporis globosis, levibus, olivaceo-fusciculis.

Hab. in collibus prope Kouba Algeriæ. — Magnum, pomi vel capitis infantis magnitudinem metiens, primò albo-carneum, dein brunneum.

26. **Lycoperdon echinulatum** B. et Br. Ceylon Fungi n. 722. — Peridio turbinato, verrucis parvis echinulato-fasciculatis aspero, deorsum in stipitem obconicum angustato; sporis globosis, levibus.

Hab. ad terram in insula Ceylon. — Peridium 2,5-3 cm. lat.

27. **Lycoperdon ericæum** Bonord. in Bot. Zeit. 1859, p. 628, Winter Die Pilze p. 903. — Peridio globoso vel piriformi, sursum sæpe compressulo, basi stipitiformi, brevi, plicata, prima ætate sorbide albo-flavescente floccoso-aculeolato dein griseo-brunneo, demum flavo brunneo verrucosoque; apice osculo instructo; capillitio pallide olivaceo brunneo; sporis concoloribus, globosis, levibus.

Hab. in silvis Germaniæ et Austriæ.

28. **Lycoperdon delicatum** Berk. et Curt. North Amer. Fungi n. 337 non Hook. Journ. Bot. 1854, p. 172. — Basi spongiosa, sterili, stipitiformi, arcte a capillitio flavo, subgilvo discreta; peridio pruinoso, furfuraceo; capillitio flavescente, rufo punctulato; sporis globosis, levibus, 4 μ . diam., subconcoloribus.

Hab. ad terram, Pennsylvania (MICHENER) in America boreali. — Peridium 6-7 cm. latum, basis stipitiformis 4-7 cm. lat.

29. **Lycoperdon Curtisii** Berk. North Amer. Fungi n. 333. — Minus, subglobosum pallidum, verrucis echinatis exasperatum; capillitio sporisque levibus globosis, 2,5-3 μ . diam. argillaceis.

Hab. ad terram Connecticut (WRIGHT) et Carol. sup. (CURTIS) in America boreali et pr. Port Natal Africa (WOOD). — Fungus e basi brevi radicante exsurgens, 8-9 mm. latus.

30. **Lycoperdon coloratum** Peck Unit. Stat. Spec. of Lycoperdon p. 29. — Peridio subgloboso vel obovato, subsessili, radicante, flavo vel rufo-flavescente, sicco brunneolo, subtiliter ruguloso verrucis per-

sistentibus minutis granulatis vel furfuraceis obsito; capillitio pallido, dein sulphurello demumque sordide-olivaceo; sporis pallidis, globulosis, 4-5 μ . diam., levibus.

Hab. in silvulis Sandlake et Catskill Mount. Americæ borealis. — Peridium 12-25 mm. latum.

31. **Lycoperdon Scleroderma** Speg. F. Guar. p. 46, n. 96. — Peri-³⁵⁰
dio albo, turbinato-globoso, superne late rotundato-hemisphærico, per ætatem irregulariter dehiscente, deorsum subcoarctato ac breviter obconico-producto parceque plicato-rugoso, modice albo-fibroso radicato; cortice exteriori interiori arcte adnato, superne grosse obscureque polygone diffracto, albo, glabro, levi; cortice interiori crasso, fragili, concolori; basi sterili peridii tertium inferum occupante, floccoso-stipata, compactiuscula, virescenti-alba, cum gleba floccoso-pulveracea, pallide sordideque violascenti-purpurea adnata; sporis globosis, 3-4 μ . diam., levibus, violascentibus, grosse 1-guttulatis, apiculo deciduo, minuto, diametrum earum vix æquante, subhyalino donatis.

Hab. in campis apricis inter gramina ad solum subargillaceum pr. Paraguari. — Peridium 4,5-5 cm. altum, 4 cm. latum.

32. **Lycoperdon hiemale** Bull. Champ. p. 143, *Lycoperdon cælatum* ³⁵¹
Fries Syst. Myc. III, p. 32, non Bull. — Peridio stipitato, raro subsessili, mediæ magnitudinis, globoso-depresso v. piriformi, sæpe ovoideo, corticato, membranaceo, flaccido, albido, demum cinerescente vel lutescente, apice varie lacerato-dehiscente; cortice initio verrucoso-aculeolato, tandem subnudo innato-persistente; basi sterili cellulosa, tenaci, elastica, sæpius crassissima, diu persistente, a capillitio laxo plane discreta; sporis globosis, 4-5 μ . diam., levibus, ecaudatis, fuligineo-lutescentibus.

Hab. in aggeribus, herbosis, collinis, pascuis per totam Europam, in America boreali, prope La Calle et Alger Africæ borealis, pr. Darjeeling Himalaja, in Indostania et Australia. — Peridium basi ample radicans, extus albidum, cinereum vel rufescens; gleba alba dein pulveraceo-brunnea; peridium usque ad 12 cm. altum, apice 9-10 cm., basi 6 cm. latum.

33. **Lycoperdon cælatum** Bull. Champ. p. 130, t. 430, non Fr., *Ly-* ³⁵²
coperdon Bovista Pers. Syn. p. 141. — Solitarium, sessile, magnum, turbinato-depressum, haud radiatum; peridio crassiusculo, albido, demum lutescente, superne fragilissimo, areolatim evanescente, cortice initio molliter aculeolato, tandem ex parte secedente, basi

sterili tenui, laxè cellulosa, fusco-olivacea, cum capillitio raro, fugaci continua; sporis minutis, levibus, olivaceis.

Hab. in apricis et silvis Europæ et Americæ fœderatæ nec non prope La Calle Algeriæ. — Sæpe cum *Lycoperdo hiemali* Bull., cui affine, confusum.

34. **Lycoperdon sericellum** Berk. Dec. Fung. n. 349. — Peridio obtuso apice dehiscente, corticato, obscure brunneo, extus sericeo, intus flavescente; stipite obconico, subinde pileo pallidiori; strato sterili sericeo-spongioso cum capillitio continuo; sporis globosis, flavido-ochraceis.

Hab. ad terram, Darjeeling Indiæ. — Peridium 5-7,5 cm. latum. *L. cædato* et *L. saccato* proximum.

35. **Lycoperdon depressum** Bonord. in Botan. Zeitung 1857, p. 611. — Peridio obconico utrinque obtuso, in ambitu scrobiculato, basi sæpe sulcato-plicato, primum aculeis parvis dense obsesso, luteo-albo, dein granuloso-furfuraceo, demum fulvo-cinereo, osculo rotundato, regulari dehiscente, mox vero irregulariter lacerato lateque aperto; capillitio griseo-brunneo; sporis globosis, 3,5 μ . diam., levibus, cinereo-fusculis.

Hab. in silvis umbrosis Germaniæ et Nederlandiæ. — Peridium 2,5 cm. altum, circ. 4 cm. latum. *L. cædato* proximum.

36. **Lycoperdon æstivale** Bonord. in Botan. Zeitung 1857, p. 630. — Peridio globoso, parvo, granuloso-floccoso, osculo limbato dehiscente, primo albido, demum fusco-ochraceo vel cinereo-flavo, radice fusiformi prædito; capillitio griseo-brunneo; sporis globosis, levibus, umbrinis, pedicellatis.

Hab. in herbosis Germaniæ.

37. **Lycoperdon annularium** Beck Pilzfl. Niederösterr. III, p. 47. — Stipite crasso 2-2,5 cm. lato, basim versus plicato vel foveato, albo vel paullo canescente, appresse tomentoso, 1,5-2,5 cm. alto in peridium distinctum 4 cm. latum, breviter transiente et sub eodem furfuraceo; peridio subglobulari, cinereo vel cinereo-fusco, rarissime albicante, maturo ut plurimum dilute fusco, verruculis floccosis minutis centrum versus peridii distantibus copiose obsito, in apice osculo lobis parvulis cincto dehiscente; columella nulla; gleba sporigena a basi sterili linea indistincta in centro paullo elevata separata, primum flavido-viridi demum olivacea; sporis globosis, ochraceis vel paullo virescentibus, levibus, 3,7-4 μ . latis.

Hab. in pratis prope Klosterneuburg Austriæ (E. RATHAY).

38. **Lycoperdon hirtum** Mart. Fl. Erlang. p. 368, *Lycoperdon um-*

brinum var. *hirtum* Pers. Syn. p. 148, *Lycoperdon gemmatum* var. *hirtum* Fr. Syst. Myc. III, pag. 38, *Utraria hirta* Quél. Champ. II, p. 367, *Lycoperdon umbrinum* Pers. Syn. p. 147. — Peridio capitato vel ovato-angustato, in basim brevem stipitiformem attenuato, verrucis demum evanescentibus apice obsito osculoque simplici rotundato instructo, primo albido-flavo, dein obscure brunneo, verrucis sæpius nigrescentibus; capillitio griseo-virescente, fuscidulo; sporis globosis, levibus, 10 μ . diam., fuscidulis.

Hab. in silvis præcipue abietinis in Germania, Belgio, Gallia, Suecia. — Forte huc spectat *Lycoperdon atro-purpureum* Vittad.

39. **Lycoperdon calyptriforme** Berk. North Amer. Fungi n. 332. — 358

Minus, e basi radicante oriundum; peridio ovato, apice papilliformi, furfuraceo; capillitio argillaceo sporisque globosis, levibus, concoloribus, 4 μ . diam.

Hab. ad terram inter muscos in Carolina superiore (CURTIS) et pr. M. Adirondack (PECK) Americæ borealis. — Fungus 8-10 mm. latus, 15 mm. altus. Huc forte *Lycoperdon acuminatum* Berk. et Curt. ducendum.

40. **Lycoperdon piriforme** Schaeff. Icon. t. 189, *Lycoperdon ovoi-* 359

deum Bull. Champ. t. 435, f. 3, *Lycoperdon ramosum* Jacq. Fl. Austr. t. 224. — Peridio stipitato, subpiriformi, membranaceo, persistente, umbonato, cortice adnato, granulis vel squamulis fugacibus tecto, primo griseo-albido, dein lutescente, demum rufescente, basi fibrillis albis, longis, repentibus radicante; columella conica; gleba flavo-virente; sporis sphaeroideis, levibus, olivascenti-luteis, sub lente dilutissime flavidis, 3-4 μ . diam.

Hab. ad truncos putridos et terram arenosam in Italia, Gallia, Hispania, Britannia, Belgio, Germania et Fennia, in Amer. bor. et australi in Mongolia boreali et Indostan Asiæ, in Australia, Tasmania, New Zealand. — Peridium 2-8 cm. altum, radicibus longis, repentibus fultum. — Var. **icterinum** Kalchbr. in Thüm. Pilz. Fl. Sib. n. 376. A typo differt forma colore insolito luteo. Ad terram pr. Minussinsk Sibiriae. — Var. **tessellatum** Pers. Syn. p. 149: cortice indurato, tessulato. In Germania; a typo subindistincta. — Var. **intumescens** Kickx Fl. Crypt. Belg. II, p. 16: peridio globoso non umbonato, sæpe plus minus oblique incurvo, 2 cm. lato, flavido vel rufo-brunneo in basim stipitiformem, 2-3 cm. altam mox abeunte. In Belgio.

41. **Lycoperdon radiculatum** Dur. et Mont. Syll. Crypt. n. 1056 non 360
Welw. et Curr. — Peridio globoso aut obovato longe radica-

to, primitus corticato, tandem, cortice exteriori frustulatim secedente, levigato, nitido, luteo, rigente, fragili, irregulariter dehiscente; strato sterili celluloso cum floccis divaricato-ramosis luteo-olivaceis continuo; sporis levibus, ovoideis, longe pedicellatis, 5 μ . diam., concoloribus, pedicello 7,5 μ . longo.

Hab. in pascuis arenosis prope La Calle Afr. borealis (DURIÉU). — Peridium maxime evolutum 4 cm. latum.

42. **Lycoperdon Rubecula** B. et Br. Ceylon Fungi n. 720. — Peridio ³⁶¹
cum stipite crasso basi rugoso, conico-turbinato, candido, deorsum glabro, sursum verrucis minutissimis rufis picto; mycelio fibrilloso albo; sporis globosis, levibus, 3,5–5 μ . diam., brunneolis.

Hab. ad terram in insula Ceylon. — Peridium cum stipite 18–20 mm. altum.

43. **Lycoperdon rubellum** B. et C. Cuban Fungi n. 507. — Sessile; ³⁶²
peridio obovato rufo, squamulis minutis furfuraceis hispido; capillitio sporisque globosis, levibus, majoribus, umbrinis.

Hab. ad ligna emortua in insula Cuba Antillarum. — Peridium 12 mm. latum, mycelio ramoso, profunde in ligno penetranti, instructum.

44. **Lycoperdon rugosum** B. et C. Cuban Fungi n. 504. — Peridio ³⁶³
hemisphærico, astomo, tomentoso, deorsum rugoso-plicato, in stipitem brevem spurium subradicantem desinente; basi sterili magna, convexa cum capillitio confluyente; sporis luteis, glabris.

Hab. ad terram, in insula Cuba Antillarum.

45. **Lycoperdon sculptum** Harkn. Pacif. Coast Fungi p. 160, t. I. — ³⁶⁴
Peridio subgloboso vel obovato, albo, cortice crasso, massas pyramidatas 2–4 cm. latas, 1,5–3 cm. altas longitudinaliter pluries lineatas efformante, demum verticaliter in segmenta plura plerumque apice adhærentia diviso; gleba lateritio-flavescente, dein cinerea; floccis flavis, 6–10 μ . latis; sporis globosis, 5–8 μ . diam., levibus, pallidis.

Hab. in Sierra Nevada Californiae. — Peridium 8–15 cm. latum.

46. **Lycoperdon serotinum** Bonord. in Bot. Zeit. 1859, p. 631, Vinter ³⁶⁵
Die Pilze p. 905. — Peridio subgloboso, sursum parum compresso, basi brevi stipitiformi, tenui, prima ætate albo-flavescente, superne squamis levibus, brunneo-rufis obsito, maturitate flavo-brunneo, osculo regulari, rotundato instructo; capillitio columellaque flavido-brunneis; sporis globosis, levibus, pallidioribus.

Hab. ad terram prope radices truncosque arborum in Germania.

47. **Lycoperdon turbinatum** B. et C. Cuban Fungi n. 510. — Peri- ³⁶³

dio turbinato, umbrino, glabro, irregulariter rupto, deorsum in radicem elongatam desinente; capillitio argillaceo sporisque globosis, levibus, concoloribus.

Hab. ad truncos putrescentes in silvis umbrosis insulæ Cuba.
— Peridium 3,5–4 cm. latum.

48. **Lycoperdon asperum** (Lév.) Speg. Fungi Guaranitici n. 255, *Bo-* 367
vista aspera Lév. Champ. Mus. Paris, n. 234, pag. 162. — Mediocre, globoso-depressum, sursum obtusissime rotundatum, deorsum applanato-concavum, centro tamen umbonato-radicatum ac plicatulo-sulcatum, primo album carnosum muricatum dein spongiosum fulvo-cinereus vel fulvo-olivascens, levissimum; cortice exteriori candido, carnosulo, superne in verrucis majusculis sed brevissimis ac obtusis, 3–4-gonis fracto, inferne minutissime granuloso-gilvo-olivascens, tenuissime membranaceo, subpapyraceo, cum gleba continuo; basi sterili parvula, umbonem peridii tantum occupante distincte cellulosa, albo-cinerea, cum gleba continua; gleba primo carnosula basi sterili peridioque adnata, dein lutea, postremo olivascens minutissime spongioso-subcellulosa (an in senectute pulveraceo-squamulosa?); floccis gracilibus 2–3 μ . crass., levissimis, flavescentibus; sporis globosis 2–3 μ . diam., levissimis, 1-guttulatis, dilute fulvo-olivascens.

Hab. in herbosis apricis in Chili (GAY), prope Aphiahy, in Brasilia meridionali (Dr. J. PUIGGARI). — Peridium 15–25 mm. diam., 18 mm. altum, basis sterilis 10 mm. diam., 5 mm. crass. Specimina brasiliensia pulcherrima, ob capillitium ad maturitatem spongioso-subcellulosum satis distincta videntur, ac a genere *Lycoperdo* nonnihil recedentia, genus vere *Hippoperdum* accedentia.

49. **Lycoperdon bicolor** Welw. et Curr. Fungi Angolenses pag. 290, 368
t. XX, f. 12. — Peridio stipitato, plumbeo-fusco, subgloboso, irregulariter areolato papyraceo; stipite albedo, subcylindrico, basi attenuato; capillitio fusco; sporis capillitio concoloribus globosis 2,5–5 μ . diam., levibus.

Hab. in pascuis humidiusculis silvaticis Huilla in Angola Africæ et in California Amer. borealis. — Fungus 3,5–5 cm. altus; peridium 3,5–4 cm. latum; stipes circ. 15 mm. crassus.

50. **Lycoperdon Astrocaryi** Berk. et Cooke The Fungi of Brazil n. 365. 369
— Sessile, globosum, brunneum, granulatum; capillitio sporisque levibus, pallide lilacinis.

Hab. ad petiolos *Astrocaryi* Pupanha Brasiliæ (TRAILL). — Fungus 6–12 mm. latus.

51. **Lycoperdon pusio** B. et C. Cuban Fungi n. 503. — Parvum, glo- 370
bosum, glabrum, siccum corrugatum, astomum mycelio copiosissimo;
capillitio sporisque minoribus, globosis, levibus atro-purpureis.
Hab. ad ligna emortua in insula Cuba. — Peridium 8-9 mm.
latum, mycelio profunde radicante.
52. **Lycoperdon cæspitosum** Welw. et Curr. Fungi Angolenses p. 289, 371
t. XX, f. 1-2. — Peridio subgloboso, radicato, vivo niveo, siccitate
flavido-albo, papyraceo, primum verrucoso, demum subnudo; capil-
litio argillaceo-lilacino, sub lente flavido; sporis argillaceo-lilacinis,
globosis, 2,5-5 μ . diam., levibus.
Hab. in graminosis gregatim Huilla in Angola et pr. Somerset
East Africae. — Totus fungus 0,5-4 cm. altus, latusque.
53. **Lycoperdon Novæ-Zelandiæ** Lév. Champ. Paris p. 164. — Peridio 372
globoso, sessili papyraceo, cortice albo nitente verruculoso sece-
dente obtuso, subtus plicato-lacunoso; gleba sporisque violaceis,
levibus.
Hab. ad terram, Nova-Zelandia (RAOUL in herb. Mus. PAR.). —
Peridium 5-7 cm. latum.
54. **Lycoperdon cretaceum** Berk. Enum. fung. coll. Arct. Exped. 1875- 373
1876 p. 15, n. 14. — Peridio sessili, globoso-depresso, pallide fulvo,
scabroso-pulveraceo, sursum cretaceo, in areolas rigidas pyramida-
tas fisso; capillitio fusco; mycelio repente niveo; sporis globulosis,
5-7,5 μ . diam.
Hab. in ins. Bellot (FEILDEN). — «Ad *Areolariam* vergit at
peridio sessili distinguitur».
55. **Lycoperdon phlebophorum** B. et Br. Ceylon Fungi n. 719. — 374
Ochraceum, irregulare v. subglobosum, extus venoso-reticulatum;
stipite brevissimo, sursum dilatato, pulveraceo.
Hab. inter folia emortua in insula Ceylon. — Peridium circ.
2,5 cm. latum, leniter mycelio ramoso, fibrilloso, albido radicans.
56. **Lycoperdon alveolatum** Lév. Champ. Mus. Paris. p. 163. — Pe- 375
ridio subgloboso, membranaceo, verruculoso, areolato-sinuoso vertice
rumpente; stipite brevi subconico; sporis floccisque fulvis.
Hab. ad terram, Nelli-Gherry (PERKOTTET in herb. Mus. PAR.).
— Peridium 4-5 cm. latum.
57. **Lycoperdon punctatum** (Rostk.) Bonord. in Bot. Zeit. 1857, p. 596, 376
Langermannia punctata Rostk. in Sturm D. C. Fl. 18, p. 27, t. XII.
— Peridio globoso, flavido, punctulato, apice obtuso, fragilissimo,
deorsum in stipitem crassum, longum, basim versus profunde pli-
catum abeunte; capillitio atro-brunneo; sporis concoloribus.

Hab. in quercetis Austriæ et Germaniæ. — Fungus 8 cm. altus, 4 cm. latus.

58. **Lycoperdon aculeatum** (Rostk.) Bonord. in Bot. Zeit. 1857 p. 596, 377

Langermannia aculeata Rostk. in Sturm D. C. Fl. 18, p. 29, t. XIII.

— Peridio rufo-brunneo, fragilissimo, eruptione in lacinulas parvas fisso, spinulis crassis obsito; sporis murinis.

Hab. in pinetis Germaniæ. — *Lycop. punctato* simile.

59. **Lycoperdon flavescens** (Rostk.) Bonord. in Bot. Zeit. 1857, p. 596, 378

Langermannia flavescens Rostk. in Sturm D. C. Fl. 18, p. 31,

f. XIV. — Peridio piriformi, flavido, fragilissimo, obtuso, primo squamis obsito, dein apice in lacinulas parvas erupto demumque ex toto evanido, deorsum in stipitem crassum, longum abeunte; capillitio sporisque atro-brunneis.

Hab. ad terram in pinetis Germaniæ. — Fungus 5 cm. altus, 4 cm. latus.

60. **Lycoperdon areolatum** Rostk. in Sturm D. C. Fl. 18, p. 13, f. V. 379

— Peridio late piriformi, extemplo in stipitem attenuato, membranaceo-coriaceo, persistente, punctulato-areolato, prima ætate, albo, dein rufescente, apice osculo rotundato dentato instructo; columella late conica; sporis atro-brunneis.

Hab. in silvis Germaniæ. — Peridium 6 cm. et ultra altum, 4 cm. latum.

61. **Lycoperdon favosum** (Rostk.) Bonord. in Bot. Zeit. 1857, p. 595, 380

Bovista favosa Rostk. in Sturm D. C. Fl. 18, p. 9 t. III. — Peridio subgloboso, suberoso, firmo, cortice fragmenta maculiformia albida relinquente, brunneo, osculo destituto at apice in lacinulas paucas latas erupto; capillitio compacto, obscure olivascente; sporis fuligineis.

Hab. ad terram in Germania et Austria. — Peridium 8 cm. latum.

62. **Lycoperdon hongkongense** B. et C. F. North Pacif. Exped. n. 119. 381

— Pusillum, piriforme, breviter radicum apice irregulariter deli-
scens; capillitio subrufo; sporis ellipticis, pedunculatis.

Hab. ad terram prope Hong-Kong Japoniæ. — «An potius *Bovista*?».

63. **Lycoperdon golungense** Welw. et Curr. Fungi Angolenses p. 289, 382

t. XX, f. 13. — Peridio globoso vel obovato, tomento delicato fastigiato amicto, e mycelio denso concolori nascente; capillitio sporisque.....

Hab. ad basim truncorum putrescentium in silvis editissimis

montis Cungolungula dicti in Golungo sup. Africae. — Peridium evolutum 2 cm. altum latumque.

64. **Lycoperdon gautieroides** B. et Br. Ceylon Fungi n. 718. — Citrinum, irregulare, suborbiculare, sæpe lobatum, sursum profunde umbilicatum brevissime stipitatum, rugoso-lacunosum pulverulentum; stipite conico; capillitio a contextu spongioso stipitis sensim radiante; sporis subellipticis, 5 μ . diam.

Hab. ad terram aridam in insula Ceylon. — Peridium circ. 5 cm. latum.

65. **Lycoperdon oblongisporum** B. et C. Cuban Fungi n. 505. — Sessile, subglobosum, astomum, pallide fuscum, aculeis minutis asperum; capillitio concolori; sporis oblongis, apicibus leniter attenuatis, 6-6,5 μ . longis.

Hab. inter folia emortua in insula Cuba. — Peridium 2,5 cm. circiter latum.

66. **Lycoperdon citrinum** B. et Br. Ceylon Fungi n. 724. — Ellipsoideum, citrinum, minutissime verrucosum; stipite nullo; mycelio candido, fibrilloso, cum radice longa connexo; sporis pedicellatis, olivaceis, 12 $\approx$ 4.

Hab. ad terram in insula Ceylon.

67. **Lycoperdon glabrescens** Berk. Fl. Tasm. p. 265. — Breviter pedunculatum, subhemisphaericum, umbrinum, ciliato-verrucosum, glabrescens; osculo conico irregulariter dentato; stipite intus subviolaceo; capillitio umbrino sporisque pedunculatis, 4-5 μ . diam., umbrinis.

Hab. in terra sabulosa in Tasmania (Gunn) et Victoria.

68. **Lycoperdon? australe** Berk. Fl. Tasm. p. 266. — Sessile, radicans, globoso-depressum, minute aculeato-verrucosum, glabrescens; osculo demum conico aperto; strato sterili parvo v. obsoleto; sporis capillitioque umbrinis.

Hab. ad terram in Australia (Gunn) Victoria, Tasmania et N. S. Wales. — Affine *L. glabrescenti*.

69. **Lycoperdon conspurcatum** B. et Br. Ceylon Fungi n. 723. — Globosum; peridio minute verrucoso, hic illic rimoso, basi minima breviter radicante; capillitio sporisque pedicellatis, olivaceis, 12 $\approx$ 4.

Hab. ad terram, Peradenya Ceylon. — Vix 2,5 cm. latum. Habitus *Lycoperdi australis* a quo sporarum colore diverso imprimis differt.

70. **Lycoperdon pachydermum** Peck in Bot. Gaz. pag. 54. — Peridio subgloboso, basi acuminato-radicante, cortice tenui, levi, albido,

sursum in squamas vel areolas parvas angulatas, persistentes fisso tecto, crasso, subcorneo, sæpe fragili, sursum demum in fragmenta irregularia rupto; capillitio ochraceo brunneo, e floccis longis, flexuosis, subinde ramosis, 7 μ . latis efformato; sporis concoloribus, subglobosis vel late ellipsoideis, 5-6 μ . diam.

Hab. ad terram, Arizona Amer. borealis (PRINGLE). — «An basi sterili obsoleta potius Bovista?»

71. **Lycoperdon? gossypinum** Bull. Champ. p. 147, t. 435, f. 1. — 390
Peridio globoso-turbinato; cortice lanuginoso, persistente niveo-fuscescente.

Hab. in truncis Galliæ. — Fungus 6-7 mm. latus, basi in stipitem productus.

B) Species asterosporæ.

Species sporis echinulatis, papillosis vel verruculosis donatæ.

§ Sporæ atro-purpureæ v. e lilacino vinosæ.

72. **Lycoperdon cyathiforme** Bosc in Berl. Mag. V, p. 87, t. VI, f. 11. 391
— Peridio subgloboso, plerumque basi crassa brevi stipitiformi instructo, albo-cinereo v. rubro-brunneo, levi v. subtiliter floccoso, sæpe spinulis minutis sparsis v. squamis floccosis, areas dein efformantibus obsito, dein cupulari-aperto, margine lacerato; capillitio brunneo-purpurascens; sporis globosis, 5-6 μ . diam., rugulosis, concoloribus.

Hab. in campis et pascuis Buffalo (CLINTON), Utica (JOHNSON), Fort Edward (HOWE), Oneida (WARNE), Albany, Sandlake, Maryland et S. Corinth (PECK), Vermont (FROST), Wisconsin (BROWN) et Carolina (Bosc, CURTIS) Americæ borealis et prope Somerset East Africæ australis (MAC OWAN). — Peridium 7-25 cm. diam.

73. **Lycoperdon atro-purpureum** Vittad. Monogr. Lycoperdin. p. 42, 392
t. II, f. 6, *Lycop. album* Mich. t. 97, f. 4. — Peridio subgloboso, basi plicato, villis v. aculeis mollibus obsito, sursum stellato-verrucoso, sordide rufo, flaccido, osculo minuto obtuso dehiscens; gleba initio albida subcompacta, capillitio laxo, raro, fuscidulo e floccis argillaceis constituto; sporis globosis, 5-7 μ . diam., echinulatis, brunneo-purpureis, pedicellatis.

Hab. in quercetis Italiæ borealis, Galliæ et Britannicæ in ins. Bellot, freto Hayes et Mount Prospect. — *Lycoperdo gemmato* affine.

74. **Lycoperdon elongatum** Berk. in Hook. Journ. Bot. 1854, p. 171. 393
— Stipite elongato, sursum incrassato, cum peridio obovato gra-

nulato. osculo late aperto confluyente; capillitio umbrino; sporis echinulatis, 5,5 μ . diam., subinde pedicellatis, purpureo-brunneis.

Hab. ad terram inter muscos, East Nepal et Sikkim, Darjeeling Indiæ (Dr. HOOKER). — Stipes 5 cm. altus, 18-20 mm. crassus.

L. gemmato simile et *L. atro-purpureo* affine.

75. **Lycoperdon Berkeleyi** De Ton., *Lycoperdon delicatum* Berk. in Hook. Journ. Bot. 1854, p. 172 non Berk. et Curt. North Amer. Fungi n. 337. — Globosum; peridio membranaceo, verrucis minutulis, acuminatis exasperato, apice osculo irregulariter aperto; stipite nullo; capillitio purpureo-brunneo; sporis pedicellatis, concoloribus, 6 μ . diam., echinulatis, pedicello quadruplo longiore.

Hab. ad terram in montibus Khasia Indiæ (Dr. HOOKER). — Peridium circ. 5 cm. latum.

76. **Lycoperdon cupricum** Bonord. in Botan. Zeitung. 1857, p. 625. — Peridio obconico-depresso, in basim plicatam deorsum acuminato radicato, primum cinereo-carneo, facie convexa aculeis minutissimis, conicis, orbiculatim dispositis, stellatim apice coherentibus obsito, dein subumbonato, obscure purpureo, granuloso-floccoso, siccato maturoque cupreo, apice osculo minuto, laciniato-denticulato instructo; capillitio demum fuligineo-purpurascens; sporis majusculis, aculeolatis, concoloribus.

Hab. in silvis Germaniæ. — Var. **melanosporum** Bonord. loc. cit.: peridio primo albo-griseo, matura sordide brunneo obovato; sporis aculeolatis, atro-brunneis. Cum specie — Var. **lividum** Bonord. l. c.: peridio piriformi, primo cæruleo-griseo, dein cæruleo-brunneo; sporis minutis, echinulatis, obscure olivaceis. Cum specie. — Var. **ochraceum** Bonord. loc. cit.: peridio obconico, deorsum plicato, obtuso maturitate læte ochraceo-brunneo; sporis magnis, echinulatis, fuligineo-purpurascens. Cum specie.

77. **Lycoperdon glabellum** Peck in U. S. sp. of Lycop. p. 20. — Peridio subgloboso vel subturbinato, sæpius deorsum in basim stipitiformem attenuato, furfuraceo verruculis uniformibus persistentibus obsito, flavo, osculo minuto dehiscens; gleba purpureo-brunnea; capillitio columella centrali prædito; sporis globosis, 5-6 μ . diam., rugosis, brunneo-purpureis.

Hab. in silvulis North Greenbush, Albany, Center et Vermont Americæ borealis. — Peridium 2,5-4 cm. latum. *Lycoperdo cuprico* Bonord. affine. Sec. Kalchbrenner dubio hæc species etiam in Africa inventa.

78. **Lycoperdon cinereum** Bonord. in Botan. Zeitung 1857, p. 615.

— Peridio capitato-umbonato, in basin stipitiformem deorsum attenuatam contracto, primo livido-cinereo, verrucoso-floccoso, dein levi obscureque fusco, osculo minuto, lacerato; capillitio-olivaceo-brunneo; sporis majusculis, globosis, echinulatis, olivaceis v. atro-brunneis.

Hab. in silvis Germaniæ. — Peridium 2,5-5 cm. altum.

79. **Lycoperdon asperrimum** Welw. et Curr. Fungi Angolenses p. 289, 398 t. XX, f. 14. — Peridio subgloboso, cinnamomeo, papyraceo, statu juniore spinis asperrimis demum caducis obsito; capillitio subrubiginoso; sporis capillitio concoloribus, globosis, 4 μ . circ. latis, minutissime echinatis.

Hab. in dumetosis arenosis Mossamedes Africae et S. Francisco Calif. in Amer. boreali. — Fungus 2,5 cm. circiter altus.

80. **Lycoperdon ? cepiforme** (Wallr.) Bonord. in Bot. Zeit. 1859, p. 596 399 non alior. auct. *Bovista cepiformis* Wallr. Fl. Crypt. Germ. n. 2253. — Peridio obovato in basin brevissimam deplanatam condidente, dein helvolo furfuraceo-floccoso tenaci, vertice perforato collapsio; floccis parvis subtilissimis; sporis globosis longe caudatis, e viola debili pallentibus.

Hab. ad terram arearum nemorensium Germaniæ. — A reliquis peridii figura obovata, in basin deplanatam lutescente, superficie furfuraceo-floccosa pallida et sporarum colore e viola quid subeunte distinctum.

81. **Lycoperdon fucatum** Lév. Champ. exot. p. 219. — Peridio sessili, subgloboso, glabro, albo; capillitio tenui, vinoso; sporis concoloribus, globosis, echinatis.

Hab. ad terram prope Montevideo Americæ australis (GAUDICHAUD). — Peridium 5-6 cm. latum.

82. **Lycoperdon Hoylei** Berk. et Br. Ann. Nat. Hist. n. 1307. — Peridio stipitato, subgloboso, verrucis elongatis, rigidis, brunneis obsito; basi sterili parva cum capillitio confluenta; capillitio lilacino; sporis globosis, 3,5-4 μ . diam., echinulatis, concoloribus.

Hab. ad terram, Reading (HOYLE). — Peridium 5 cm. latum, verrucis 3,5-5 mm. altis; stipes 2,5 cm. longus, 2 cm. vix crassus, lacunosus, intus olivaceus; mycelium ramosum, altum.

83. **Lycoperdon laxum** Bonord. in Bot. Zeit. 1859, p. 614, Winter 402 Die Pilze p. 901. — Peridio capitato-stipitato, subinde obconico, basi excavato-plicato stipitiformi, primo niveo, inæquali, dein flavo-brunneo, verrucoso, cortice lanoso, demum in floccos verruco-

so lanosos secedente; capillitio obscure rufo-brunneo; sporis concoloribus, globosis, verrucoso-echinulatis.

Hab. in silvis Germaniæ.

84. **Lycoperdon fragile** Vittad. Monogr. Lycoperd. p. 180, Mich. Gen. p. 218, n. 4, *Lycoperdon Bovista* Vittad. Fung. Mang. t. III, f. 2. — Peridio subrotundo vel late obconico, subtus plicatulo, fragilissimo, fusco-purpureo, superne frustulatim evanescente, cortice albido, primo levi, dein subtomentoso et ex parte secedente tecto; gleba nivea, spongioso-molli, odorata, dein luteo-virente; capillitio demum laxo, raro, fragili, fugaci, fusco-purpurascense; sporis sessilibus, atro-purpureis, echinulatis.

Hab. in graminosis Italiæ borealis et Carolinæ inferioris Americæ borealis nec non in Africa boreali.

85. **Lycoperdon lilacinum** (Mont. et Berk.) Speg. Fung. Arg. p. I, n. 110, *Bovista lilacina* Mont. et Berk. in Berk. Dec. of Fungi n. 59. — Peridio sæpius majusculo obconico, obovoideo vel sæpius turbinato, basi crasso ac plus minusve plicato-sulcato, parce varieque radicato in primo extus intusque albo, homogæneo, carnososuccoso, dein extus fusciscente et parce rimoso, intus extusque fusco vel fulvo-lilacino, cortice exteriori primitus albo, levissimo, dein sordide fusciscente ac in frustulis majusculis toto secedente ac mox evanescente; cortice interiori primitus carnosulo, albo, coriáceo-membranaceo, rigidulo, præcipue ad partem superam, dein fusco-purpurascense cumgleba atque basi sterili continuo; basi sterili peridium dimidium et ultra inferum occupante postice breviter flocculoso-stipata, sublignosula, antice grosse celluloso-subfavosa, olivaceo v. fulvo-purpurascense cum glebæ capillitio continua; gleba pulchre lilacina vel fusco-violascente, capillitio gossypino flocculoso compactiusculo composita, sæpius tertium peridii superum efformante, pulvere sporigero farcta, ad maturitatem mox cum corticis parte superiore evanescente, basimque sterilem diu persistentem tantum relinquente; floccis rectiusculis, levissimis, gracilibus, 3-4 μ . crass., non v. parcissime septulatis, fusco-lilacinis, parce ramoso-intricatis; sporis globosis, 5 μ . diam., exappendiculatis, episporio laxo ruguloso-papilluloso, pallide violaceis.

Hab. ad terram in pascuis silvisque in Australia, prope Minusinsk Sibiricæ, in insula Ceylon, pr. M. Boschberg Africæ australis, Chili Rep. Argentina, Uruguay etc. Americæ australis, nec non in Carolina inferiori Americæ borealis. — Peridium 10-20 cm. altum, 6-15 cm. latum.

86. **Lycoperdon marginatum** Vittad. Monogr. Lycoperdin. p. 185, t. I, 405
f. 11 non Kalchbr. — Peridio turbinato v. late obconico, obtuso, basi leviter radicato, flaccido, fusco umbrino, tomentoso-pulveroso, osculo angustato dehiscente, cortice albido-cinereo, aculeato tecto; gleba primo albida, subcompacta, dein pulveracea, fusco-purpurascens; capillitio laxo, cinereo-fuligineo; sporis sessilibus, globosis, echinulatis, fusco-purpureis.

Hab. ad terram in locis sterilibus prope Pavia et Milano Italiae borealis nec noo in declivibus graminosis Atlantis pr. Blida Africae (MONTAGNE). — Fungus exoletus rarissime cupulari-apertus, magnitudinem 2-3 cm. metiens.

87. **Lycoperdon Welwitschii** De Ton., *Lycoperdon radicum* Welw. 406
et Curr. Fungi Angolenses p. 289, t. XX, f. 8-9, non Dur. et Mont. — Subturbinatum, radicum; peridio papyraceo, fragili, plumbeo-ferrugineo, hic illic in vetustate subpurpurascens; capillitio obscure lilacino; sporis concoloribus, globosis, 5 μ . diam., echinatis.

Hab. rarissime in pascuis graminoso-dumetosis prope Penedo in Angola et pr. M. Boschberg Africae (MAC OWAN) nec non in California Americae borealis (HARKNESS). — Totus fungus 7,5-10 cm. altus, 5-10 cm. latus.

88. **Lycoperdon velatum** Vittad. Monogr. Lycoperd. p. 187, t. II, f. 3, 407
non Payer, *Lycoperdon mammiiforme* Pers. Syn. p. 145 p. p. — Peridio flaccido, subgloboso, turbinato, piriformi lutescenti-fuligineo, e cortice adnato papillato vel aculeato, aculeis minutissimis, persistentibus, confertis; osculo minuto; gleba alba, compacta, odorata, celluloso-fibrosa; capillitio tenui, laxo, molli, rufo-purpurascens; sporis globosis, luteo-virescentibus demum fusco-purpureis, verruculosus.

Hab. in quercetis Italiae borealis et Germaniae. — Peridium basi leniter radicum, magnitudine varium.

89. **Lycoperdon constellatum** Fries Symb. Gaster. p. 7, *L. umbrinum* 408
Hornem. Fl. Dan. t. 1800. — Peridio membranaceo persistente, osculo simplici aperto, cortice aculeato evanido fusco-reticulato; capillitio laxo; sporis globosis, rugulosis, 5-6 μ . diam., fusco-purpureis.

Hab. ad terram inter folia decidua locis umbrosissimis fagorum Europae et Amer. borealis. — Simile *L. gemmulo*, at pro ejus varietate *phaeochroa* non habeam ob multas differentias. Forma junior cylindrica, dein obovata aut excipuliformis. Peridium undique aculeis horridissimis confertis acutis, pulpa ex albo fusco-

deliquescente secedentibus, obtegitur; his ablatis restat reticulum pulchrum fuscum, unde facies Colubri. Fungus 2,5-4-5 cm. latus.

90. **Lycoperdon Frostii** Peck Un. St. spec. of *Lycoperdon* p. 20. — 40

Peridio subgloboso, plerumque deorsum in stipitem brevem abeunte, echinato v. lanoso, spinis longis, albidis, rigidis, curvulis, stellatim-cohærentibus demum deciduis obsito ideoque glabro et brunneo; capillitio purpureo-brunneo; sporis globosis, 4-5 μ . diam., rugosis, concoloribus.

Hab. ad terram in pratis Americæ borealis (Frost). — Peridium 2,5-5 cm. latum. A *Lycoperdo constellato* spinis pallidioribus peridioque denudato glabro differt.

91. **Lycoperdon asterospermum** Dur. et Mont. Fl. Alg., I, p. 379, 410

Syll. Crypt. n. 1053. — Peridio membranaceo, obovato-piriformi, fuligineo-rufo, lacunis excavato, superne subrigido, inferne flaccido tenuissimo, in radicem attenuato, cortice aculeis minutis, erectis, confertis asperimo; basi sterili floccoso-cellulosa, lutescenti; capillitio sporisque asperis sphaericis, 6 μ . circ. diam. fusco-purpureis.

Hab. in silva du Tonga dicta, prope La Calle in Algeria Africæ borealis (DURIEU). — *Lycoperdo piriformi* simile.

92. **Lycoperdon decipiens** Dur. et Mont. Syll. Crypt. n. 1054. — Pe- 41

ridio membranaceo, tenuissimo, flaccido, obovoideo, persistente, subradicato, osculo lacerato-dehiscente, cortice adnato verrucis spinulosis primitus tecto tandem denudato, subplumbeo, nitente; basi sterili crassa, cellulosa cum capillitio sporisque verrucosis, globosis, 6 μ . diam., atro-purpureis continua.

Hab. pr. urbem Alger Africæ borealis (DURIEU).

§§ Sporæ argillaceæ vel e luteo fusciculæ.

93. **Lycoperdon saccatum** Vahl Fl. Dan. t. 1139, Fries Syst. Myc. 413

III, p. 35, *Lycoperdon boletiforme* Pers. *Lyc. medium* Vaill. Bocc. Mus. t. 306, f. 1. — Peridio infra verticem rotundatum depressum in collum abrupte constricto s. pileato turbinatove scarioso, tegmine tenui obtecto, vertice in areolas dehiscente, demum dilute-fuscescente, floccorum gleba persistente constipata, a basi inde collum penetrante elastica; sporis umbrino-fuligineis verrucosis.

Hab. in dumetis collinis nemoribusque cædis in Dania, Suecia, Italia, Lusitania, Gallia, Hungaria, Austria, Germania, Britannia, Belgio, Sandlake, Center (PECK) et New England (SPRAGUE) Americæ borealis, pr. Somerset East Africæ australis (MAC OWAN).

94. **Lycoperdon utriforme** Bull. Champ. t. 350, f. 1, *Bovista uteri* 413
formis Fr. Syst. Myc. III, pag. 25. — Peridio subcylindrico vel
 cuculliformi, in stipitem haud constricto, crasso, firmo, primo luteo-cinereo absque squamis, dein cinereo demumque cinereo-fuligineo; cortice levi, secedente; gleba primo albida, dein grisea; sporis luteo-cinereis, verruculosis.

Hab. ad terram in Gallia, Belgio, Hungaria et Germania nec non prope Montem Borus Sibiriae Asiaticae. — Peridium 2-11 cm. altum, 5-8 cm. latum.

95. **Lycoperdon tomentosum** Welw. et Curr. Fungi Angolenses p. 288, 414
 t. XIX, f. 7-8 non Vittad. — Peridio globoso vel subturbinato, corneo, fragili, nigro-purpureo, tomento dense rufo, separabili, ex omni parte amicto; capillitio fusco; sporis 2,5 μ . vix diam., globosis, minutissime echinulatis, fuscis.

Hab. sporadice ad terram humosam inter folia putrida in silvis primitivis prope Bango in Angola Africae. — Peridium 15-20 mm. altum latumque.

96. **Lycoperdon pseudo-lilacinum** Speg. Fungi Guaran. p. 45, n. 94. 415
 — Peridio cortice destituto, crassiuscule papyraceo, primo turbato, globoso, levi, rigidulo, fragili, e fusco-griseo vel plumbeo, opaco; basi sterili majuscula, obconica, parce rugoso-plicata, intus cellulosa, fusciscenti-plumbea, cum glebae capillitio continua; gleba mox cum peridii parte superiore frustulatum evanescente, pulverulento-flocculosa, plumbeo vel lilacino-glaucis; floccis breviusculis, dense ramosis, subgracilibus, 2-3 μ . crassis, levissimis, continuis, dilute fumosis; sporis globosis, exappendiculatis, minute denseque aspero-papillois, 4-5 μ . diam., glauco-fumosis.

Hab. in campis cultis prope Paraguari Amer. austr. — Species pulcherrima, primo intuitu pro *L. lilacino* Speg. facillime commutanda, mox tamen glebae colore, peridii crassitudine ac fragilitate dignoscenda.

97. **Lycoperdon Gardneri** Berk. Ceylon Fungi n. 716. — Peridio ra- 416
 dicante, subhemisphaerico, fulvo, serius rimoso, glabriusculo, deorsum in stipitem crassum, obconicum, plicatum angustato; capillitio pallido; sporis argillaceis, circ. 4 μ . diam.

Hab. in umbris in insula Ceylon (GARDNER). — Peridium 11-12 cm. latus. — Forte *L. saccato* proximum

98. **Lycoperdon cafferorum** K. et C. Fungi Macowianiani in Grevil- 417
 lea X, p. 109. — Peridio e turbato-globoso (2-3 poll. diam.), basi attenuata radicante, primo glabello, dein cute in squamulas

minutissimas fatiscente, densissime punctulato leniterque asperulo, ferrugineo-fuscescente; sporis echinulatis, cum capillitio argillaceo-fuscis.

Hab. in Africa australi (Mac Owan). — Statura minor; peridium saturatius coloratum et sporae minus glabrae quam in simili *L. Gardneri* B.

99. **Lycoperdon Turneri** E. et E. in Journ. of Mycol. 1885, p. 87. 418

— Peridio obovato, non stipitato, basi contracto et subplicato, sursum demum irregulariter rupto, olivaceo-brunneo, extus verrucis subspiaosis, brevibus, dein deciduis obsito; gleba basi sterili distincta, sursum densa, sordide grisea; capillitio columella destituito; sporis globosis, brevissime pedicellatis, echinato-verrucosis, 4-5 μ . diam., flavido-olivaceis.

Hab. ad terram N. Jersey in America boreali. — Peridium 4-6 cm. latum.

100. **Lycoperdon tephrospermum** B. et C. Cuban Fungi n. 509. — 419

Sessile; peridio crasso, coriaceo, globoso, pallido, verrucis minutis, tomentosis aspero; capillitio sporisque minoribus, asperulis, fuscis.

Hab. ad terram in insula Cuba. — Mycelium amplum, album, membranaceum, filamentosum.

101. **Lycoperdon pseudo-gemmatum** Speg. F. Guar. p. 45, n. 95. — 420

Peridio albo, turbinato-clavato, superne subgloboso, deorsum longe attenuato-stipitato; stipite subtereti, apice abrute expanso, basi modice acutato-rotundato, non plicato nec rugoso, parce fibrosulo-myceliifero; cortice exteriori mox evanescente, albo, tenui, cortice interiori tenui papyraceo-membranaceo, tenacello, laxè minuteque granuloso-verruculoso, sicco albo vel pallescente, persistente, demum vertice irregulariter dehiscente; basi sterili stipitem tantum occupante, floccoso-stipata, pallide fusco-virescente vel subolivascens, cum gleba floccoso-pulverulenta, virescenti-olivacea continua; sporis globosis, 2-2,5 μ . diam., chlorinis, laxè verruculoso-asperis, apiculo hyalino, recto vel flexuoso, gracili donatis.

Hab. ad terram sabulosam in silvis prope Guarapi Americae australis. — *Lyc. piriformi* Schaefl. nec non *Lyc. gemmato* Batsch simillimum at glebae colore, sporarum magnitudine satis distinctum. — Peridium 6 cm. longum, 3 cm. latum; stipes 2,5 cm. longus, 5-10 mm. cr.

102. **Lycoperdon montanum** Quél. Champ. Jura p. 444. — Ovoideo- 421

turbinatum, brunneum, dein pallescens, apice flavescens, basi stramineum, cortice tenui, aculeis brevibus, 1 mm. longis, angula-

tis, apicibus saepe adherentibus, dein partim deciduis; peridio membranaceo, dein papyraceo, aculeis deciduis circulis griseis nitentibus, brunneo granulato-marginatis ornato; osculo mammiformi, angusto, fimbriato; basi sterili cellulosa; columella conica; gleba alba, dein flava, demum olivaceo-fulginea; sporis globosis, 3,5 μ . diam., granulatis, flavescentibus.

Hab. in alpestribus Vosges et in Hungaria. — Peridium 3 cm. diam. metiens. — Forte huc ducendum est *Lyc. brunneum* Sec.

103. **Lycoperdon subincarnatum** Peck Rep. of the Bot. 1872, n. 83. 422

— Peridio globoso, rarius depresso vel obovato, sessili, verrucis spinuliformibus vel pyramidatis, demum deciduis obsito, extus rubro-brunneo, cortice vero secedente albido vel cinereo, subtiliter reticulato; capillitio flavo-virescente; sporis concoloribus, globosis 4-4,5 μ . diam., rugulosis, e flavido fuscidulis.

Hab. ad truncos humi jacentes in America boreali. — Fungus caespitosus vel gregarius, peridium 1-2,5 cm. latum.

104. **Lycoperdon rusticum** Bonord. in Bot. Zeit. 1859, p. 614, Winter 423

Die Pilze p. 900. — Peridio primum cylindrico, aculeis gracilibus, comatis obsito, dein sursum elato-globoso, aculeisque deciduis late areolato, prima aetate griseo-flavo, dein griseo-brunneo demumque alutaceo-brunneo, extus scarioso, apice in lacinias lacerato; capillitio brunneo-fulgineo; sporis globosis, verruculosis, pedicellatis, obscure argillaceis.

Hab. in quercetis Germaniæ.

105. **Lycoperdon pistilliforme** Bonord. in Botan. Zeit. 1859, p. 613, 424

Winter Die Pilze p. 899. — Pistilliforme; stipite longo, elastico, intus rhabarbarino, peridio capitato prima aetate albido-flavo, dein flavo-brunneo, apice irregulariter dehiscente, extus aculeis adnatis, dein brunneo-atris partimque deciduis figuram stellatam efformantibus obsito; capillitio griseo-brunneo; sporis obscure argillaceis, echinulatis.

Hab. ad terram in declivibus collinis Germaniæ.

106. **Lycoperdon macrorrhizum** Speg. Fung. Arg. p. III, n. 85. — Cor- 425

tice externo absente, interno tenui-papyraceo, fusco-griseo vel cinereo-fulvescenti, subnitenti; basi sterili majuscula, obconica, densissime flocculoso-stipata, elastica, cum capillitio glebæ ac cortice interiore continua, sordide tabacino-gilva; gleba mox cum corticis parte superiore evanescente, flocculoso-gossypina, pulvere sporigero faretæ, dilute fulvo- vel tabacino-olivascens; floccis tenellis, gracilibus, 2-3 μ . crass., parce ramulosis, hinc inde papillulosis, par-

cissime septatis, pallide olivaceis; sporis globosis, 4-5,5 μ . d., ecaudatis, 1-3-guttulatis, minutissime asperulo-papillulosis, dilute olivaceis.

Hab. in herbosis horti prope la Recoleta in Rep. Argentina iterum inventum, sed valde imperfectum ac obliteratum. — Peridium basi 3-4 cm. latum, radicibus tenaciusculis flexilibus, exsiccatis duris, fragilissimis, 2-5 cm. longis, 1-3 mm. crassis instructum.

107. **Lycoperdon fuligineum** B. et C. Cuban Fungi n. 506. — Peridio subgloboso vel obovato, fuligineo, basi pallidiore; osculo dentato, demum aperto, subtiliter tomentoso; capillitio sporisque echinulatis, pallidis.

Hab. ad truncos putrescentes in insula Cuba. — Peridium 2,5 cm. et ultra latum.

108. **Lycoperdon epixylon** B. et C. Cuban Fungi n. 508. — Sessile; peridio hemispherico, astomo, rufo, subtiliter furfuraceo; capillitio sporisque globosis, hispidis, argillaceis.

Hab. ad lignum putrescens in insula Cuba. — Peridium 1,5-2,5 cm. latum.

Species dubiae vel forte excludendae.

109. **Lycoperdon coccineum** Rafin. Prec. Semiol. p. 51. — Peridio coccineo, globuloso, sublevi, osculo rotundato pertuso, sessili; sporis coacervatis brunneo-purpurascensibus.

Hab. in silvis Delaware Americae borealis.

110. **Lycoperdon admorsum** Gmel. Syst. II, p. 1463, Schaeff. Icon. t. 187. — Peridio stipitato, subgloboso, scabriusculo; stipite abbreviato, valido, incrassato, sublineari, subconfluente, superne maturitate caduco inferneque circumscisso-lacero; gleba fusco-virente.

Hab. ad terram in Germania.

111. **Lycoperdon? pruinaum** Gmel. Syst. II, p. 1465, Batsch Elench. p. 239, f. 166. — Peridio sessili, levi, cinereo, pruinato, cicatrice radicali obsoleta, ore angustato-lobato; floccis laxis, brunneis.

Hab. ad terram in Germania.

112. **Lycoperdon betulinum** Humb. Fl. Freib. p. 132. — Solitarium; peridio sessili, oblongo, depresso, pulvere atro repleto.

Hab. in ramis junioribus Betulae albae sub cortice in Germania. — Forte speciem Uredinearum sistit.

113. **Lycoperdon palmiforme** Batsch Elench. p. 149. — Peridio depresso-globoso, acuminato, acumine confluyente, truncato-aperto; stipite squamoso.

Hab. ad terram loco ignoto.

114. **Lycoperdon castaneiforme** Balb. Fl. Lugd. II, p. 219. 433
Hab. prope Lyon Gallia.
115. **Lycoperdon gregarium** Schr. Fl. Bav. II, p. 630. 434
Hab. in Bavaria.
116. **Lycoperdon Michelianum** Balb. Fl. Lugd. II, p. 216. 435
Hab. prope Lyon Gallia.
117. **Lycoperdon roseum** Zoll. Arch. II, p. 200. 436
Hab. in insula Java.
118. **Lycoperdon tephrum** Berk. et Br. in herb. n. 4630. 437
Hab. Queensland.
119. **Lycoperdon pertusum** Berk. Suppl. descr. Fung. n. 24. 438
120. **Lycoperdon macrorrhizon** Pers. in Desv. Journ. Bot. II, 1809, 439
 p. 22, t. I, f. 6, non Speg.
Hab. in agris prope Paris Gallia.

Subfam. 4. Sclerodermæ Fr.

Peridium crassum, coriaceum, sessile vel stipitatum; gleba cellulis sporangia continentibus vel illa non continentibus excavata.

HIPPOPERDON Mont. Cuba Crypt. p. 319 (Etym. *hippos* equus et *perdon* flatus). — Peridium papyraceum, persistens, cortice unito aut raro secedente, numquam sponte dehiscens. Capillitium peridio undique adnatum, in cellulas labyrinthiformes vel polyedras totum contextum sporisque inspersum levibus aut echinatis, subpedicellatis. — *Bovista* simile genus, a quo structura interiori maxime insigni, capillitio scilicet numquam soluto, floccis vero in cellulas peridii cavitatem implentes contextis recedit.

4) Sporæ leves.

1. **Hippoperdon turbinatum** Mont. Syll. Crypt. n. 1058. — Peridio pa- 440
 pyraceo, tenuissimo, alutaceo, obconico-turbinato, disco plano, depresso, acute marginato, intus celluloso; capillitii floccis sporisque levibus, ochraceis.
Hab. ad terram, Madagascar (Goudot).
2. **Hippoperdon Sorokinii** De Ton., *Hippoperdon* sp. Sorok. Mat. Fl. 441
 As. p. 38, t. III, f. 35-37, t. V, f. 65. — Peridio subpiriformi-turbinato, superne depresso; cortice crassiusculo, superne demum secedente; capillitio dense intertexto; sporis globulosis, levibus, 5 μ diam.

Hab. ad terram in Sibiria Asiatica. — Inter *H. turbinatum* et *H. piriforme* medium. Peridium usque ad 2 cm. altum, superne 2,5 cm., inferne 8-9 mm. crassum.

3. **Hippoperdon piriforme** Lév. Champ. Mus. Paris, p. 164. — Myc. 44
celio radiceformi, albo; peridio piriformi, cortice glabro, albo, nitente, secedente oblecto; gleba fulva; sporis concoloribus, globosis, levibus.

Hab. ad terram in insula Java (ZOLLINGER). — Peridium 8-10 cm. altum, 7-8 cm. latum.

4. **Hippoperdon Pila** Lév. Champ. exot. in Ann. Scienc. Nat. 1841, 44
pag. 221. — Peridio globoso, superne non depresso, albo, demum fusciscente; capillitio spongioso; sporis globosis, levibus, fuscis.

Hab. ad terram, Montevideo Amer. austr. (GAUDICHAUD). — Fungus capitis infantis magnitudine.

B) Sporæ echinatae.

5. **Hippoperdon Crucibulum** Mont. Syll. Crypt. n. 1057. — Subcylindricum; peridio papyraceo, supra convexo-plano, deorsum cylindraceo, intus toto celluloso; floccis sporisque echinatis, violaceis.

Hab. ad terram in silvis Cubæ insulæ (RAMON DE LA SAGRA) et Minas Brasiliæ (GARDNER). — Fungus 1 cm. altus, peridium 6-8 cm. latum. Ab *Hippoperdo turbinato* differt sporis echinatis, violaceis.

SCLERODERMA Pers. Syn. Fung. p. 150 em. (Etym. a *scleros* durus et *derma* cutis). — *Mycenastrum* Desv., *Mycastrum* Raf., *Omalycus* Raf., *Actigea* Raf., *Sclerangium* Lév., *Sterrebeckia* Link. p. p. — Peridium globosum, firmum, adnato-corticatum, coriaceum vel suberosum, basi radiculatum vel stipitatum, apice clausum vel irregulariter aut stellatim dehiscens; cortex plerumque verrucosum; gleba compacta, cellulis excavata; sporæ globosæ, leves vel verrucosæ, hyalinæ vel coloratæ, plerumque sessiles, quaternæ in basidiis magnis, obpiriformibus. — Fungi majores, tarde crescentes, persistentes, sero demum autumnis maturi, sæpe subterrestres et arenicoli.

Sect. 1. Enscleroderma.

Peridium vertice irregulariter dehiscens.

1. **Scleroderma vulgare** Hornem. Flor. Dan. t. 1969, f. 2, Fr. Syst. 44
Myc. III, p. 46, *L. cernuum* Bolt. Fung. t. 116, *L. aurantiacum*

Bull. Champ. p. 158, t. 270, *L. tessulatum* Schum. Saell. 2. p. 191, *S. citrinum* et *S. aurantiacum* Pers. Syn. p. 153, *S. squamatum* Chev. Fl. P. p. 357, *Lycoperdon majus* etc. Vaill. Par. p. 122. t. 16, f. 8. — Subsessile, difforme; peridio suberoso, duro, citrino vel rufescente, ætate expallente, indefinite et irregulariter dehiscente, tandem in gelatinam subinde evanido, extus sæpius areolato aut squamoso vel prima ætate verrucoso; gleba primo albida, mox cœruleo-atra nigcave e floccis albo-marmorata; sporis globosis, fuligineo-rufis.

Hab. ad terram, rarius ad truncos, in argillosis. graminosis. collinis silvisque Europæ, in Algeria Africa, in America boreali, Victoria, N. S. Wales, Queensland Australia, in Nova Zelandia. — Magnitudine varium, fibris radicalibus compactis, fasciculatis. — Var. **spadiceum** Pers. Syn. p. 155, *Scleroderma spadiceum* Pers. *Scleroderma Cepa* Pers, loc. cit., *Tuber solidum* With. Arrang. III, p. 459: minus, reniforme, subspadiceum, verruculosum, rimuloso-sinuosum; gleba nigrella, dein brunneo-fusca: sporis majoribus, magis verrucosis. Ad terram sæpius cum specie. Hue forte spectat *Lycoperdon irregulare* De Cand. — * **Scleroderma macrorhizon** Wallr. Flor. Crypt. Germ. n. 2283, *Scleroderma vulgare* var. *macrorrhizum* Fr. Syst. Myc. III, p. 47: peridio rotundo, magno, coriaceo, helvolo, in basin myceliis latescentibus implexis longis ramosis albis fibrillosis sustentatam abrupte finientibus, verticis epidermide scissa tenuiter areolata; floccis pallide-flavescentibus; sporis olivaceo-viridibus. Ad terram glareosam tersam arearum hortensium pr. Nordhausen. Germaniæ, et prope Femsjö Sueciæ. — Mycelia e basi latescente sensim tenuata, in fasciculum comosum implexa peridium, Mytremycetis instar elevant, nec ex terræ sed ex naturæ conditione proficiscuntur.

2. **Scleroderma Bovista** Fr. Syst. Myc. III, p. 48, *Lycoperdastrum* 446 *autumnale flavescens* Mich. Gen. t. 99, f. 2. *Lycoperdon defossum* Batsch Elench. II, f. 229, *Lyc. polyrhizum* Batsch Elench. p. 147. — Peridio obovoideo-sphæroideo, substipitato vel potius basi radicante verrucoso, lutescente (saltem sicco), vertice areolato-tessellato vel rimoso dein irregulariter dehiscente; cortice secedente; gleba sordide colorata; floccis luteis; sporis sphæroideis, asperulis, olivaceis, 14-15 μ . diam.

Hab. ad terram præcipue arenosam in herbosis silvisque Italiæ, Lusitanicæ, Germaniæ, Fennicæ, Sueciæ, in Algeria, in America boreali et australi, Victoria, N. S. Wales, Queensland Australia, —

Peridium variæ magnitudinis, plerumque 4-5 cm. latum altumque. A *Sclerodermate vulgari* sporis olivaceis fereque majoribus floccis lutescentibus diversum. Stipes distinctus nullus at in arenosis radix sæpe caudiciformis evadit. — « An huc *Scleroderma citrinum* Pers. ? »

3. **Scleroderma verrucosum** (Bull.) Pers. Syn. Fung. p. 154, *Lycoperdon verrucosum* Bull. Champ. t. 24, *Lycoperdon defossum* Sow. Engl. Fung. t. 311 non Batsch. — *Lycoperdastrum* etc. Mich. Gen. t. 99, f. 3, *Scleroderma areolatum* Ehrenb. Sylv. Berol. 15 p. 27, *Lycoperdon dispar* Batsch Elench. p. 147, *Lycoperdon spadiceum* Schaeff. Icon. t. 188 non Pers. — Peridio rotundato, primo admodum duro, rigido, dein fragili apiceque magis determinate dehiscente, cortice subspadiceo adnato, persistente, glabro, subverrucoso, areolato vel levi tecto, sordide lutescente, in basim brevem substipitiformem producto subinde sessili; gleba atro-purpurea; floccis demum laxis, griseo-fuscis; sporis e fusco dilute purpurascensibus, globosis, minutis.

Hab. ad terram in Italia, Gallia, Belgio, Anglia, Germania, Suecia, Rossia, Belgio, in Algeria et pr. Somerset East Africae australis (MAC OWAN). — Peridium plerumque 4-6 cm. latum; stipes 2-3 cm. altus, basi subplicatus, crassiusculus. — Var. **spadiceum** (Schaeff.) Fries Syst. Myc. III, p. 49.: minus, reniforme, sæpe sessile, spadiceum, primo leve, dein areolatum. Cum specie.

4. **Scleroderma anomalum** Ces. Fungi Born. p. 12. — Stipitatum; stipite lignescenti, solido, extus lacunoso; peridio extus (in sicco) umbrino, adpresse squamuloso, intus lutescente, coriaceo; gleba umbrina; sporis granulatis, globosis, 7 μ . diam.

Hab. Gunong Poe in insula Borneo.

5. **Scleroderma pyramidatum** Kalch. in Grevillea X, p. 109. — Globosum brevissime stipitatum, areolatum; areolis elevatis, pyramidulas truncatas formantibus; sporis...

Hab. ad terram, Natal (Wood) Africae. — Sterile, sed areolis pyramidatis insigne. Peridium 5 cm. et ultra latum.

6. **Scleroderma oregonense** (E. et E.) De Ton., *Mycenastrum oregonense* E. et E. Journ. Mycol. 1885, p. 89. — Semihypogæum, globosum, coriaceum; peridio lacteo, primo sublevi, dein sæpius flavido spinisque tenuibus vel tuberculis apice obsito, deorsum subplicato, radicato, brunneo, levi, irregulariter rumpente; capillitio brunneo-tabacino vel griseo; floccis undulato-crispatis, subinde tuber-

culoso-subspinulosis, 10-14 μ . latis; sporis globosis, 3, 5-4, 5 μ . diam., subpedicellatis, levibus, tabacinis.

Hab. ad terram herbosam, Oregon (CARPENTER) et Ottawa Canada (MACOUN) nec non Michigan (F. E. WOOD) Americæ borealis. — Peridium 4-6 cm. latum.

7. **Scleroderma texense** Berk. in Lond. Journ. 1845 p. 308, North 451
Amer. Fungi n. 338. — Peridio subgloboso, irregulari, subfloccoso quandoque areolato, basi subapiculato; sporis e lilacino brunneis, 12-15 μ . diam.

Hab. ad terram in Carolina inferiori et Texas Americæ borealis. — Peridium circ. 2, 5 cm. latum.

8. **Scleroderma sinnamariense** Mont. Cent. II, n. 66, p. 331. t. 19, 452
f. 12. — Parvulum, sessile, globosum; peridio coriaceo subflaccido, tenui, extus intusque amœne luteo; floccis pallidis; sporis minutis, sub lente purpurascentibus, echinulatis, limbo celluloso pellucido cinctis.

Hab. ad ligna dejecta et putrida in silvis Sinnamariensibus (LEPRIEUR).

9. **Scleroderma ohiense** (Ell. et Morg.) De Ton., *Mycenastrum ohiense* 453
Ell. et Morg. Journal of Mycology 1885, p. 89. — Peridio subgloboso, coriaceo, maturitate olivaceo-brunneo, irregulariter sursum rumpente, extus dense granuloso, deorsum plicato, massa radicali simplici brevi radicante; capillitio in massam globosam subconcreto; floccis hinc illinc tuberculosus vel spinosis, 6-7 μ . latis; sporis ovato-globosis, levibus, pedicellatis, 3-3, 5 μ . diam., subhyalinis.

Hab. ad terram pr. M. Carmel Illinois (D. J. SCHENCK) et Ohio (MORGAN) nec non Florida Americæ borealis. — Peridium 3-3, 5 cm. latum.

10. **Scleroderma pandanaceum** Muell. in Linn. Journ. XVI p. 171. — 454
Globosum, sessile, luteum, basi levi, sursum tessellatum; floccis sordide luteis; sporis globosis, 10 μ . diam.

Hab. Rockingham Bay (J. DALLACHY), Queensland. — Circ. 4 cm. latum.

11. **Scleroderma pedunculatum** Link Diss. II. — Globosum, flavo-fu- 455
scum, verruculatum; stipite tenui, brevi, sulcato, radicato.

Hab. ad terram in Lusitania. — Magnitudo fere *S. vulgaris* at stipes tenuis 12 mm. longus. Ob stipitem, auctore Linkio, forte distinctum; ceterum in priora et præcipue *S. verrucosum* verbo tenuis quadrat.

12. **Scleroderma lycoperdoides** Schwein. Carol. n. 350. — Plicato-sti- 456

pitatum; peridio globoso, squamuloso, lutescente, osculo rotundo; sporis nigris.

Hab. rarius ad terram lignosam truncosque in Carolina America borealis. — Luculenter diversum, Tylostoma quasi Sclerodermatum. Stipes pro more radicans et ob tenuitatem plicatus tantum nec lacunosus. Peridium dupla Pisi magnitudine, squamis minutis badiis muricatum, a stipite non discretum.

13. **Scleroderma nitidum** Berk. in Hook. Journ. Bot. 1854 p. 173. — 4

Peridio ovato, obtuso, sursum leniter attenuato apiceque irregulariter dehiscente; cortice in squamas polygonas depressas tenuissimas rupto; stipite levi, firmo, solido, subtomentoso, deorsum incrassato rigido, in radices paucas, validas, myceliophoras fissis; sporis pallide olivaceis, 7-10 μ . diam., granulatis.

Hab. ad terram Nangki, East Nepal Indiae (D. HOOKER). — Peridium 3 cm. latum. *Sclerodermati lycoperdoidi* Schwein. proximum.

14. **Scleroderma? violacinum** (Rafin.) De Ton., *Omalycus violacinus* 4

Rafin. Prec. Semiol. p. 52. — Peridio sessili, subhemisphaerico, superne depresso, plano vel concavo, levi, violaceo-bruneo, dein irregulariter rupto.

Hab. in campis Pennsylvaniae Americae borealis.

Sect. 2. Sterrebeckia (Link).

Peridium coriaceum, cortice papyraceo tectum, stellatim dehiscens. — *Myceastrum* Desv., *Actigea* Raf., *Sclerangium* Lév.

15. **Scleroderma Geaster** Fr. Syst. Myc. III, p. 46, *Lycoperd. rotun-* 4

dum, majus, leucophorum etc. Mich. gen. pl. p. 210. t. 99. f. 1, *Sclerangium polyrhizon* Lév. Fragm. mycol. p. 132, Sorok. Mat. Fl. As. t. IV, f. 47-48, *Scleroderma polyrhizon* Pers. Syn. p. 156, *Lycoperdon polyrhizon* Gmel. Syst. II, p. 1464. — Sessile, subglobosum, pallescens; peridio apice in lacinias stellatas dehiscente; gleba sordide caeruleo-purpurascens; sporis fusciscentibus. 7-12 μ . diam.

Hab. in arvis, ericetis etc. Europae australis et Carolinae (Schweinitz), et Victoria, Tasmania etc. Australiae: in Algeria Africae, in Sibiria asiatica. — Fungus subglobosus, inaequalis, pugni magnitudine, superficie subsericea rugosa. Ob radicem tantum fibrillosam ceteris omnibus minus radicans est; peridium enim fissum, demum revolutum, pulvere omnino disperso, Geastris speciem

refert et peridio secedente pulpa membrana tenerrima fugaci, a floccis formata, unita est. — Var. * **siculum** (Rafin.) *Actigea sicula* Rafin. Prec. Semiol. p. 52.: peridio nigrescenti, 5-9-fido, laciniiis acutis, glabris, convexis; gleba concolori. Ad terram arenosam pr. Palermo Italiæ.

16. **Scleroderma flavidum** Ell. et Everh. Journ. Mycol. 1875, p. 88. — 460

Peridio primitus omnino infosso, dein partim emerso, apice stellatim in 6-8 subtriangulares lobos vel dentes fisso, depresso globoso, coriaceo, firmo, amœne flavo, ruguloso, subtiliter verrucoso, inferne levi et subplicato, basi radiculis flavidis, addensatis instructo; gleba brunnicante; floccis parce ramulosis; sporis globosis, rugosis, 7-12 μ . diam., brunneis.

Hab. ad terram, Willoro Grove New Jersey Americæ borealis. — Peridium 3-4 cm. latum. *A. Sclerodermate Geastro* Fr. statura minori, colore flavo, peridio tenui sporisque majoribus differt, a *Sclerodermate vulgari* Fr. dehiscentiæ modo et evolutione fere subterranea: Forma **multifidum** (Rafin.) De Ton., *Actigea multifida* Rafin. Prec. Semiol. p. 52: peridio brunneo, in lacinias 10-12, obtusas, convexas, glabras fisso. Ad terram, New Jersey Amer. borealis.

17. **Scleroderma phæotrichum** (Berk.) De Ton., *Mycenastrum phaeo-* 461

trichum Berk. in Hook. Journ. II, 418, Decades of Fungi n. 60.

— Peridii gleba primitus basi cellulis sinuosis excavata.

Hab. ad terram, W. Australia, Queensland, Port Deurson, N. S. Wales. «An revera ad *Scleroderma Geasterem* ducendum?»

18. **Scleroderma chilense** (Mont.) De Ton., *Mycenastrum chilense* 462

Mont. Cent. IV, n. 97 et Fl. Chil. VII, p. 514, t. X, f. 8. — Peridio globoso v. elliptico-ovoideo v. subconoideo-ovoideo, magnitudine maxime ludente; cortice exteriori tenuiusculo, in juventute albo, cortici interiori arcte adnato, per ætatem fuscescente ac mox frustulatim toto evanescente; cortice interiori crasso, albo, carnosio-tenacello, molli, integro dein denudato, levissimo, gradatim fuscescente, postremo fusco-fuligineo v. sordide gilvo-fulvo, duro, tenaciter coriaceo atque per ætatem superne irregulariter oblitterato-pertuso v. breviter 3-5-laciniato-fisso; gleba primo molli, succoso-subcarnosa, alba, dein flavo-virescente, carnosio-spongiosula, postremo pulverulento-lanuginosa, intense fuligineo-olivacea, vix peripherice laxè peridio adnata, columella basique nullis; floccis brevibus crassis 9-12 μ . crass., parce ramulosis, ramulis acutissime terminatis ubique sed præcipue apicem versus dense valideque

aculeato-spinosis, fulvo olivaceis; sporis globosis 10-12 μ . diam., ex-appendiculatis, grosse 1-guttulatis, dense granuloso-papillulosis, fulvo olivaceis.

Hab. ad terram in planitie pamparum, Conchas, Buenos Aires, Quilmes, Ensenada, Chascomús, Dolores, Tordillo, Ajó, Tuyú, per æst. et in montosis Rancagua Chiliæ (BERTERO). — Peridium 3-12 cm. diam., cortex 2-4 mm. crassus. An hic *S. fragile* (Lév.) ut synonymum v. varietas tantum ducendum? (SPEGAZZINI).

19. **Scleroderma Bresadolæ** Schulz. in Hedw. 1884, p. 163. — Peridio sessili, subgloboso, dilute fusco-pallido, verrucis punctiformibus ornato, apice plerumque in sex lacinias stellatas dehiscente, valde compresso, nec fibrilloso-radicato; gleba e nigricante griseo-umbrina; sporis globosis, 8-11 μ . latis, dense echinatis.

Hab. gregatim ad ligna quercina putrida in silva Vidor pr. Vin-kovce Slavoniæ. *Sclerodermati Geasteri* proximum.

20. **Scleroderma fragile** (Lév.) De Ton., *Mycenastrum fragile* Lév. Champ. exot. p. 221. — Peridio turbinato, crasso, fibroso, fragili, scabro, umbrino, superne in lacinulas plures fisso; capillitio fulvescente; sporis concoloribus, levibus.

Hab. ad terram, Montevideo Uruguay in America australi (GAUDICHAUD). — Totus fungus 10 cm. altus. 7-8 cm. latus; peridium 2 mm. crassum.

21. **Scleroderma Cookei** De Ton., *Mycenastrum lycoperdioides* Cooke in Grevillea XIII, p. 6 non Schwein. — Peridio albo, piri-formi, levi, glabro, in stipitem sterilem producto; capillitio sporisqueflavido-olivaceis; floccis crassis, levibus, plerumque simplicibus, hinc illine turgidis, 15 μ . diam.; sporis globosis, levibus, 4,5 μ . diam., spiculis rectis persistentibus ornatis.

Hab. inter muscos Garhwal Indiæ, *Sclerodermati oregonensi* Ell. et *Sclerodermati lejospermum* Mont. proximum. — Peridium 2,5-4 cm. latum, 5 cm. altum.

22. **Scleroderma lejospermum** (Mont.) De Ton., *Mycenastrum lejospermum* Mont. Enum. Fung. in Ann. 3, VII. p. 175. — Peridio.....; capillitio rhabarbarino; sporis levissimis.

Hab. locis montosis aridisque Africæ australis, ad Witpoorberg. (DRÈGE).

23. **Scleroderma tenerum** B. et C. Cuban Fungi n. 512. — Peridio globoso, tenero, luteo, squamis pyramidalis apice planis vestito, stellatim dehiscente; stipite brevi vel obsoleto; mycelio membranaceo luteo; sporis atro-purpureis.

Hab. inter muscos in insula Cuba. — Peridium circ. 12–13 mm. latum.

24. **Scleroderma stellatum** Berk. Dec. of Fungi n. 615. — Peridio ⁴⁶⁸
coriaceo, demum stellato-reflexo, umbrino-brunneo, stellato-verrucoso; sporis umbrino-argillaceis, globosis, 6 μ . diam., verrucosis.

Hab. ad terram, Panurè (SRRUCE) et Rio Negro. — Peridium 2,5 cm. latum.

25. **Scleroderma spinulosum** (Peck) De Ton., *Mycenastrum spinulosum* Peck 33 Rep. p. 15. — Peridio globoso, sessili, crasso, firmo, albido, sursum dein flavo vel brunneo tincto, extus in areolas latiusculas erupto, maturitate brunneo, 6–7-radiato-fisso; capillitio obscure brunneo, leniter purpureo tincto; floccis breviusculis, pallidis, plerumque ramosis, spinulisque sparsis obsitis; sporis globosis, coloratis, 10–12 μ . diam., minute verrucosis.

Hab. ad terram, Vermont Amer. bor. (PRINGLE). — Peridium 5–10 cm. latum. A *S. chilensi*, cui proximum, peridio globoso pallidiori nec non sporis globosis majoribus distinguitur.

26. **Scleroderma radicatum** (Dur.) De Ton., *Mycenastrum radicatum* ⁴⁷⁰
Dur. in Mont. Fl. Algèr, p. 387, t. XXII, f. 7. — Peridio radicato, subrotundo, depresso-turbinato, levi, emerso, semper albido, primo coriaceo-lento, molli, demum rigescente, fragili, superne in lacinias irregulares dehiscente, cortice submembranaceo, albo, subareolato, tandem hinc inde frustulatum secedente; gleba a peridio facile soluta, albida, dein lutea et fusco olivacea, tandem floccoso-pulverulenta fuliginea; sporis inter capillitii laxiusculi floccos, conglomeratis, subtilissime tuberculatis, appendiculo rarius instructis, primo pellucidis, dein opaco-fuscis.

Hab. ad terram pr. Tiaret Africae australis (BASSERRE). — Peridium 3–4 cm. altum latumque, 2 mm. crassum.

27. **Scleroderma leptodermeum** (Dur. et Mont.) De Ton., *Mycenastrum* ⁴⁷¹
leptodermeum Dur. et Mont. Fl. Algèr. p. 386, t. 22, f. 6. — Peridio oblongo-obovato, subpiriformi, semiimmerso, haud radicato, coriaceo-lento, crassiusculo, elastico, tenuissimo, ex albido fuscescente, cortice numquam squamulatum rupto, dein secedente; capillitio denso, fusco-violaceo, undique peridio adnato, persistenti, floccis rigidiusculis, crassis, compressis, ramulis hispido-aculeatis, brevibus inequalibus obsitis contexto; sporis globosis, levibus aut vix asperulis, appendiculo punctiformi notatis, fuscidulis.

Hab. in arenosis herbosis pr. Mascara Algerie. — Peridium 5–6 cm. altum, 3–4 cm. latum; dehiscendi modus ignotus.

28. **Scleroderma Beccarii** (Pass.) De Ton., *Mycenastrum Beccarii* 47
 Pass. in N. Giorn. Bot. Ital. VII, p. 183, t. IV, f. 2, Mart. Flor. Bogos. p. 134. — Peridio late obovato haud radicato, basi compresso-gibboso, apice in lacinias irregulares dehiscente, coriaceo, rigido, extus strato tenui vernicoso, albido-cinereo obducto; capillitio fusco-ferrugineo; sporis globosis, levibus, castaneis, appendiculo punctiformi notatis.

Hab. in acervis formicarum pr. Kerea Abyssiniæ (BECCARI). — *Scl. leptodermeo* affine at forma coloreque peridii nec non capillitio neutiquam violaceo diversum.

29. **Scleroderma Michellii** (Lév.) De Ton., *Sclerangium Michellii* Lév. 47
 Fragm. Mycol. p. 133, Sorok. Mat. Fl. As. tab. III, f. 38-41. — Peridio capitato, subgloboso, breviter pedicellato, radicato, cortice levi, ochroleuca; gleba venoso-fibrillosa, aurea; sporis cinereo-violascentibus, verrucosis.

Hab. in aggeribus arenosis maritimis Tête de Buch Galliæ nec non in Sibiria Asiatica. — Peridium 4-5 cm. latum., stipes 8-9 mm. crassus.

30. **Scleroderma Corium** (Guers.) Grav. in Duby Bot. Gall. II, p. 892. 47
Mycenastrum Corium Desv. in Ann. Scienc. Nat. 1842, p. 147. — Sorok. Mat. As. p. 36, t. III, f. 45-46, *Lycoperdon Corium* Guers. in DC. Fl. Fr. Suppl. n. 716. — Peridio subgloboso, albescente, dein griseo-brunneo, levi, libero, coriaceo apice stellatim rupto; sporis globosis, 8 μ . diam., echinulatis.

Hab. ad terram in arenosis maritimis Galliæ. — «An huc spectat *Mycenastrum Corium* Berk. in Hook. Journ. 1843, t. XXII, f. 2. Queensland?». — Var. **Kara-Kumianum** Sorok. Mat. As. p. 37, t. II, f. 17-20: peridiis gregariis, globoso-ovoideis vel spheroides, apice regulariter laciniato-stellatis; sporis 7-8 μ . diam. In Sibiria Asiatica.

Species mihi tantum nomine nota.

31. **Scleroderma chrysosporum** Opiz in Lotos 1855, p. 89. 47

Hab. in Bohemia orientali.

CASTOREUM Cooke et Massee in Grevillea 1887 (Etylm. a *castoreo*). — Peridium duplex, exterius fibrosum, deorsum in stipitem fibrosum radicantem productum, interius subcartilagineum. Capillitium arachnoideum nec radiatum; flocci simplices, tenues, intertexti en-

doperidio undique adnati, vagi; sporae fusiformes, verrucosae, coloratae.

1. **Castoreum radiculatum** Cooke et Massee in Grevillea XV, p. 100. — 476

fasciculatum, subglobosum in stipitem fibrosum coalitum; exoperidio fusco, persistente, coriaceo; endoperidio subgelatinoso, demum corneo; capillitio tenuissimo, intertexto, hyalino; sporis subochraceis, fusiformibus, inaequaliter verrucosis, $12 \approx 5-6$.

Hab. ad terram pr. S. George's Bay in Tasmania (G. WINTLE). — Peridium 3,5 circ. cm. latum.

XYLOPODIUM Mont. Flor. d'Algérie p. 390 (Ety. a *xylon* lignum et *pous* pes). — Peridium simplex, coriaceum, e stratis binis discoloribus efformatum, vertice verrucis crassis amplis maturitate secedentibus obsitum, lobato-dehiscens, stipitatum, stipite crasso magno fibroso-lignoso. Flocci peridio adnati, primum reticulato-cellulosi septati, apice clavati cum sporis sublevibus, tabacinis, pedicellatis intus granulosis, conissantibus, suaveolentibus (odorem *Croci officinarum* referentibus) tandem soluti. — Stipes fibrosus, lignosus, durissimus, in corticem peridii coriaceo-lentum, alutaceum, nitidum, stratosum, stratis facile solubilibus, ad maturitatem fungi lacerato-strigosum abiens.

Xylopodium Delestrei Dur. et Mont. Fl. d'Alg. p. 390, t. 20, f. 1, 477 Sorok. Mat. Fl. As. t. V, f. 60-62, *Lycoperdon caratinum* Afzel. inser. — Peridio magno obovato in stipitem crassum cylindricum stratose lamellosum basi subbulbosum aut attenuatum confluyente; sporis globosis, 5-6 μ . diam., granulosis, tabacinis.

Hab. locis arenosis in Algeria prope Mostaganem (DELESTRE), in Guinea (AFZELIUS) nec non in Sibiria Asiatica (SOROKINE). — Peridium 3-6 cm. altum, 3-8 cm. latum, alutaceum initio superne areolatum; stipes subconcolor; gleba obsoleta.

2. **Xylopodium ochroleucum** Cooke et Mass. in Grevillea XV, p. 95. 478

— Stipitatum; peridio globoso, verrucoso, verrucis magnis pyramidalibus persistentibus; stipite erecto, firmo, crasso, indurato, solido, aequali, imbricato-squamoso; capillitio ochroleuco, floccis subsimplicibus tenuibus efformato; sporis globosis, 8 μ . diam., levibus, ochroleucis, cum corpusculis sporiformibus, allantoideis, 15-20 $\approx$ 4-5, hyalinis immixtis.

Hab. ad terram prope Darling River Australiae (BENNETT). — Peridium 5 cm. latum; stipes 7,5 cm. longus, vix 2,5 cm. crassus.

3. **Xylopodium australe** Berk. in Linn. Journ. XVI, p. 171. — Pe 479

ridio juventute volvato; stipite diffracto-squamoso radicante; sporis majoribus, echinulatis; flavis, circ. 5 μ . diam.

Hab. ad terram in Murray Desert, Victoria, N. S. Wales et Australia austr. — Peridium 5 cm. latum, stipes 8,5-9 cm. longus, 2 mm. circ. crassus.

AREOLARIA Forquign. Champ. exot. p. 155 (Etym. ab *areola*). — Peridium globosum, suberoso-coriaceum, stipitatum, in tabellas pentagonas rimose dehiscens; stipes firmus, solidus; capillitium molle, floccis ramosis contextum; sporæ globosæ, ecaudatæ, verruculosæ, coloratæ.

1. **Areolaria tabellata** (Kalchbr.) Forq. Champ. exot. p. 155, *Lycoperdon tabellatum* Kalchbr. in Thüm. Pilzfl. Sibir. n. 370. — Peridio superne globoso, coriaceo, rigido, glabro, pallido, in tabellas pentagonas rimose dehiscenti, inferne abeunti in stipitem glabrum, ventricosum, sursum deorsumve attenuatum; gleba verticaliter secta rotunda, violaceo-fusca; capillitio molli, e floccis creberrimis, longis, curvatis ramosis contexto; sporis globosis, verruculosis, mediocribus, 8 μ . diam., violaceis, sine stipitello deciduis.

Hab. in campis siccis prope Minussinsk Sibiriae Asiaticæ. — Rigiditate peridii et modo dehiscendi ad *Xylopodia* accedit, sed fructificatio omnino Lycoperdi et stipes, licet durus, fibroso-lignosus dici vix potest.

2. **Areolaria strobilina** (Kalchbr.) Forq. Champ. exot. p. 155, *Phellorina strobilina* Kalchbr. in Grevillea IX, p. 4, *Scleroderma strobilinum* Kalchbr. in Grevill. IV, p. 74. — Peridio globoso-depresso, superne squamis validis, angulatis munito, glabro, pallido, demum rimose dehiscente; stipite solido, sublignoso, nudo, sursum dilatato; sporarum massa a stipite distincta, cinereo-fuscescenti; sporis globosis, verruculosis, vix pellucidis, 5 μ . diam., nigricantibus.

Hab. ad vias Queensland Australiæ (THOZET, MUELLER). — Peridium 5-6 cm. diam.; stipes 3-4 cm. longus, 1-1½ cm. crassus; parietes peridii 2-3 mm. crassi; squamæ areolatæ frustulatin de-labentes.

3. **Areolaria? columnaris** (Berk. et Br.) De Ton. *Scleroderma columnare* B. et Br. Ceylon Fungi n. 726. — Peridio elliptico areolato, demum fisso, in stipitem cylindricum e mycelio spongioso oriundum desinente; massa sporacea a stipitis substantia distincta; sporis globosis, 10-12 μ . diam., verrucosis.

Hab. ad terram, Peradenya Ceylon (BERKELEY et BROOME) et Sarawak Bornei (CESATI). — Peridium 3 cm. latum, siccum rugulosum; stipes 2-2,5 cm. longus, 8-12 mm. crassus, solidus, partim furfuraceus, flavus extusque rubro maculatus. Exemplaria Borneensia extus intusque citrina.

PHELLORINA Berk. Fungi Zeyh. p. 15 (Ety. a *phellos* suber et *ri-nos* cutis). — Peridium capitatum, persistens, suberoso-corticatum, apice irregulariter vel rimose dehiscens, includens massam sporarum, immixtis floccis hyalinis paucis; stipes solidus, fibrosus (postremo cavus); sporæ coloratæ. — Cel. Berkely in diagnosi sua pro genere hoc expresse stipitem cavum poscit; serius tamen monet, se modo unicum et quidem exoletum specimen vidisse, cui diagnosis suam superperstruxisset.

1. **Phellorina inquinans** Berk. Fung. Zeyh. p. 15, t. XXI, f. 4. — 483
Peridio depresso-globoso, sublignoso, sursum flaccido, irregulariter deciduo, cortice crasso, interrupto spongioso-corneo tecto; cortice partem superiorem stipitis etiam obtegente; stipite conico, irregulari, intus cavo rufoque lineato, corneo, duro; floccis subhyalinis; sporis globosis, nucleatis, flavis.

Hab. ad terram, Ujtenhage (ZERNER). — Peridium 5 cm. latum; stipes 5 cm. longus, sursum 2,5 cm. crassus. Color fungi recentis forte albus, maturi, ob sporas, flavescens.

2. **Phellorina erythrospora** Kalchbr. Fung. it. Mong. p. 65. — Peri- 484
dio stipiti contiguo, globoso-depresso, squamis validis, angulatis aucto, vertice plerumque levi; stipite subæquali vel basi bulboso, squamis firmis, imbricatis, longitudinaliter sulcatis, apice truncatis vestito; sporis globosis, 6 μ . diam., lateritiis.

Hab. in pratis humidis Mongoliae borealis, Altai australis ad faucem fluvii Urten-gol (POTANIN). — Totus fungus albus; peridium 3-4 cm. latum, in vertice tenue, 0,5 mm. crassum; stipes 10-15 cm. longus, digitum crassus, intus sublignosus, demum rhabarbarinus, cortice suberoso subdiscreto, albo amictus. *Phell. inquinans* Berk. differt stipite obconico vix squamoso et sporis flavis. An huc spectat *Phell. squamosa* K. et M.

3. **Phellorina squamosa** Kalchbr. et Mac Owan in Grevillea. — Pe- 485
ridio stipiti contiguo, globoso vel globoso depresso, suberoso-coriaceo et fere membranaceo, demum fragili, vertice levi vel squamis quibusdam angulatis aucto, glabro; stipite corticato, subæquali vel basi bulboso, squamis firmis vestito; capillitio subnullo; sporis

globosis, minutis, 6 μ . diam., in massam pulveraceam lateritii coloris conglobatis.

Hab. P. Natal (Wood), Ujtenhage (Mac Owan) Africae australis. — «An a *Phellorina erythrospora* Kalchbr. distincta?».

FAVILLEA Fr. Fungi Natalenses p. 32 (Etym. a *favilla*). — Peridium clavatum, simplex, ecorticatatum, superne membranaceum et totum disparens, nudas relinquens sporas copiosissimas coacervatas laxa floccis paucis tenuissimis intextas; capillitium rarum, laxum a peridio basi in stipitem contiguum solidum producta, floccosa, sterili assurgens. — Ad basim adsunt nonnulla granula, immatura sporangiola *Polysacci* referentia.

1. *Favillea argillacea* Fr. Fung. Natal. p. 32. — Character idem ac generis. 486

Hab. in Nova Hollandia.

POLYGASTER Fr. Syst. Myc. II, p. 295 (Etym. a *polys* multus et *gaster* uterus). — Peridium subrotundum, sessile, flocculoso-tuberculosum, rumpens, intus celluloso-carnosum e sporangiolis majusculis subglobosis aggregatis compositum. Sporae coacervatae.

1. *Polygaster sampadarius* (Rumph.) Fr. Syst. Myc. II, p. 295, *Tuber sampadarium* Rumph. Amb. XI, c. 18, p. 123, *Lycoperdon glomeratum* Lour. Coch. ed. Willd. II, p. 856. — Peridio subrotundo, fusco, intus albo, non farinaceo, quasi e multis minoribus conglobato, sessili, basi fibrillosa. 487

Hab. in silvis Cochinchinae et Indiae orientalis arborum veterum radicibus insidens (Koenig). — Peridium 3,5-4 cm. latum.

POLYSACCUM De Cand. in Desp. et DC. Rapp. Voy. Bot. I, p. 8, Fl. Fr. V, pag. 103 (Etym. a *polys* multus et *saccum*). *Pisolithus* Alb. et Schwein., *Pisocarpium* Link, *Polypera* Ficin., *Sclerodermatis* sp. — Peridium e basi attenuata plexum rhizoiden exserente subglobosum, insigne, suberosum, rigidum, vertice irregulariter dehiscens, intus stuppeo-fibrosus, celluloso-lamellosus; sporangiola discreta inaequalia plurima; sporae floccis intertextae, primum pulposae dein furfuraceae.

1. *Polysaccum herculeum* (Pall.) Fr. Syst. Myc. III, p. 52, *Lycoperdon herculeum* Pall. Russ. reis. I, 132, p. 553, *Sclerod. herculaneum* Pers. Syn. p. 151. — Extus album, radicatum, maturi- 488

tate rimosum; peridio nutante, truncato, clavato, in stipitem sensim abeunte; stipite cylindrico, scarioso s. lamellis fibrosis, sursum incrassato; sporis fulvo-ferrugineis.

Hab. in ripa salsa lacus Inderiensis in arenosa Kirghisorum regione (PALLAS). — *Polysacco turgido* peraffine. Fungus sæpius 30 cm. et ultra altus; peridium magnum, 7-8 cm. latum.

2. **Polysaccum turgidum** Fr. Syst. Myc. III, p. 53, *Lycoperdon magnum* globosum etc. Buxbaum. Cent. I, p. 37, t. 58, optime. — Peridio globoso-rotundato, minime truncato, ob stipitem sæpe curvato obliquo, leviusculo, inæquali, irregulariter dehiscente, fusco-nigro; stipite peridio fere longiori, lacunoso, compacto, multis foveolis nigricante, mucore repletis distincto, deorsum præcipue lutescente, spongioso, lobato-diviso, in radices reticulatas exeunte; sporangiolis albidis; sporis floccisque umbrino fuscis.

Hab. in sabuletis versus mare Caspicum, in scrobibus arenosis ad Astrachan e regione Wolgensi inferiori et in W. Australiæ — Totus fungus 10-15 cm. altus, primo sub terra latens, dein cum stipitis parte emergens; peridium 5-7,5 cm. latum; stipes 2,5 cm. et ultra crassus. *P. Pisocarpio* affine videtur, sporis et floccis paucis fere concoloribus.

3. **Polysaccum australe** Lév. Fragm. Mycol. p. 136, t. IX, f. 3. — 490 Stipite radicato, subcylindrico, levi, fusco-nigricante, nitido in peridium subglobosum, tuberculato-areolatum, concolorem dilatatum; sporangiolis fuscis, subglobosis, periphericis lentiformibus compactis; floccis albis; sporis cervinis sphaericis levibus.

Hab. ad terram in Nova Hollandia (herb. Mus. PAR.). — Peridium 9 cm. altum. *Polysacco turgido* Fr. simile at stipite levi nec foveolato distinctum; a *Polysacco crassipede* DC. sporis levibus diversum.

4. **Polysaccum crassipes** De Cand. Voy. I, p. 8, Fl. Franc. VI, p. 103, 491 Mich. t. 98, f. 1, *Lycop. capitatum* Batsch *Polypera crassipes* Ficin. Dresd. p. 306, t. I, f. 51, *Pisocarpium clavatum* Nees Syst. p. 138, t. 13, f. 131. — Peridio erecto, pallido, fuscescente, subcapitato, basi angustato, ut in *P. turgido* rotundato, superne convexo, inæquabili, levi, producto in stipitem elongatum lacunosum, e magna parte arenæ immersum et basi ramoso-lobatum, lacunosum; sporangiolis piriformibus inæqualibus, glabris, sulphureis; floccis contortis, candidis; sporis umbrino-fuscis.

Hab. in vastis sabuletis Italiæ, Galliæ, Germaniæ ad Rhenum. Albim Hungariæ, nec non in W. Australia. — Peridium 2,5-10

cm. latum; stipes 1-7,5 cm. latus. Totus fungus 10 cm. et ultra altitudinem metiens.

5. **Polysaccum leptothecum** Reich. Fungi p. 134, t. XX, f. 2. — Radicato-lobatum, sessile, subglobosum, castaneo-nigrescens, tuberculato-areolatum; sporangiolis tenerrimis, polygonis, fuscis, 2 mm. diam.; capillitio albescenti; sporis sphaeroideis, granulatis, 4 μ . diam., alutaceis.

Hab. in Nova Zelandia (Hochstetter). — Peridium 4,5 cm. latum. *Polysacco crassipedi* Fr. et *F. australi* Lév. proximum at distinctum.

6. **Polysaccum olivaceum** Fr. Syst. Myc. III, p. 54, Cooke Handbook n. 1893, *Lycoperdon capsuliferum* Sow. Engl. Fungi t. 425 a, b. — Peridio subrotundo, olivaceo, intus concolori; sporangiolis regularibus minutis olivaceis; stipite tenuiori, præmorso, subarrhizo.

Hab. in aggeribus arenosis Angliæ et Australiæ. — Forte *P. Pisocarpium* varietatem sistit.

7. **Polysaccum Pisocarpium** Fr. Syst. Myc. III, p. 54, *Lycoperdoides atrum* pulpa flava etc. Hall. Helv. pag. 13, *Pisolithus arenarius* Alb. et Schwein. Consp. p. 82, t. I, f. 3, *Pisocarpium* Nees Syst. f. 131. — Peridio rotundato, sæpe depresso, tenue, rigido, fragili, varie diffracto, lacunoso, dissectum Pisolitum referente, basi in stipitem brevem crassum angustato; fibrillis flavidis radiculoso, subfusco, rufescenti vel sordide ferrugineo; sporangiolis magnis, e mutua pressione difformibus, oblongis, hirsutulis primo pulpam pallidam, dein sporas fusco-terreas, floccis paucis intertextas includentibus.

Hab. ad terram sabulosam Helvetiæ, Galliæ, Italiæ, Lusatiæ copiose, Smolandia occidentalis; rarissime in Australia. — Stipes 5-15 mm. longus: var. **acaule** (De Cand.), *Polysaccum acaule* D. C. Rapp. Voy. II, p. 80: stipite obsoleto. In Gallia occidentali et in Lusatia. — Var. **Rafinesquii** De Ton., *Endacinus tinctorius* Rafin. Prec. Semiol. p. 51, *Fungus sicutus* etc. Bocc. Pl. Sicil. t. XII. A typo differt peridio subsessili coloreque cæruleo glebæ. Ad terram prope Palermo, Messina Siciliæ. Edule, tinctorium.

8. **Polysaccum boreale** Karst. Fung. Fenn. exsicc. 570, Enum. Fung. Lapp. p. 203. — Peridio subsphaeroideo vel obovoideo, substipitato, albo; sporangiolis irregularibus, oblongatis; sporis sphaeroideis, echinulatis, fuscis, 8-13 μ . diam.

Hab. ad arenam viæ magnæ in parocia Pudasjärvi Fennia mense Augusto. — *Pol. Pisocarpio* proximum. Peridium circiter

9 cm. altum, 5-6 cm. crassum; stipes concolor, altit. et crassit. 1,5 cm.

9. **Polysaccum tinctorium** Mont. Canar. p. 87, t. 5, f. 1, Syll. Crypt. 499
n. 1063. — Parasiticum, maximum, stipitatum; peridio capitato
subgloboso-depresso cum stipite contorto sulcato amplissimis brun-
neis; sporangiolis primo albidis, demum nigris; sporis tabacinis.

Hab. ad radices Cisti ejusdam parasitans, in montibus insu-
larum Gomerae et Palmae (Despréaux). — Despréaux auctor est
huncce fungum, in urina maceratum, ad pannos laneos sericeos-
que colore solido viridescenti tingendos usitatissimum esse.

10. **Polysaccum Cranium** Lév. Fragm. mycol. p. 136. — Receptaculo 497
globoso, levi, sordide flavo demum albo; stipite brevi quandoque
subnullo, radicato; sporangiolis subglobosis, periphericis lenticula-
ribus sporisque globosis verruculosi, fuscis, floccis albis.

Hab. frequentissime in arenosis graniticis Corsicae pr. Ajaccio.
— Peridium 6-10 cm. latum, stipes 4-5 cm. altus.

11. **Polysaccum subarrhizum** (Scop.) Fr. Syst. Myc. III, p. 54, *Lyc.* 498
arrhizum Scop. Delic. insubr. I, p. 40, cum icon., *Scleroderma*
arrhizum Pers. Syn. p. 152. — Peridio arrhizo, stipitato-turbina-
to, ferrugineo; cellulis amplis difformibus lutescentibus.

Hab. in Italia circa Mozatte, autumno. — Evidenter *P. Pisco-*
carpio valde simile, at collata ampla Scopoli descriptione tam in-
signiter differt, ut temerarium foret sine autopsia varietatem di-
cere. Cellulae dicuntur mediae inter hoc genus et *Scleroderma*, multo
maiores et duplicis indolis. Substantia interna fibrosa alba prae-
cipue impedit, quo minus cum *P. pisocarpio* jungatur.

12. **Polysaccum marmoratum** Berk. Linn. Journ. XVI, p. 171. — Sti- 499
pite subaequali, rugoso peridioque maculis piceo-fuscis marmorato;
sporis fuscis.

Hab. ad terram plurimis in locis Australiae.

13. **Polysaccum? degenerans** Fr. Plant. Preiss. p. 139. — Clavi- 500
forme, radicato-stipatum; peridio simplici, obovato, levi, ochraceo-
alutaceo, inferne sporangiolis, superne sporis nudis sordide ochra-
ceis, floccis intertextis, faretis.

Hab. in arenosis ad Swan River Australiae, socio *Sclerodermate*
Geastro (Herb. Preiss). — Fungus 2,5-10 cm. altus; peridium 5
cm. latum; stipes concolor, demum intus granuloso-floccosus et
cariosus.

14. **Polysaccum tuberosum** (Mich.) Fr. in Linn. V. p. 694, *Lycoper-* 501
doides tuberosum ferrugineum, arrhizon, pulpa nigra Mich. gen.

pl. p. 219, t. 98, f. 2. — Peridio rotundato-diformi, levi coriaceo, extus ferrugineo, pruinoso, sponte vix deliscente; sporangiolis aterrimis, rotundato-diformibus, primo lacte viscido, atramentario fartis; sporis compactis, nigrescentibus.

Hab. in Italiæ restitibus, pr. Malmœ Sueciæ nec non Paramatta Australiæ (WOOLLS). — Peridium 2,5 cm. circ. latum. A *P. subar-rhizo* omnino diversum.

Species minus nota.

15. **Polysaccum conglomeratum** Fr. Syst. Myc. III, p. 55, *Lycoper-* 50
doides tuberosum, flavescens, multiplex Mich. l. c. f. 3. — Magnitudo *P. tuberosi*, sed hoc e pluribus tuberculis conglomeratis connatum.

Hab. in agro Liburnensi Italiæ.

TESTICULARIA Klotzsch in Linnæa VII, p. 202 (Etym. a *testiculus*)
Milleria Peck. — Peridium sessile, papyraceo-corneum, ovatum vel cylindraceum tenue, farinoso-floccosum, clausum, dein apice irregulariter rumpens, sporangiolis rotundato-ovatis nudis fartum; sporæ simplices, rotundatæ, fusco-pallidæ, floccis simplicibus sparsis intertextæ. — Fungi epiphyti, in glumis Cyperacearum.

1. **Testicularia Cyperi** Klotzsch in Linnæa VII, p. 202, t. IX, f. A, 50
Milleria herbatica Peck. 31 Rep. of the Bot. p. 40. — Peridio ovato vel ovato-conico, subobtusum, firmum, extus minute verrucosum vel farinoso-furfuraceo, albido, massam sporangiorum includente; sporangiolis minutis, subglobosis vel leniter angulatis, una adhærentibus, extus nigris intus pallidis; sporis superficialibus, globosis, 12-16 μ . diam., fuscidulis.

Hab. in glumis Cyperacearum præcipue Rhynchosporæ macrostachyæ in America boreali. — Fungus Minutulus, usque ad 1 cm. diam.

ARACHNION Schwein. Syn. fung. Carol. n. XIV, tab. 1, fig. 2. (Etym. ab *arachne*). — Peridium subglobosum, cortice tenui evanescente, internum, suberosum, irregulariter ruptum, refertum sporangiolis numerosis appressis (nec connexis) polysporis. Sporæ liberæ æquales. Sporangiola friabilia, nullis floccis interjectis. — Genus referens sacculum aranæe ovulis repletum, unde nomen.

1. **Arachnion Bovista** Mont. Cent. VI, n. 27, sub *Scolecioearpo*. — 50
Peridio globoso, papyraceo, levigato, plumbeo, nitido, vertice irre-

gulariter dehiscente, intus sporangiola minuta, graniformia, gyrosa, levia, ardosiaea foveate.

Hab. ad terram, in collis montosis circa Quillota Chili Amer. austr. (BERTERO).

2. **Arachnion album** Schwein. Syn. Fung. n. XIV, t. I, f. 2, *Arach-* 505
nion Bovista Speg. Dec. Myc. Arg. n. 43 non Mont. — Peridio subgloboso, superficiali, levi, minute adnato-radicato, primo albo, tenacello, molli, carnosio-succoso, pulpa concolori homogenea, compactiuscula farcto, dein sordide fusciscenti, fragilissimo, sub tactu mox frustulatum evanescenti; sporangiolis minutis, subglobosis, ellipticis vel ovoideis, 160–250 $\approx$ 100–200 μ ., in juventute albis, dein flavescentibus, postremo griseis vel griseo-subolivaceis, opacis, dense constipatis, levibus; sporis globosis, 3–4,5 μ . diam., 1 grosse guttulis, plus minusve appendiculatis, rarius caudatis, dilute chlorino-fumosis.

Hab. ad terram aridam præcipue sabulosam in planitie pamparum, Buenos Aires, Tuyú, Montes Largos et in Carolina superiori. — Peridium 5–15 mm. diam. Exemplaria Americæ septentrionalis (RAVENEL, North-Amer. Fung. n. 15) sporis sæpius subovoideis, rarius appendiculatis, submajoribus (4–5,5 μ . diam.) vix differre videntur.

3. **Arachnion? aurantiacum** (Rafin.) De Ton., *Acinophora aurantiaca* 506
 Rafin. Prec. semiol. p. 51. — Aurantiacum; peridio 6-fido, globuloso; stipite cylindræo, leniter reticulato; sporangiolis globulosis, rufis.

Hab. in silvis Pennsylvaniae in America boreali.

4. **Arachnion Drummondii** Berk. in Linn. Journ. XVIII, p. 389. — 507
 Peridio . . . ; sporis globosis, 5–7,5 μ . diam.

Hab. ad Locellinam cynopotamiam Berk. prope Swan River Australiæ.

SCOLECIOCARPUS Berk. Fung. Zeyh. p. 13. (Etym. a *scolecion* vermiculus et *carpos* fructus). — Peridium commune, simplex, tenue membranaceum, apice indeterminate dehiscens. Sporangiola minuta irregulariter subcylindrica, gyrosa, tomentosa, sporas longe pedicellatas, minutas, globosas includentia. — Fungus subglobosus, stipite brevi radiato suberoso suffultus. Genus *Ciliciocarpus* Corda proximum, differt peridio communi non evanescenti, sporangiolis flexuosis, elongatis sporisque globosis, stipitatis aliisque notis.

1. **Scoleciocarpus tener** Berk. Fung. Zeyh. p. 14, t. XXI, f. 3. — 508

Peridio depresso-subpiriformi, sursum irregulariter rumpente, membranaceo, levi subtomentosulo, ochraceo, tenuissimo fragilique intus glabro, minute ruguloso, rufo et sursum nitente, deorsum pallidiori; stipite brevi, radicante, albo, intus subcorneo; sporangiolis minutissimis, subverruciformibus, tomentosis, subinde gyrosis, simplicibus vel ramosis, pallide griseis; sporis globosis, minutis, levibus, longe pedicellatis.

Hab. ad terram, Uitenhage (ZEYHER). — Habitus fere *Polysacci subarrhizi*.

PAUROCOTYLIS Berk. Fl. New Zel. p. 188, t. CV, f. 9. (Etym. *pau-ros* paucus et *cotyle* cavitas). — Peridium simplex, durum, tenue: gleba floccosa, sinubus paucis, magnis, flexuosis percursa, sporas magnas, globosas, pedicellatas e superficie proferentibus. — Genus lycoperdineum Arachnio affine. Glonio quodammodo quoad sporas analogum.

1. **Paurocotylis Pila** Berk. l. c. Characteres generis.

Hab. ad terram, Tehawera Novæ Zelandiæ (COLENZO).

2. **Paurocotylis fulva** Berk. et Br. Ceylon Fungi n. 1181. — Depressa-subglobosa, extus lateritio-fulva, intus flava; sporis magnis, obovatis, 7,5 μ . longis.

Hab. ad terram Peradenya in insula Ceylon et in Nova Zelandia. — Peridium 12-13 mm. latum, basi massa radiciformi, brevi, spongiosa instructum.

3. **Paurocotylis fragilis** Berk. et Br. Ceylon Fungi n. 1182. — Pallide griseo-flava, fragilissima; sporis globosis, 5 μ . diam.

Hab. ad terram, Peradenya in insula Ceylon. — Peridium circ. 6-7 mm. latum, in fragmenta facillime erumpens.

4. **Paurocotylis echinosperma** Cooke in Grevillea VIII, p. 59. — Depressa-globosa, extus carneo-fulva, intus marmorata: sporis globosis, echinulatis, 12-14 μ . diam.

Hab. ad truncos, Melbourne et Victoria Australiæ. — Peridium vix 1 cm. latum.

Genera minus cognita.

CILICIOCARPUS Corda in Sturm D.C. Fl. 11, p. 5, t. III. (Etym. a *cilicion*, cilicium et *carpos* fructus). — Peridium floccosum fugax, basi radice ramosa alba fultum; sporangiola numerosa in glomerula laxè aggregata, globosa, extus intusque floccoso-fibrillosa, pulpa ge-

latirosa repleta; sporæ simplices, continuæ coloratæ, dein pulverulentæ. — Fungi subterranei, epiphyti, radice stipitiformi, alba, ramosa, subcarnosa. Generibus *Polysacco* et *Scoleciocarp*o peraffine.

1. **Ciliciocarpus hypogæus** Corda in Sturm. DC. Fl. t. III. — Peridio 513
globozo vel depresso, stipite radiceformi ramoso suffulto; sporis ovoideis.

Hab. ad radices sub terra in Germania. — Peridium 10-12 mm. latum.

LYCOGALOPSIS Fischer in Berichten Deutsch. Bot. Gesellsch. 1886, p. 193. (Etym. a *Lycogala* et *opsis* aspectus). — Peridium subglobozum, xylophilum, lacunis irregulariter oblongis peripheriam versus excavatum; capillitium rudimentale; basidia irregulariter claviformia plerumque 6-7-spora; sterigmata bacillaria, breviuscula; sporæ globosæ, verruculosæ, sessiles vel leniter pedicellatæ. — Sec. cl. Saccardo in litt. forte ad *Ceratomyces* est hoc genus ducendum.

1. **Lycogalopsis Solmsii** Fisch. in Bericht. Deutsch. Bot. Gesellsch. 514
1886, p. 193, t. IX. — Peridiis aggregatis, globoso-diformibus, basi attenuata vel explanata matrici adhærentibus, demum subevacuatis; cellulis glebæ concentricè dispositis seriasque plures efformantibus; sporis globosis, 3-4 μ . diam., coacervatis fuscidulis.

Hab. ad fructus Parinari scabri nec non ad truncos varios in insula Java (SOLMS-LAUBACH). — Peridium 4-5 mm. latitudinem metiens. Habitus *Lycogalactis epidendri*.

GLISCHRODERMA Fuck. Symb. p. 34. (Etym. a *glischros* tenax et *derma* cutis). — Peridium hemisphæricum, tenax, persistens, demum in centro irregulariter fissum, e floccis tenuissimis contextum, furfuraceo-villosum, basi mycelio tenuissimo cinctum; sporæ coacervatæ, minutissimæ, globosæ, floccis destitutæ. — Peridium in statu juvenili siccum, album, contextu fibroso, dein in centro ampliatum, argillaceum, annulo albo e peridio juvenili represso orto circumdatum.

1. **Glischroderma cinctum** Fuck. Symb. p. 35, t. I, f. 18. — Peridio 515
hemisphærico, argillaceo, annulo albo, fibroso cincto, osculo destituto sed demum irregulariter in centro fisso; sporis globosis, uniguttulatis, circ. 4 μ . diam., argillaceo-rubellis.

Hab. . . . in Germania. — Peridium usque ad 12 mm. latum.

EMERICELLA Berk. *Introd. to Crypt. Bot.* p. 341. (Etym. a cl. EMERIC STREATFEILD BERKELEY). — Peridium globosum, cum stipite clavatum, leve; stipes aculeolatus, sensim inferne attenuatus; flocci ramosi, intricati; sporæ globosæ, leves, sterigmate in sporarum corpus intrante instructæ.

1. **Emericella variicolor** Berk. et Br. l. c. p. 341, f. 76. — Characteres generis.

Hab. ad Bowenpilly prope Secunderabad (E. S. BERKELEY). — Peridium 12-13 mm. latum; stipes 2 cm. altus, medio 5 mm. cr.

Fam. 4. **Hymenogastraceæ.**

auctore Doct. J. B. DE TONI, scholæ botanicæ patavinæ adjutore.

Hymenogastraceæ

Vittad. *Tuber.* p. 11, em. Tul. *Fungi Hypogæi* p. 61.

Fungi plus minus subterranei, rarissime epigæi, globuloso-tuberculosi, mycelio sæpe persistenti præditi; peridium maturitate haud apertum, raro obsoletum vel nullum; gleba carnosa vel gelatinosa, putrescenti, cellulis numerosis hymenio indutis excavata; capillitium nullum; sporæ sphaeroideæ vel ellipticæ, leves vel verrucosæ, hyalinæ vel coloratæ.

Clavis analytica generum.

A) Peridium distinctum.

† Facile separabile.

Hysterangium. Gleba basi sterili destituta; sporæ ellipticæ vel lanceolatæ, leves, pallide coloratæ.

Octaviania. Gleba basi sterili instructa; sporæ globosæ, maturæ echinatæ, obscuræ.

†† Ægre vel haud separabile.

*) Plus minus mycelio bene evoluto circumcinctum; gleba demum pulposa.

Rhizopogon. Peridium subcoriaceum, crassum, mycelio ramoso cinctum; parietes cellularum diaphani; sporæ ellipticæ, leves, hyalinæ.

Melanogaster. Peridium stuposum, crassum; gleba deliquescens, cellulis centralibus majoribus; sporæ ovatæ vel ellipticæ, leves, mature coloratæ.

**) Basi mycelio parum evoluto instructum.

Hymenogaster. Peridium tenue, sericeo-villosum; gleba carnosa, elastica;

cellulæ parvæ, e basi radiantes; sporæ ovatæ, fusiformes vel citriformes, leves aut rugulosæ, maturæ saturatius coloratæ.

Hydnangium. Peridium molle, leve aut villosum; gleba mollis; cellulæ rotundatæ, centrales majores; sporæ sphaericæ vel subellipticæ, echinatae rarissime leves dilute vel saturatius coloratæ, subhyalinae.

B) Peridium nullum vel obsoletum.

Gautieria. Hypogæum; sporæ longitudinaliter striatæ.

Macowanites. Epigæum; sporæ tuberculatæ.

HYSTERANGIUM Vittad. Monogr. Tuber. p. 13 (Etym. *hystera* uterus et *angeion* vas). — Peridium clausum, indehiscens, distinctissimum, facile solubile aut etiam natura secedens, tenue vel crassiusculum, tenax, stupeum v. membranaceum, mycelio instructum; gleba mucoso-cartilaginosa, tenacissima, cellulis initio cavis et tandem subfartis, minutis, rotundatis seu lineari-angustis interdumque sub peridii tegumento apertis ubique confossa et excavata; septa cellulas efformantia maxime sæpius inæqualia, haud scissilia, utrinque basidiophora, basidia tenuia plerumque 2-spora; sporæ ellipticæ v. lanceolatæ, subasterigmaticæ, copiosissimæ, leves plerumque dilute coloratæ et pellucidæ. — Fungi gregatim hypogæi, sphaerici, regulares, mycelii candidi copiosissimi peculiari modo floccosi non autem filamentosi gratia polyrrhizi, obvoluti, velati, aliquando contra mycelio funiformi subsimplici hærentes indeque nudi, monorhizi, maturi sæpius odori.

1. **Hysterangium clathroides** Vittad. Tuber. 13, t. 4, f. 2, Tul. Fung. 517 hyp. p. 80, *Splanchnomyces clathroides* Corda Icon. VI, p. 41, t. VII, f. 77. — Plerumque regulariter sphaericum, initio candidum, dein maculis brunneis flaveolisve sparsis scrobiculato-notatum, mycelio candidissimo immutatoque late diffuso præditum, tandem vero denudatum ideoque subarrhizum; peridio nunc sublevi nunc furfuraceo-gossypino mycelioque continuo, ceterum membranaceo, tenuissimo, facile separabili, tenaci, e contextu stupeo albo tandem brunneo, exsiccato sæpius crispato-rugoso; gleba gelatinosa, tenacissima, elastica, densa mox cinerea vel glauco-virescenti, dein saturatiori et olivaceo-virente, cellulis inæqualibus, angustissimis, elongato-linearibus, nonnullis rotundatis excavata; septis glauco-cinereis, sine linea media obscuriori, nec scissilibus, reticulato-connexis; sporis 2-4, basidiis cylindraceo-angustis suffultis, subsessilibus, ellipsoideo-oblongis, utrinque subacutis, levibus, 12-14 $\approx$ 4-6,5, hyalinis, coacervatis griseo-virentibus.

Hab. in silvis sub umbra in Italia, Helvetia, Germania, Gallia et Africa boreali. — Peridium gregarium, hypogaeum, odore gravi donatum, pisi vel nucis avellanæ magnitudine.

2. **Hysterangium membranaceum** Vittad. Monogr. Tuber. p. 14, t. IV, f. 15, Tul. F. Hyp. p. 83, *Splanchnomyces membranaceus* Corda Icon. VI, t. VIII, f. 78. — Peridio albido, tenui, membranaceo, globoso, subtomentoso; gleba virescente cellulis difformibus, irregularibus; sporis longe ellipsoideis, subsessilibus, 15 μ . longis, levibus, pallide glauco-virentibus.

Hab. in nemoribus prope Milano Italiæ borealis (VITTADINI) nec non prope Lund in Suecia (FRIES). — Ab *H. clathroidi*, cui valde affinis est, differt peridii natura, fibrillarum radicalium præsentia et cellularum forma.

3. **Hysterangium nephriticum** Berk. in Ann. Nat. Hist. XIII, p. 350, n. 298, Tul. Fungi Hypog. p. 82, *Splanchnomyces nephriticum* Corda Icon. VI. t. VIII, pag. 79. — Depresso-globosum, polyrhizum, candidum; peridio firmo, crassissimo, elastico, solubili ac demum discreto, levi, albo; gleba cartilagineo-glutinosa, pellucida, pallide griseo-cærulea, viridi tincta; cellulis e basi radiantibus, irregularibus, minutis, floccis tenuibus continentibus; sporis oblongis, brevissime pedicellatis, utrinque obtusis, levibus ex argillaceo hyalinulis, 12,5-13 $\approx$ 6,5.

Hab. in terra inter ramulos prope Clifton Angliæ mense februario. — Fungus gregarius, subinde confluent, 1-2,5 cm. latus, odore primo subnullo, mox graveolente nonnullarum *Hyperici* specierum simili vel *Lycoperdi* exoleti donatus. *Hysterangii clathroidi* perraffinis.

4. **Hysterangium Thwaitesii** Berk. et Br. in Ann. Nat. Hist. 1848, p. 267, n. 377, Tul. Fungi Hypog. p. 82, *Splanchnomyces Thwaitesii* Corda Icon. VI. — Subglobosum, album, tactu rufescens, mycelio albo, fibrilloso, membranulas vix efformante modiceque expanso instructum, subsericeum, globosum vel subirregulare; peridio membranaceo, siccitate plerumque secedente, lacerato, rufescente; cellulis brunneo-olivaceis; sporis oblongis, apiculatis, 19-19,5 $\approx$ 6,5.

Hab. inter ramulos ad terram prope Bristol Britanniae et in California Americae borealis m. Augusto. — *Hysterangio clathroidi* proximum.

5. **Hysterangium fragile** Vittad. Monogr. Tuber. p. 14, t. IV, f. 15, Tul. Fungi Hypog. p. 83. — Minus, rotundatum, fibrillis radica-

libus instructum floccisque minutis albidis evanidis obsitum; peridio tenui, papyraceo, albido, subtomentoso, a gleba facile secedente, exsiccatione fusco; gleba matura gelatinoso-molli, graveolente, viridiuscula; cellulis difformibus, irregularissimis.

Hab. in nemoribus agri mediolanensis Italiae borealis (VITTAMINI) nec non prope Lund Sueciae (FRIES). — Raro pisi magnitudinem excedens; gleba odorem illi *H. clathroidis* similem praebens. Ab *Hysterangio clathroide*, cui valde affine, natura peridii, fibrillarum radicalium praesentia et cellularum forma differt.

6. **Hysterangium stoloniferum** Tul. Fung. Hypog. p. 84, t. XI, f. VIII. 522

— Sphaericum, admodum firmum, radícula longa fusiformi candida solida cylindrica modiceque ramosa semper instructum, ceterum nudum, glabrum; peridio crassiusculo, membranaceo tandemque subcoriaceo, utrinque candido, dein albido, extus levi, glabro, sicco; gleba cartilaginea, tenaci, elastica, saepe in centro lacunarum experti, prima aetate caerulescente dein sordide griseo fusca, exsiccata griseo-lutea; septis innumeris crassis undique divergentibus; cellulis oblongo-linearibus, oppletis; sporis ellipticis $19-23 \approx 6-6,5-2-3$ in quoque basidio, levibus, coacervatis sordide brunneis, singulis dilute luteis, pellucidis.

Hab. in silvis sub foliis stratis in Gallia, Rhenogovia, in California Americae borealis. — Vix hypogaeum. Avellanae magnitudine, odore debili donatum, exsiccando summo pere indurescit sed non deformatur.

7. **Hysterangium Pompholyx** Tul. Fungi Hypogaei p. 83, t. II, f. 3 523

et t. XI, f. 6. — Minus, globosum, polyrhizum, candidum, solidum, firmum, mycelio copiosissimo, concolori, floccoso, late expanso instructum; peridio crassiusculo membranaceo, molliusculo, extus candido, glabro, intus mox saturate brunneo, glebae primum applicato et aegre divellendo, dein subdiscreto; gleba solida, densa, cartilagineo-elastica; cellulis irregularibus, gyrosis, creberrimis; septis plerisque angustis, linearibus, griseis, dein atro-brunneis, non scissilibus; sporis elliptico-oblongis, geminatis, subsessilibus, $12,8 \approx 6,5$, levibus, coacervatis argillaceo-roseis, singulis subhyalinis.

Hab. plane hypogaeum aut vix terra obrutum gregatim sub foliis coacervatis Castaneae, Quercus etc. in silvis Galliae. — Fungus avellanae magnitudinem metiens, odore corneo donatus. Ab *Hysterangio clathroide* imprimis sporarum colore et odore differt. Etiam ab *H. membranaceo* et *H. fragili* distinctum.

8. **Hysterangium australe** Speg. Fungi Argent. Pug. IV, n. 237. — Pri- 524

mo subglobosum dein ob terræ pressionem irregulariter compressum, varie gibbose expansum, magnitudine ludens 5-20 diam., basi manifesta nulla, fibrillis radicalibus perfecte destitutum, album, levissimum, glaberrimum, peridio tenui a pulpa non v. difficile secedente, gleba autem pallide fulvo-olivascente, tremelloideo-subceracea, tubulis numerosis, minutissimis undique irregulariter percursa; tubulis gracilibus 150-250 μ . diam., varie elongatis, vacuis, parietibus sporiferis cinnamomeis; sporis elliptico-elongatis, sursum plus minusve attenuato-rotundatis, deorsum acute attenuato-cuneatis basique truncatis, episporio ubique majusculè undulato-subverruculoso, saturate olivaceo-fuligineis, protoplasmate grosse granuloso fartis v. l-guttulatis 15-20 $\approx$ 8-10; stipite longiusculo, gracili hyalino, monospermo fultis.

Hab. ad terram plus minusve profunde delitescens sub muscis hepaticisque en la Boca del Riachuelo in Rep. Argentina. — Odor fortis, nauseosus, fungino-terreus, subvirosus. Species primo intuitu pro *Tubere australi* Speg. facile sumenda, odore tamen ac sub sectione ceteris characteribus mox distinguenda. Characteribus externis nec non vegetationis perscrutatis, dubiose hæret cl. Spegazzini an hic fungus *Tuberi australis* Speg. statum stylosporium sistat nec non an tubera ascigera sphaeriaceorum more status metageneticos possideant. Peridium 5-20 mm. diam.

9. **Hysterangium? Pseudo-Acaciæ** (Fr.) De Ton. *Myllia Pseudo-Acacie* Fr. Syst. Myc. III, p. 226. — Peridio valde indurato, crasso, duplici strato concreto constante, sponte numquam dehiscente, contextu obscure vesiculoso; interiori massa a cortice distincta, heterogenea, subfarinacea, sed valde compacta, alba, maculis fertilibus difformibus lutescentibus variegata.

Hab. ad radices vivas languescentes Robiniæ Pseudoacaciæ, circa Neufchatel Helvetiæ (CHAILLET). — Fungus globosus, magnitudine Elaphomycetis, extus verrucoso-furfuraceus, subfulvus pallidiorve. Radiculæ fibrillosæ, tenues.

OCTAVIANA Vittad. Monogr. Tuber. p. 15 (Etyim. a cl. V. OTTAVIANI cui dicatum genus). — Peridium continuum vel aliquando tessellato-rimosum, leve, molliusculum, haud ægre separabile, deorsum in basim sterilem incrassatum subtusque plus minus productum auctum et radículas spurias debiles vel capillaceas emittens; gleba peridio continua, multicellularis, molliuscula, mutabilis, demum gelatinosa; cellulæ periphericæ sphaericæ, centrales multo majores.

res, rotundato-irregulares cunctæ primum vacuæ, dein subfartæ; septa e fibris byssæceis longitrorsum laxèque intexta, hinc illinc scissilia et cellulosa. Sporæ sphaeroidæ, 3-4 in quoque basidio, sterigmate filiformi suffultæ, maturitate obscuræ, echinulatæ. — Fungi globosi primum molles mutabiles, tandem gelatosi humidi fatiscentesque vel arescentes et perennantes, maturitate odori.

1. **Octaviania asterosperma** Vittad. Monogr. Tuber. p. 17, t. III, 526
f. 7., Tul. Fungi Hyp. p. 78, t. XI, f. 1, Corda Icon. VI, t. VII, f. 64. — Regulariter globosa, subinde reniformis, basi absorbenti longiuscule producta, mycelio late in terra diffuso semper instructa; peridio extus continuo vel interdum tessellato-rimoso, levi, arachnoideo-fibrilloso, initio candido, dein albido partim æruginoso-cyanescenti tandemque atro; septis immersis, angustis, byssoidis, facile scissilibus; cellulis inæqualibus, minutis, periphericis sphaericis, centrum versus amplioribus; sporis sterigmatibus longiusculis fulvis, sphaericis, creberrime echinatis 12-13 μ . diam., ferrugineis, floccis nonnullis vix inspersis.

Hab. in silvis Italiæ, Galliæ, Angliæ occidentalis et Germaniæ. — Fungus avellanæ uagnit. metiens, odore grato, suadente Vittadini, quasi *Ocymi* vel casei recentis donatus. — Var. **depauperata** Tul. loc. cit. t. XI, f. 2. A typo differt basi sterili subnulla, cellulis humore copioso sporisque innatantibus paucis subovatis, quasi striato-rugulosis, sterigmate brevissimo fultis. Sub foliis delapsis Quercus suberis in Gallia.

2. **Octaviania Stephensii** (Berk.) Tul. Fungi Hypog. p. 78, t. XXI, 527
f. 6, Corda Icon. VI, t. VII. f. 67, *Hydnangium Stephensii* Berk. in Ann. Nat. Hist. XIII, p. 352, n. 300. — Irregularis, oblonga, extus rufa, basi plicato-rugosa, cribrosa, radicibus fibrosis insidens, intus alba minute cellulosa, lactiflua, demum aëri exposita rufa; cellulis non fartis; sporis primum globosis, irregularibus, rugulosis, 10-12,8 μ . diam., demum echinulatis.

Hab. in terra prope Clifton Angliæ et in California Amer. borealis. — Fungus circ. 2 cm. latus, odore *Lactarii theiogali* donatus, siccatus lac album effundens. — Var. **Ravenelii** Berk.: Major, extus albida, obovata vel subglobosa. In terra arenosa Carolinæ inferioris (RAVENEL, CURTIS) et Gainesville Floridæ (RAVENEL) Americæ borealis.

3. **Octaviania mutabilis** Roum. in Rev. Myc. 1885, p. 23. — Subglo- 528
bulosa, alba, tactu vinoso, dein nigrescens, basi fibrillis albis instructa; peridio separabili, tomento fugaci obtecto; gleba primum

alba, dein griseo-brunnea; cellulis irregulariter rotundatis, albidis, sæpe interruptis, centralibus majoribus; sporis globosis, 12-15 μ . diam., echinulatis, brunneis.

Hab. in terra semiimmersa rarius prope Florenville in Arduennis (BOMMER et ROUSSEAU). — Fungus odore distincto *Theobromæ Cacaos* donatus.

4. **Octaviana Archeri** Berk. Fl. Tasm. p. 263. — Obovata, pusilla, basi sterili satis magna, fibrillis nullis; gleba compacta; sporis globosis, echinatis, 21-22 μ . diam.

Hab. in terra sabulosa in Tasmania (ARCHER). — Ob glebam centro secedentem cum *Hydnangio* congruit, cum *Octaviana* vero ob basim sterilem.

5. **Octaviana compacta** Tul. Fungi Hypog. p. 79, t. XI, f. 3. — Minor, polyrrhiza, nivea; peridio molliusculo, insolubili, tomentello-gossypino; cellulis rotundatis oblongisve, minutissimis, mox oblitteratis, oppletis; septis vix conspicuis; sporis minutissimis, sphaericis, 5,5-6,5 μ . latis, rugulosis, flavis dein ochraceis, subsessilibus; basidiis 4-8 sporis; cystidiis longioribus, acutis, guttulatis, densis.

Hab. gregarie vix hypogaea sub umbra in silvis Galliae et Britanniae nec non et Californiae Americae borealis. — Fungillus 1 cm. circ. latus, interdum difformis, gibbosus, sæpe confluens; odor debilis, color exsiccatione vix mutatus «An hujus generis?»

6. **Octaviana rosea** Harkn. New Sp. of Calif. Fungi p. 9. — Gregaria; peridio fibrilloso-rugoso, irregulariter lobato, basi sterili distincta, roseo, intus obscuriori; basidiis 1-2-sporis; sterigmatibus filiformibus, capitatis, sporis aequilongis; sporis globosis, pallidis, 14-17 μ . diam., echinatis, hyalinis.

Hab. sub ramulis quercineis S. Francisco Californiae. — Peridium 1-3 cm. latum. Ab *Hydnangio carneo* Corda colore spinulisque sporarum distincta.

7. **Octaviana? mollis** De Not. in Comm. Soc. Critt. Ital. n. 1, p. 33. — Subrotunda, molliuscula, extus laete carnea, leviter reticulato-rugosa, glabra, basi fulcro radiciformi tenui praedita; gleba spongiosa, dilute carnea, albido-venulata; cellulis crebris, angustis, compressis, rete pallescente distinctis; basidiis oblongo-subclavatis, bisporis, sterigmatibus longiusculis e basi leniter incrassata subulatis, apice capitellatis; sporis sphaeroideis, verruculoso-tuberculatis, pallescentibus.

Hab. in humo Horti Botanici Genova Italiae (BUCCO). — Fun-

gus 1-1,5 cm. latus, inodorus, aere contrahitur. «An ab *Hydnangio carneo* distincta?»

Species mihi nomine tantum nota.

8. **Octaviania lutea** Hesse in Pringsh. Jahrbüch. XVI, (1885), p. 225. 533
Hab. in Germania (?).

RHIZOPOGON Fr. Symb. Gasterom. p. 5 cm. Tul. F. Hypog. p. 85
 (Etym. a *rhiza* radix et *pogon* barba) *Hysteromyces* Vittad. *Splanchnomyces* Corda p. m. p. — Peridium globosum, tuberiforme, modo crassum subcoriaceum stupeum, ægre vel nequaquam solubile, modo tenue submembranaceo et aliquando subevanescens; mycelium in funiculos filiformes teretes vel compressos tenaces concretum, fungum obducens; gleba mire cellulosa, compactiuscula aut densissima, initio candida, dein varie colorata, diffuens graveolens et inquinans; cellulæ minutæ, irregulares, subæquales, primo penitus cavæ, demum partim vel omnino oppletæ; septa angustissima, pellucida, pleraque homogenea nec scissilia, exteriora medio subopaca, solubilia; sporæ ellipticæ, oblongæ, 2-8 in quoque basidio, subsessiles, 1-2-guttulatæ, hyalinæ.

1. **Rhizopogon luteolus** Fr. Symb. Gast. p. 5, Tul. Fungi Hyp. p. 87, 534
 tab. I, f. 5 et t. XI, f. 5, *Splanchnomyces luteolus* Corda Icon. VI, tab. VII, fig. 69, *Hysterangium Durivcanum* Tul. in Chant. Cat. p. 75, *Melanogaster Cauvinianus* Mont. in litt., *Tuber virens* Alb. et Schw. Consp. Lus. p. 77, t. VIII, f. 3, *Rhizopogon virens* Fr. Syst. Myc. II, p. 294, *Tuber obtextum* Spr. Plant. minus cogn. II, p. 97, *Splanchnomyces Cauvinianus* Corda Icon. VI, p. 39, t. VIII, f. 72 *Splanchnomyces Rabenhorstii* Corda Icon. VI, p. 39, t. VIII, f. 73. — Peridio difformi, vulgo sphæroideo, reniformi vel ovoideo, fibrillis radicanibus, laxis, primitus albo, dein helvolo vel sordide luteo, intus lutescenti, livido vel griseo-viridulo; gleba primum candida et immutabili, perfecte lacunosa; cellulis rotundato-anfractuosis; septis angustis, scissilibus; basidiis lineari-oblongis, 4-6-sporis; sporis ellipsoideis, dilute luteolis vel subhyalinis, levibus, rectis, 7-16 $\approx$ 4-6.

Hab. in arenosis silvisque in Germania, Gallia, Fennia, Rossia, Belgio, Suecia, in America boreali, in Nova Zelandia. — Usque ad 2 cm. latus, sparsus vel gregarius; odor primum debilis dein gravis quasi stercoreus; sapor fere nullus.

2. **Rhizopogon rubescens** Tul. Fungi Hypog. p. 89, t. II, f. 1 ex t. XI, 535

f. 4, *Hysterangium rubescens* Tul. in Ann. Scienc. Nat. II, XIX, p. 375, *Melanogaster Berkeleyanus* Br. Ann. Nat. Hist. 1845, p. 41, *Mytilitta roseola* Fr. Ind. Syst. p. 178, *Splanchnomyces roseolus* Corda in Sturm. D. C. Fl. III, p. 5, t. II? *Splanchnomyces Klotzschii* Corda Icones VI, tab. VIII, f. 75, *Hymenangium vi-rens* Klotzsch in Dietr. Fl. Kon. Pr. VI, p. 382, *Rhizopogon albus* Wallr. Fl. Crypt. Germ. n. 4148, *Rhizopogon luteolus* Kromb. non Fr., *Splanchnomyces vi-rens* Corda Icones VI, tab. VII, f. 71, *Rhizopogon vi-rens* Kromb. t. 60, f. 13-20 non Fr., *Tuber aestivum* Spr. Syst. IV, p. 416 nec alior. *R. aestivus* Fr. S. M. II, p. 294, *Tuber album* Alb. et Schw. Nisk. p. 77, non Bull., *Tuber luteum* Reg. in herb., *Lycoperdon aestivum* Wulf. Plant. Carint. p. 349, *Hymenangium aestivum* Rabenh. D. C. Fl. I, p. 250. — Ovatus, oliviformis vel globosus, initio candidus et aere rubescens, maturus livide luteus vel olivaceus, fibrillis parcissimis instar radicum instructus; peridio tenuissimo interdum hinc inde subevanido vel varie rimoso, exsiccato crispato-rugoso; gleba mire cellulosa ex albido tandem penitus olivacea et tota fatiscente; cellulis minutis creberrimis, semper vacuis; sporis 2-8 in quoque basidio, sterigmatibus vix distinctis fultis, elliptico-oblongis, utrinque obtusis, levibus, 1-2-guttulatis, 7-9 $\approx$ 3, subhyalinis.

Hab. praesertim in silvis arenosis penitus hypogaeus, rarius semiepigaeus, gregatim in Italia, Gallia, Germania, Anglia, Bohemia, Austria, in America boreali et pr. Minussinsk Sibiriae. — Fungus 1,5-3 cm. latus, primo firmulus dein emollitus, odore debili subnullo donatus. — Var. **Vittadinii** Tul. loc. cit. *Hysteromyces vulgaris* Vittad. in Not. Lomb. I, p. 341: crassior, saepius epigaeus, vix prima aetate rubens; sporis paullo minoribus dilutioribusque. Prope Milano Italiae borealis et pr. Olbiam Galliae; etiam in Germania.

3. **Rhizopogon graveolens** (Vittad.) Tul. Fungi Hypog. p. 88, *Hysteromyces graveolens* Vitt. in Notiz. nat. civ. Lomb. I, p. 341. — Minor, subglobosus, irregularis, transversim ut plurimum elongatus; peridio levi, alutaceo, dein fusco; fibrillis radican-tibus raris, tenuibus, albis; gleba primum dura compacta; cellulis minutis rari-
rioribus; sporis dilute coloratis.

Hab. solitarie in pinetis prope Milano Italiae borealis. — Fungus humo semiimmersus, piri vel nucis avellanæ magnitudinem metiens, raro major, odore acerrimo, foetido donatus; sporae magnit. fere ut in *R. luteolo*.

4. **Rhizopogon provincialis** Tul. Fungi Hypog. p. 88. — Globosus, 537
albido-luteus, dein sordide brunneus, mycelii fibrillis ipsi superne applicatis, inferne radiceformibus, compressis, crebris, brunneis instructus; peridio crasso, intus albido, lacerato rufescente; gleba sordide diluteque luteo virescente; cellulis creberrimis, irregularibus, majusculis, vacuis; septis angustis, medio ægre scissilibus; sporis acrogenis, ellipticis, levibus, $6,5 \approx 3,2$, e luteolo subhyalinis, basidiis brevissimis, obtusis.

Hab. inter lichenes in silvis Galliae et Italiae nec non in California Americae borealis. — Fungus 2-4 cm. latus, interdum irregulariter scissus; odor fungi marcescentis quasi uvarum per fermentationem aut Tuberis veri, numquam ingratus. A *Rhiz. luteolo* tantum habitu proximus.

5. **Rhizopogon Briardi** Boud. in Bull. Soc. Bot. Fr. 1885, p. 284, t. 538
IX, f. 5. — Globosus, superne applanatus, vix difformis, flavus, maculis latis brunneis e pellicula distincta efformatis conspurcatus, inferne basi mycelica e filamentis ramosis composita donatus; gleba olivaceo-fusca; cellulis minutis, angustis, numerosis, *Rhiz. luteoli* similibus; sporis oblongis, 2-guttulatis, $7,5-8 \approx 3,5-4$, ex olivaceo-pallido subhyalinis.

Hab. ad Champagne Galliae (BRIARD). — Fungus nuciformis, 2-3 cm. latus, odore subnullo, dein Fragariae simili, demum ingrato. A *R. luteolo* maculis peridii guttulisque sporarum distinctioribus, a *R. rubescenti* gleba obscuriori cellulisque minoribus nec non basi evidentissima odoreque distinguitur.

6. **Rhizopogon suavis** Quél. 12 Suppl. p. 11, t. VII, f. 1. — Oblon- 539
gum, bullosum, tomentosum, pallide flavum aëre brunnicante, fibris castaneis hærens; gleba compacta, elastica, hyalinula demum olivacea, cellulis rotundatis, parietibus tenuibus, sericellis, albis; sporis 5-7 in quoque basidio, ovatis, 5-7 μ . diam., ochraceis, binucleatis.

Hab. in silvis Jura.

7. **Rhizopogon induratus** Cooke N. Zealand Fungi in Grevillea VIII, 540
p. 59. — Durissimus, depresso-globosus, fuscus, fibrillis paucis involutus; peridio crasso corneo, gleba minutissime cellulosa (vix distincta) cinereo-fusca; sporis hyalinis, arcte ellipticis, binucleatis $7 \approx 3$.

Hab. ad terram in pænis. Bank Novæ Zelandiæ. — Fungus 2,5 cm. latus, superficie habitu corni Buffali.

8. **Rhizopogon piceus** Berk. et Curt. F. North Pac. Exped. n. 114. 541

— Imberbis; peridio demum piceo; gleba alutaceo-umbrina; sporis oblongis.

Hab. in declivis montanis prope Hong-Kong in Cina.

9. *Rhizopogon? borealis* Karst. Symb. Myc. Fenn. XVII, p. 161. — Peridio difformi, inæquali, albido, sicco brunneo, intus testaceo vel lurido, carnoso, nudo, saltem sicco; sporis oblongatis vel ellipsoideis, 2- raro 4-guttulatis, 5-8 $\approx$ 2-3, hyalinis.

Hab. in terra arenosa pr. Ulaburgum Fennicæ (H. S. ZIDBACK). — Peridium 2-3 cm. latum.

10. *Rhizopogon Webbii* Corda Ic. VI, t. VIII, f. 74, Tul. F. Hyp. p. 91, 54. *Splanchnomyces Webbii* Corda olim. — Rotundatus difformis, confluentis, levis, ex albido-rufescens, basi fibrillosus; sporis cylindraceo-ellipsoideis, utrinque rotundatis, 7 μ . longis, olivaceis.

Hab. præsertim locis excelsis sub foliis delapsis Pini canariensis in insulis Canariensibus. — Parum differre videtur a *Rhizop. rubescenti*, at gleba firmiore et compactiore vix cellulosa donatus; ceterum hujusce generis penitus est.

11. *Rhizopogon? dubius* (Corda) De Tou. *Splanchnomyces dubius* 54. Corda Icon. Fung. VI, p. 38, t. VII, f. 70. — Peridio levi, sordide purpureo-rufi; gleba cellulis angustis, gyrosis excavata; sporis oblongis, 8-10 μ . longis, levibus, hyalinulis.

Hab. sub terra in Bohemia.

Species excludenda.

12. *Rhizopogon Leonis* Payer Bot. Crypt. p. 100, f. 462 est *Terfezia Leonis* Tul.

MELANOASTER Corda in Sturm. Deutsch. Fl. III, p. 1, Icones V, p. 23 et VI, t. IX (Etym. a *melas* ater et *gaster* uterus), *Hyperrhiza* Klotzsch Fl. Preuss. VII, p. 468, *Uperrhiza* Bosc in Mag. Berl. Gesellsch. V, II, pag. 88, *Argyrium* Wallr. Fl. Crypt. Germ. II, p. 874, *Bullardia* Jungh. in Linnæa V, 1830, p. 408. — Peridium stupaceum, crassum, leve seu tomentosum, vix a gleba distinctum nec detrahendum, ubique et subtus præsertim mycelio funiformi instructum, ceterum basi propria vel constanti destitutum; gleba multicellulosa, cellulae rotundatae, centrales majores, pulpa humida tandem mucosa initio faretæ; septa stuposa, opaca, homogœnea, crassa, non scissilia peridioque continua; basidia e filamentis hyalinis, implexis orientia obovata, subpiriformia, polyspora, rarius monospora; sporæ sessiles, ovatae vel ellipticae, leves, plus mi-

nus pellucidæ, vulgo spisse coloratæ. — Fungi crassi, carnosì, odori, vulgo plane hypogæi, gregarii vel solitarii.

1. **Melanogaster variegatus** (Vittad.) Tul. F. Hyp. p. 92, t. II, f. 4 ⁵⁴⁵
et t. XII, f. 6, Corda Icon. VI, t. IX, f. 91, *Octaviania variegata*
Vitt. Monogr. Tuber. pag. 16, t. III, f. 4, *Bulliardia inquinans*
Jungh. in Linnæa V, pag. 408, t. VI, f. 15, *Hyperrhiza inqui-*
nans Rabenh. Krypt. Fl. I, p. 292, *Tuber moschatum* Bull. Champ.
p. 79, t. 479, Mich. N. G. t. 98, f. II? — Crassus, globosus, irre-
gularis, primum ochraceo-nitens aut subauratus, tandem ferrugi-
neo-brunneo; peridio adpresse tomentoso, spongioso, molliusculo;
gleba solida, primum cinerea dein pulposa atra; cellulis rotundatis,
inæqualibus centro majoribus, numerosis; septis crassiusculis initio
albidis, dein luteis vel aurantiacis; sporis ovatis, sessilibus 5-10 =
3-5, 1-2-guttulatis, atro-brunneis, semipellucidis.

Hab. in silvis Italiæ, Germaniæ, Angliæ, Galliæ, Germaniæ, nec
non in California. — Fungus firmus 2-6 cm. et ultra latus, odore
fungino, persistenti gratissimo, aromatico, quasi amygdalæ amaræ do-
natus. — Var. **Broomeianus** (Berk.) Tul. loc. cit. t. II, f. 4, *Melano-*
gaster Broomeianus Berk. Ann. N. H. n. 301, *Tuber moschatum*
Sowerb. t. 426, non Bull.: septis primum albidis dilute flavescen-
tibus nec unquam aurantiacis aut acute luteis; odore debili. Gre-
gatum in silvulis sub graminibus muscisque non alte in terra im-
mersus in Gallia, Anglia, Nederlandia et Helvetia, Odor *Lactarii*
theiogali, demum *Inocybe piriodoræ*. Edulis.

2. **Melanogaster odoratissimus** (Vittad.) Tul. Fung. Hypog. pag. 95, ⁵⁴⁶
Octaviania odoratissima Vitt. Monogr. Tuber. p. 19, *Hyperrhiza*
odoratissima Rabenh. Krypt. Fl. I, p. 293. — Subrotundus, au-
reo-rufescens, sublevis; peridio extus fibrillis radicanibus instru-
cto; gleba tenaci, pulposa, rufo-brunnea, cellulis vix perspicuis;
sporis paucis, ovatis, umbrinis cellularum parietibus seu venulis
carneis.

Hab. in quercetis transpadanis Italiæ borealis nec non in Ger-
mania. — Fungus magnitud. nucis avellanæ metiens. odore grato
Hyacinthi botryoidis donatus. A *Melanogastro variegato*, cui pro-
ximus est, præsertim colore et natura glebæ differre videtur.

3. **Melanogaster ambiguus** (Vittad.) Tul. Fungi Hypog. p. 94, t. II, ⁵⁴⁷
f. 5 et t. XII, f. 5, Corda Icon. VI, t. IX, f. 88, *Octavia-*
nia ambigua Vitt. Monogr. Tuber. p. 18, t. IV, f. 7, *Melano-*
gaster Klotzschii Corda Icon. V, p. 23, *Hyperrhiza liquaminosa*
Klotz. Fl. Bor. t. 468, *Argyllum liquaminosum* Wallr. Fl. Crypt.

Serm. n. 2286, *Hyperrhiza tuberosa* Fr. Ind. Syst. p. 102, Mich. t. 98, f. 3? *Polysaccum tuberosum* Fr. Linnæa V, pag. 695. — Globosus vel ellipsoideus, regularis, firmus, basi vero propria distincta destitutus fibrillis partim obtegentibus, partim in terra diffusis instructus; peridio carnosio-molliusculo, sublevi, dilute olivaceo mox fucato; gleba carnosia, atra, fluxili; cellulis sæpius rotundatis, centro majoribus, admodum initio farctis; septis inæqualiter crassis, candidis, margine griseolis, non scissilibus; sporis singulis in quoque basidio, obovatis, acutis vel obtusiusculis obtuseque papillatis, levibus, $13-18 \approx 8$, subinde candatis, brunneis, coæcervatis aterrimis.

Hab. in silvis quercinis, carpineis, castaneis in Italia, Gallia, Anglia, Germania, nec non pr. Poughkessie et California in Amer. bor. — Fungus 2-4 cm. latus, recens odore debili fere *Sclerodermatis vulgaris*, maturus gravissimo allii Porri vel Asæfœtidæ donatus. — Var. **intermedius** Berk. Ann. N. Hist. n. 302, Tul. F. Hyp. p. 95: sporis obovatis, obtusis, æqualibus, rarissime minute papillatis. Prope Spy Park Angliæ (Broome). Magnitudine non impar *M. Broomeiano*, cujus colorem nitide ferrugineum præ se fert, sporis vero multo crassioribus illis *M. ambigu* æqualibus at forma plane diversis gaudet; cellularum parietes (venulæ) luteæ, in exsiccato rubentes. «An potius nova species?».

4. **Melanogaster tuberiformis** Corda in Sturm. Deutschl. Fl. III, p. 1, t. I, Anleit. t. C. f. 37, 1-3, Icon. VI, tab. IX, f. 89, Tul. Fung. Hypog. p. 95. — Peridio rotundato sæpe subirregulari simplici, clauso rubro-brunneo, sublevi, absque nitore, basi rugato, radiculis ramosis nigro-brunneis instructo; gleba mucosa, cellulosa; cellulis diversiformibus sæpius plus minus globosis, suboppletis; parietibus luteis; sporis oblongo-ovatis, subcaudatis, $9,5-11-5 \approx 6,5$, opacis, atris.

Hab. in pinetis silvisque variis pr. Prag Bohemiæ rarius et in Gallia. — Fungus integer paullatim in mukum solvitur Coprinumque imitatur. *Melanogastro ambiguo* proximus at peridio saturatius colorato et sporarum minori magnitudine distinguitur.

5. **Melanogaster rubescens** (Vitt.) Tul. Hypog. p. 96, t. II, f. 6, et t. XII, f. 7, Corda Icon. VI, t. IX, f. 92, *Octaviana rubescens* Vitt. Monogr. Tuber. pag. 18, t. IV, f. 12, *Hyperrhiza rubescens* Rabenh. Krypt. Fl. I, p. 293. — Rotundato-elongatus, sublevi, brunneus, basi absorbenti vix ulla; peridio spongioso, fomitem e Polyporo fomentario paratum prorsus referente, venulis interdum ramosis; gleba in fungo recentissimo humida albido-cærulea, aëre

flavescente vel rubescente, in exoleto fusco-rufa; cellulis primo oppletis, dein subvacuis, subrotundis; sporis numerosissimis oblongo-fusiformibus, 9-10 $\approx$ 5-6,5, levibus, 4-8 in quoque basidio subsessilibus, e luteo pellucidis.

Hab. in silvis arenosis Italiæ borealis, Galliæ. — Fungus avellanæ vel juglandis magnitudinem et ultra metiens, odore debili *Octavianicæ asterospermæ* simili donatus.

6. **Melanogaster aureus** (Vittad.) Tul. Fungi Hypog. p. 97, *Octavia-⁵⁵⁰*
nia aurea Vitt. Monogr. Tuber. p. 20, t. III, f. 14, *Hyperrhiza*
aurea Rabenh. Krypt. Fl. I, p. 293. — Oblongus, uniformis, basi
appendicem radiciformem gerens; peridio tenui, levi, subalbido, tactu
rufescente vel fuscrescente; gleba primum dura, aurea, albido-ve-
nata, demum molli nigrescenteque; cellulis parum numerosis, ro-
tundatis vel elongatis, subcavis; sporis...

Hab. in silva quadam prope la Stradella agri Mediolanensis in Italia boreali. — Fungus magnitudinem nucis avellanæ metiens, odore gratissimo donatus. «An species satis distincta?».

7. **Melanogaster sarcomelas** (Vittad.) Tul. Fungi Hypog. p. 97, *Octa-⁵⁵¹*
riania sarcomelas Vitt. Monogr. Tuber. p. 16, t. III, f. 3. *Hy-*
perrhyza sarcomelas Rabenh. Krypt. Fl. I, pag. 293. — Minor,
difformis, basi vix distincta; peridio levi, nigro, tenui; gleba ni-
gerrima, unicolore; cellulis rhomboideis vel pentagonis, regulari-
bus oppletis, parietibus cinereis pellucidis, centro vero opacis; spo-
ris ovatis, majusculis, levibus.

Hab. in collibus transpadanis Longobardiæ in Italia boreali, rarissime. — Fungus magnit. fabæ exsiccatus contractus, odor fortis atramenti.

8. **Melanogaster durissimus** Cooke in Grevillea VIII, p. 394. — Sub-⁵⁵²
globosus, compressus, difformis aut sulcatus, levis, durissimus, atro-
fuscus, demum nigrescens; peridio crasso, subnitido; gleba mire
lacunosa ochraceo-alba; cellulis majusculis, creberrimis, atris; spo-
ris oblongo-ellipticis, inæqualibus, brunneis, 5-8 $\approx$ 5.

Hab. in terra prope Chakrata Indostaniæ (B. POWELL). — *M.*
variegato major, plus irregularis, etiam ab illo colore cellulisque
majoribus distinctus. Odor fortissimus. Peridium 4 cm. circ. diam.

9. **Melanogaster? caroliniensis** (Bosc) De Ton. *Uperhiza carolinien-⁵⁵³*
sis Bosc in Mag. Berl. Gesellsch. V, II, p. 88 t. VI, f. 62, *A. B.*
Hyperrhiza caroliniensis Spr. Syst. Veg. IV, p. 416. Fr. Syst. Myc.
III, p. 56. — Subglobosus v. deorsum leviter productus repandus,
ater; sporis nigris, foetidis.

Hab. in aggere prope Charlestown Carolinæ inferioris in Amer. boreali. — Fungus magnit. pomi vix metiens, exsiccatione fere immutabilis.

HYMENOGASTER Vittad. Monogr. Tuber. p. 20 (Etym. ad *hymen* membrana et *gaster* uterus). *Hymenangium* Corda Icon. V, p. 28, *Rhizopogi* sp. Berk. *Hymenangii* sp. Klotzsch, *Splanchnomycetis* sp. Corda. — Peridium plerumque tenue, leve v. bysso innato obductum, nudum, ægre vel nequaquam solubile clausum indehiscens interdumque rimosum; gleba carnosio-solidiuscula, lacunis irregularibus, minutis, gyrosis, creberrimis exsculpta; septa loculos limitantia sæpius crassiuscula nec dividua; basidia subcylindracea vel obovata, singulatim ut plurimum bispora; sporæ ovatæ fusiformes v. citriformes, apice plerumque papillatæ v. cuspidatæ, crassæ, leves aut sæpius inæqualiter rugulosæ, maturæ saturatius coloratæ, in basidii apice subsessiles aut sterigmatibus brevibus suffultæ, demum liberæ. — Fungi gregarii globosi, nunc prorsus hypogæi nunc vertice subemergentes, basi absorbenti minuta nec producta, mycelio parco parum conspicuo nec floccoso aut radiciformi hærenti semper instructi, maturi varie colorati et olidi, exoleti arescentes vel putrescentes.

1. **Hymenogaster arenarius** Tul. Fungi Hypog. p. 73, t. X, f. 2. — 55
Globosus, amorphus, obovatus, albidus, immutabilis; peridio levi vel inæquali tenuissimo glabro, sicco; cellulis irregularibus, exiguis, parietibus ferrugineis, sporis obrutis; septis albidis subsericeo-nitentibus tandem aquose obscuris; sporis minutis, citriformibus, apice minute obtuseque papillatis, rugulosis, primo levibus pellucidis, dein luteo-brunneis, subopacis.

Hab. gregatim sub arena penitus immersus inter Spartia Scoparia pr. Paris Galliæ. — *H. arenario* et *H. tenero* maxime proximus at habitatione magis hypogæa, superficie inæquali sordidula carne grisea et absque nitore in primis differre videtur. Fungillus nucis avellanæ magnitudine vel paullo major, semper mycelio instructus, peridium 300-350 μ . crassum; odor acerrimus, fere alliaceus, peculiaris,

2. **Hymenogaster Bulliardii** Vittad. Monogr. Tuber. p. 23, t. III, f. 5, 55
Tul. Fungi Hypog. p. 71, t. X, f. 6, *Tuber moschatus* Bull. Champ. t. 479. — Peridio subgloboso vel elongato, reniformi, extus primo albido, dein fuscescente-nigro, sericeo, levi, glabro; cellulis minutissimis, difformibus, gleba firma, densa demum saturate ferruginea;

septis tenuibus, fragilibus obscure brunneis, non scissilibus; sporis late ovatis, levibus, breviter obtuseque acuminatis, basi rotundato-obtusis, 1-guttulatis, 16-22 $\approx$ 13, saturate ferrugineis.

Hab. subterraneus et subsolarius in silvis in Italia et pr. Paris Galliæ. — *H. citrino* quodammodo affinis sed peridii colore sporumque forma distinctus. Fungus nucis juglandis magnitudine et ultra, exsiccatus plicato-rugosus, carne compacta, unicolori, rufo-nigricanti, subfriabili; odor debilis, dum recens moschatus.

3. **Hymenogaster calosporus** Tul. F. Hypog. p. 70, t. X, f. 4. — Glo- 556
bosus sat irregularis, sæpius depressus aut, subtus præsertim, costato-sulcatus, ex albido brunneus et sordidus; peridio tenui, vix solubili, humido; lacunis inæqualibus, absque directione, vacuis septis linea media obscuriore notatis nec scissilibus, pulvinulo sub-nullo, gleba sordide violacea; sporis binis in quoque basidio, sterigmate brevi suffultis, lanceolato-acuminatis, levibus, 25-35 $\approx$ 13-16, 1-multi-guttulatis, saturate brunneis.

Hab. admodum subterraneus gregatim in betuletis apricis pr. Paris Galliæ. — *H. Bulliardi* Vitt. similis. Fungus nucis magnitudine, mycelio inconspicuo; caro siccitate rufescens. Propter hunc characterem ab *H. olivaceo* et *H. vulgari* facilliter distinguitur. Odor prorsus debilis vix ullus.

4. **Hymenogaster citrinus** Vittad. Monogr. Tuber. p. 21, t. III, f. 2 et 557
t. V, f. 9 b, Tul. Fungi Hypog. p. 69, t. I, f. 1 et t. X, f. 3, *Splanchnomyces citrinus* Corda Icon. VI, t. IX, f. 87. — Rotundato-gibbosus, irregularis, varius; peridio sericeo-nitente, citrino vel aureo denique rufo-nigricante, intus pariter colorato; gleba firma, cellulis tandem subrepletis, parvis, strictis, oblongo-gyrosis vel serpentinis; septis e basi ad peripheriam fungi obscure directis, initio luteo-virentibus, dein citrinis tandemque nigrescentibus; sporis lanceolatis, apiculatis, rugulosis, 2 in quoque basidio sterigmate brevi fultis, rubro-fuscis, opacis.

Hab. gregatim sub muscis vix terra coopertus in Italia, Gallia, Anglia, Suecia, Germania, in California Amer. bor. — *H. Bulliardi* Vitt. affinis. Fungus nucis avellanæ vel juglandis magnitudine; caro rufo-nigricans; odor casei vel radicis Rhapontici officinarum, itaque submoschatus. « An huc *Splanchnomyces Citrus* Corda l. c. ? ».

5. **Hymenogaster decorus** Tul. Fungi Hypog. p. 65, t. X, f. 9, Cooke 558
Handb. n. 1056, Winter Die Pilze p. 876. — Rotundatus, sordide albidus, sparsim flavescens, intus dense cellulosus lilacino-fuscus tan-

demque atro-violaceus, basi vix conspicua; peridio prorsus tenui, ægre solubili; gleba solidiuscula, primum albida; cellulis creberrimis punctiformibus vel linearibus angustisque, semioppletis, lilacino-fuscis; basidiis angustissimis, linearibus, flexuosis, 2-sterigmaticis; sterigmatibus longiusculis vel brevibus, 2-sporis, nunc abrupte monosporis; sporis ellipticis, obtuse apiculatis vel obtusis, rugulosis, pluriguttulatis, $23-30 \approx 10-14$, ex ochraceo fuscis.

Hab. subsolarius et prorsus hypogæus in carpinetis, fagetis etc. pr. Paris Galliæ (TULASNE), in Anglia (BERKELEY et BROOME) et pr. Breslau Germaniæ (L. BECKER). — Odor subnullus, speciei criterium in basidiorum forma prælonga imprimis versatur.

6. **Hymenogaster griseus** Vittad. Monogr. Tuber. p. 23, t. III, f. 15, 55
Tul. Fungi Hyp. p. 69. — Minor, globoso-diformis; peridio pallide fusco, extus villo subalbido vestito; basi vix conspicua; carne minute cellulosa, grisea, mox nigrescenti; parietibus cellularum albido-fuligineis; sporis fusiformibus, fusco-nigrescentibus.

Hab. in collibus silvulisque Italiæ superioris et Galliæ. — Fungus pisi vel fabæ magnitudinis, raro major, exsiccatus vix dure-scens; odor gratissimus omnino Convallariæ majalis.

7. **Hymenogaster Klotzschii** Tul. Fungi Hypog. p. 64, t. X, f. 12, 56
Hymenangium album Klotzsch Flor. Boruss. t. 466, *Hymenogaster albus* Berk. et Br. Ann. Nat. Hist. n. 296, *Rhizopogon albus* Berk. in Hook. Brit. Fl. II, p. 299. — Obovatus, basi fibrillosus; peridio membranaceo, albido, subtomentoso, interdum maculis flavescentibus tincto; cellulis sordide albidis, carnosius, dein ochraceo-rufescentibus, udis, mollibus; cystidiis longis, clavatis, hyalinis; sporis $16 \approx 9,5$, ovatis vel ellipticis, utrinque obtusis 4-6-guttulatis, levibus, sterigmate fultis.

Hab. semiimmersus in terra Horti Bot. Berolinensis nec non in ericetis pr. Berlin Germaniæ (Klotzsch), prope Glasgow Scotiæ (BERKELEY) et in Suecia (FRIES), etiam in Australia occidentali. — Ab aliis speciebus minutie et forma sporarum distinctus.

8. **Hymenogaster lilacinus** Tul. Fung. Hypog. p. 66, t. I, f. 2 et t. X, f. 8 non Berk. — Globosus, irregularis, levis, sericeus, ex albonitente pullus, intus lilacinus, demum fuligineus; peridio membranaceo non ægre solubili, primum candido nitente, mox brunneo; cellulis minutis, modice faretis septis ex albido amœne lilacinis tandemque fuligineis, facile scissilibus; gleba carnosula, firma; sporis late ovatis vel ovato-ellipticis, binis in quoque basidio, subses-

silibus, obtusatis, leviter inæqualibus, 1-pluri-guttulatis, levibus, saturate coloratis.

Hab. gregatim sub graminibus et betularum umbra in collibus apricis prope Paris Galliæ. — *H. vulgari* proximus a quo colore violaceo carnis et forma sporarum differt. — Fungus penitus hypogæus, nucis magnitudine, lobato-costatus, basi patenti donatus; odor debilis.

9. **Hymenogaster luteus** Vittad. Monogr. Tuber. p. 22, t. III, f. 9, Tul. 562
Fung. Hypog. p. 65, t. I, f. 3, *Splanchnomyces luteus* Corda Icon. VI, t. VIII, f. 76. — Globosus, mediocris; peridio tenuissimo, molli, sericeo, e niveo pullo; gleba crassa, molli, minute cellulosa, amœne sulphureo-lutea, subimmutabili, venis interdum albidis basin versus notata; cellulis regularissimis, suboppletis; sporis ovato-oblongis, obtusis vel acutiusculis, nonnumquam trifurcatis, innumeris, 19-23 $\approx$ 9-10, levibus, luteis.

Hab. hypogæus in udis, umbrosis, silvis Italiæ borealis, Angliæ et Galliæ, prope Sarawak Bornei (CESARI). — Fungus sæpius Avelanæ magnitudine, subtus aliquando sulcatus; odor debilis Fragariæ. *H. niveo* habitu similis, glebæ colore luteo distinctus. Peridium 7-14 mm. latum. «An *Splanchnomyces Klotzschii* Corda Icon. VI, t. VIII, f. 75 potius pertinet?».

10. **Hymenogaster lycoperdineus** Vitt. Monogr. Tuber. p. 22, t. II, 563
f. 5, Tul. F. Hyp. p. 64, t. X, f. 5, *Splanchnomyces lycoperdineus* Corda Icon. VI, p. 42, t. VII, f. 81. — Peridio rotundato, difformi, primitus albo, dein fuscescenti, glabro, intus molli, pallidiori; gleba molli, elastica, dilute fuliginea; cellulis majusculis irregularibus, e basi ad centrum seriatum directis; sporis parum numerosis, subfusiformibus, 19-23 $\approx$ 9-11, e fuligineo subhyalinis.

Hab. in terra etiam sub nive, socio sæpe *Tubere Boschii* in argillosis collium Longobardiæ Italiæ borealis, in Gallia et prope Hykkilä in parœcia Tammela Fennicæ. — Gregarius, valde versiformis, primitus albus dein fuscescens vel subumbrinus, subinde in carneum leviter vergens, 1-2 cm. diam.; odore gravissimo Allii sativi statim dignoscendus; caro exsucca, sapor ingratus, hinc vix esculentus.

11. **Hymenogaster microsporus** Berk. New Fungi from Mexico. in 564
Journ. Linn. Soc. IX, p. 423. — Globosus, albus tener, extus verruculosus, intus luteus, demum sordide umbrinus; sporis minutis, ellipticis; nucleo distincto.

Hab. in terra in Mexico Americæ borealis. — Habitus *Arachnii albi*. Peridium circ. 12 mm. latus.

12. **Hymenogaster Moselei** (B. et Br.) De Ton., *Hymenangium Moselei* B. et Br., Berk. Fung. Challenger 1874-75, n. 126. — Sub-orbicularis, basi attenuatus, citrinus, glaber; hymenio ochraceo, basi distincta, alba; sporis ovatis, apice attenuatis, pedicellatis, levibus, 1-2-guttulatis, 15 μ . diam., hyalinis.

Hab. in terra insulæ Pennant Oceanicæ. — Peridium circiter 12 mm. latum.

13. **Hymenogaster muticus** Berk. et Br. Ann. Nat. Hist. 1848, p. 267, Cooke Handb. n. 1054, Tul. F. Hyp. p. 65, t. X, f. 7. — Globosus, prima ætate candidissimus, demum fusco-tinctus et rimosus, vix lobatus; gleba dilute luteo-brunnea, firmula, subarida; cellulis, laxioribus; sporis obovato-oblongis, obtusissimis, 2-3-guttulatis, 23 $\approx$ 13, rufo-brunneis.

Hab. in terra prope Bristol Angliæ. — Fungus 2,5 cm. circ. latus, basi penitus destitutus, odor admodum debilis. *H. olivaceo* similis.

14. **Hymenogaster niveus** Vittad. Monogr. Tuber. p. 24, t. IV, f. 9, Tul. Fung. Hypog. p. 71. — Globoso-mammosus, basi manifesta præditus; peridio tenui, sericeo, nitido, papyraceo, fragili, vix ex-fosso niveo, cito tamen rufescente; gleba molli, pulposa, evenia, dilute fuliginea, exsiccatione contracta; cellulis parvis, rotundatis; sporis ovatis, *H. teneri* simillimis.

Hab. in quercetis Italiæ borealis, Galliæ et Germaniæ. — Fungus pisi vel nucis Avellanæ magnitudine, raro major, odore quasi Pelargonii graveolentis præditus. A reliquis speciebus peridii colore et forma nec non glebæ mollitie et odore distinctus.

15. **Hymenogaster olivaceus** Vittad. Monogr. Tuber. p. 24, t. V, f. 9, Tul. F. Hyp. p. 70, *Hymenogaster populetorum* Berk. Brit. Fung. n. 304 non Tul., *Splanchnomyces olivaceus* Zobel in Corda Icon. IV, p. 44, t. VIII, f. 80, *Splanchnomyces Broomeanus* Corda loc. cit., t. XIII, f. 107. — Globoso-angulosus; peridio tenui, sericeo-albido, tactu rufescente; gleba primo alba, olivaceo-rufa, septis linearibus albidis variegata; cellulis majusculis, excavatis; sporis pedicellatis, ovatis, mucronulatis, 18-19 μ . longis, 2-3-guttulatis, plerumque sublevibus, luteo-olivaceis subinde pellucidis.

Hab. in silvis Italiæ borealis et Angliæ. — Nucis avellanæ plerumque magnitudine, raro major; odor funginus peculiaris quasi *Dedaleæ quercinæ* vel *Lactarii theiogali* Fr.

16. **Hymenogaster leptoniisporus** Richon in Bull. Soc. Bot. Fr. 1887, p. 59, t. II, f. 1. — Peridio carnoso, sphaerico vel piriformi vel

mammillato, firmo, extus levi, albo dein brunneolo, subtus paullo depresso, arrhizo, rarius radiculis fasciculatis brunneis brevibus instructo; gleba initio alba, dein rufescente, septis sinuosis instructa; basidiis clavatis, 2-4 sterigmicis; sporis maturis hexagonis, roseis, levibus, guttulatis.

Hab. in agris et graminosis pr. Saint Lumier Galliae (JANET).

— Fungus gregatim vel solitarie 5-6 cm. altus, 1,5-4,5 cm. latus, alte in terram immissus.

17. **Hymenogaster pallidus** Berk. et Br. Ann. Nat. Hist. 1846, p. 74, 569

Cooke Handb. n. 1058, Tul. Fungi Hypogaei p. 68. — Parvus, rotundato-depressus, subglaber, albus, demum sordide alutaceus, molliusculus, intus ex albo pallide flavus, dein dilute fulvo, basi sterile obsoleta; peridio tenuissimo; cellulis minutis, semivacuis; sporis lanceolatis, acutis, breviter pedicellatis, 3-guttulatis, 32-38 $\approx$ 13-16, asperulis.

Hab. in pineto quodam arido prope Cotterstock Angliæ. — Fungus crassitie fabam vix superat; odor debilis. *H. vulgari* proximus sed sporis acutioribus simul et colore diversus.

18. **Hymenogaster populetorum** Tul. Fung. Hypog. p. 66, t. X, f. 10 570

non Berk. *Splanchnomyces populetorum* Corda Icon. VI, p. 42, t. VIII, f. 83. — Irregularis, e niveo sordide fuscus, molliusculus, glaber, levis, basi arrhiza vix perspicua instructus; peridio tenui, nec separabili, primum albo, senectute sordide aquilo; gleba ex albido-fusca subviolacea, tandem rubro-nigrescenti, fragili; cellulis minutis, creberrimis; septis tenuissimis linea media discolore notatis; sporis ovatis, acutiusculis, levibus vel rugulosis, 23 $\approx$ 11-13, 1-pluri-guttulatis, in quoque basidio binis, sterigmatibus brevibus suffultis, saturate coloratis.

Hab. gregatim penitus hypogaeus in populetis limosis Galliae. — Fungus mediocris avellanae et ultra magnitudine; odor debilis. *H. vulgari* et *H. lilacino* affinis at statura minor sporarum et glebae colore distinctus.

19. **Hymenogaster pusillus** Berk. et Br. Ann. Nat. Hist. XVIII, p. 75, 571

Cooke Handb. n. 1063, Tul. F. Hyp. p. 73. — Minimus, obovatus vel subdepressus, albus, basi sterili ampla praeditus, intus albidus; cellulis pro ratione magnis, paucisporis; sporis 13-16 $\approx$ 9,5 late ellipticis, brevibus, papillatis, demum asperulis, binis in quoque basidio, sterigmatibus longiusculis suffultis; basidiis clavatis, haud raro furcatis vel irregularibus.

Hab. obvius, socio *H. luteo*, prope Rushton Angliæ. — Fungus

4 mm. circ. crassus, exsiccatus *Sclerotium complanatum* omnino referens; odor non peculiaris, vix ullus. *Hymenog. tenero* proxime affinis.

20. **Hymenogaster rufus** Vittad. Monogr. Tuber. p. 23, t. III, f. 17, 572
Tul. Fung. Hypog. p. 64. — Subglobosus; peridio albo-rufescenti subsericeo, basi minuta; gleba unicolori, rubro-fusca; cellulis majusculis, irregularibus; sporis subsessilibus, obovatis, numerosissimis, rufis.

Hab. in terra silvarum, socio *Hymenog. Bulliardii*, in Longobardia Italiae borealis et Jura Galliae. — Fungus nucis avellanae vel juglandis magnitudine, cortice tenui subtomentoso vestitus, odor debilis. Cum *H. lycoperdineo* facile confunditur, a quo tamen glebae colore sporarumque forma distinguitur.

21. **Hymenogaster Behrii** (Harkn.) De Ton. *Splanchnomyces Behrii* 573
Harkn. Calif. Fungi p. 10. — Peridio cinnamomeo-brunneo, irregulariter lobato, lacunoso; basi absorbenti inconspicua; basidiis bisporis, sterigmatibus brevibus, filiformibus; sporis maxime inaequalibus, ovatis vel ellipticis, flavo-brunneis, hinc illinc depressulis, 10-15 $\approx$ 10, apiculatis.

Hab. gregatim in humo vegetabili in California Americae borealis (D. БЕРГ). — Peridium 1-4 cm. latum.

22. **Hymenogaster tener** Berk. in Ann. Nat. Hist. n. 297, Tul. Fung. 574
Hypog. p. 72, t. I, f. 4 et t. X, f. 1, *Hymenogaster lilacinus* Berk. Brit. Fungi n. 305 non Tul., *Hymenogaster argenteus* Tul. in Giorn. Bot. It. I, p. 55, *Splanchnomyces tener* Corda Icon. VI, t. XIII, f. 108 — Globosus, regularis, mediocris, levis, glaber, argenteus, nitens; peridio tenui, aegre separabili, extus primo candidissimo, nitente, immutabili, dein albido vel carneolo; gleba mire lacunosa, initio tota albida, firmula subelastica; cellulis e pulvinulo basilari sterili crasso albido immutato subradiantibus, vacuis; septis pellucidis, albidis; sporis binis, rarius ternis, integumento tenuissimo, diaphano ipsis ampliore singulatis instructis, citriformibus, rugulosis, 1-pluri-guttulatis, 16-19 $\approx$ 9,5-10,5, ochraceo-brunneolis.

Hab. gregarius et subterraneus, nonnumquam partim emersus in silvis umbrosis sub foliorum stratis humidis in Italia, Gallia, Germania et Britannia et in California Amer. bor. — Fungus avellanae magnitudine, basi mycelio exiguo albo instructus, ceterum arrhizus; odor funginus.

23. **Hymenogaster Thwaitesii** Berk. et Br. Ann. Nat. Hist. vol. XVIII, 575

p. 75, Tul. Fungi Hypog. p. 71, t. X, f. 11. — Parvus, globosus, firmus, extus albidus, maculis saturatioribus notatus, intus brunneus; sporis globosis, minutis, rugulosis, papillatis, uninucleatis.

Hab. in silvis prope Bristol et Portbury Angliæ.

21. **Hymenogaster vulgaris** Tul. Fung. hyp. p. 67, t. 10, f. 13, *Splanchnomyces vulgaris* Corda Icones VI, tab. VIII, fig. 84? *Hymenogaster griseus* Tul. in Ann. Scienc. Nat. tab. XIX, ser. II, p. 374, t. XVII, f. 1-3 non Vitt. — Peridio rotundato, irregulari, primitus albo, dein sordide albido, in ochraceum levissime vergenti, molliusculo, intus fusco, basi sterili minuta; gleba albida demum aquila; cellulis irregularibus majusculis; sporis fusoideo-ellipsoideis, apice vulgo utroque acuminatis, flavis, maturitate atro-brunneis, rugulosis, 18-25 μ 10-14. 576

Hab. in silvulis sub muscis vel in arena in Gallia, Anglia, Fennia. — Plerumque gregarius, 1-1,5 cm. latus, peridium 500 μ . crassum, ægre plerumque avellendum, carnosulum; odor funginus peculiaris. Cum *Hymenog. griseo* Vitt. sporis fusiformibus, fusconigrescentibus glebaque obscura convenit at aliis notis distinctus.

HYDNANGIUM Wallr. in Dietr. Fl. Boruss. VII, p. 465 (Etyim. ab *hydnon* tuber et *aggeion* vas). — Peridium nunc carnosum crassiusculum solidum ægre vel nequaquam solubile, nunc tenue submembranaceum, leve aut bysso passim obtectum; gleba gelatinoso-elastica, solida, plerumque læte colorata, multicellulata; cellulae minutæ inæquales, rotundatæ aut sæpius anguste oblongatæ, primum cavæ, dein farctæ et suboppletæ; basis sterilis nulla; septa haud scissilia; basidia obtusa, cystidia conica, acuta; sporæ sphaericæ vel ellipticæ, minutæ, echinatæ, nec reticulatæ, sterigmate brevi fultæ, dilute v. saturatius coloratæ, subhyalinæ. — Fungi gregarii vel solitarii globosi sat regulares, basi exigua mycelio parco continui, sæpe epigæi, solidissimi, elastici, putredine pereuntes et deliquescentes vel exsiccati diu perdurantes.

1. **Hydnangium carneum** Wallr. in Kl. Flor. boruss. n. 465. Tul. F. Hyp. p. 75, t. XXI, f. 3, *Octaviania carnea* Corda Icon. VI, p. 36, t. VII, f. 66. — Peridio difformi, rotundato, oblongato v. obovoideo, pallide carneo, tomento tenui, evanescente, albo obducto, tandem fusciscenti, intus pallide sordideque carneo; gleba dilute carnea, immutabili; cellulis minutis, sinuosis; basidiis prominentibus, 2-sporis; cystidiis immixtis; sporis sphaeroideis, echinatis, dilute flavescentibus, 13-18 μ . diam.

Hab. in silvis sæpius ad radices arborum etiam in calidariis in Germania. Anglia, Fennia, Gallia. — Inæqualiter tuberculatum, magnitudine nucis vel Solani tuberosi.

2. **Hydnangium australiense** Berk. et Br. Fungi from Brisbane p. 66, n. 225. — Subglobosum; peridio crasso, sicco, rugoso, rufo-brunneo; gleba pallide ochracea, cellulis vacuis, laxis e puncto basilari oriundis; sporis globosis, minute echinulatis, 12 μ . circ. diam.

Hab. ad Brisbane Queensland. — Habitus *Rhizopogonis luteoli*. *Hydnangio carneo* Wallr. proximum.

3. **Hydnangium candidum** Tul. Fung. Hypog. p. 75, t. XXI, f. 2. — Globosum, regulare, molliusculum, basi absorbenti minutissima arrhiza instructum; peridio tenui, membranaceo, levi, candido, tandem dilute lutescente, interdum rimoso, nec ægre divellendo; gleba subelastica, læte ochracea; cellulis creberrimis, minutis, inæqualibus, partim vacuis; septis angustis, subhomogeneis, nec scissilibus; basidiis 2-3, rarius 4-sporis, cylindricis, cystidiis angustioribus conicis elongatis immixtis; sporis sphaericis vel ellipticis, 6,5-8,5 μ . diam., sterigmatibus acufornibus suffultis, creberrime echinatis, dilute citrinis subhyalinis, senectute fuscidulis.

Hab. fere epigæum et solitarium in carpinetis umbrosis Galliae. — Fungus 1-3 cm. latus, odore subnullo donatus.

4. **Hydnangium liospermum** Tul. Fungi Hypog. p. 76, t. XXI, f. 1. — Exiguum, firmum, globosum, albidum, arrhizum; peridio crasso, maxime homogæneo, continuo, integro, glabæ arcte adhærenti nec separabile, in septa transeunte; gleba firmula, læte ochracea aut armeniaca; cellulis numerosis, minutis, inæqualibus, sæpius oblongo-angustatis, fartis; septis mucoso-cartilagineis, griseis, basidiis brevibus vestitis, nunc vix conspicuis nunc partim evidentibus; sporis innumeris, acrogenis, sphaeroideis, 6,5 μ . diam., sterigmate tenui, brevi fultis, prorsus levibus subhyalinis.

Hab. fere epigæum sub foliis deciduis in Gallia. — Fungus usque ad 8 mm. latus, pisiformis, odore subnullo donatus mycelioque subdestitutus. *Hydnangio candido* persimile at sporis levibus distinctum.

5. **Hydnangium caroticolor** Berk. Outl. p. 293, t. XX, f. 1, Tul. F. Hyp. p. 75, t. XXI, f. 4. *Octaviania caroticolor* Corda Icon. VI, p. 36, t. VII, f. 65. — Oblongum, arrhizum, extus laxè tomentosum; peridio tenui demum ruguloso, sublateralitio; gleba minute cellulosa, aurantiaca; cellulis cavis, basidiis obtusis 2-4-sporis cystidiisque gracilibus, filamentis tenuibus subinde ramosis, immixtis, vestitis;

sporis subellipticis maxime echinulatis sterigmate brevi fultis, 9, 5-13 $\approx$ 7-8, pallide flavo-rufis.

Hab. in silvis præcipue pineis Angliæ pr. Zürich Helvetiæ et in Gallia. — Fungus 2-4 cm. altus; color acutus est et radicis *Dauci carotæ* perfecte colorem æmulatur; cum exsiccatur charta, in qua obvolvitur, colore aurantiaco verisimiliter ob oleum exsudans inficitur.

6. **Hydnangium virescens** Quél. Champ. Jura p. 538. — Globosum, 582
elongatum, foveolatum, ramulis mycelicis albidis cinctum; peridio membranaceo, tenui, adhærenti, pruinoso, albo, flavo maculato, dein ochraceo; gleba firma, lactea, dein farinacea, candida, aere sulphureo- vel viridi-maculata; cellulis parvis, rotundatis, primo impletis, dein vacuis; sporis sphaericis, granulatis, guttulatis, 13 μ . diam., hyalinis.

Hab. ad terram in collibus Vosges Galliæ. — Totus fungus 2 cm. altus; odor *Tuberis esculenti* et *Meliloti*.

7. **Hydnangium? hysterangioides** Tul. Fungi Hypog. p. 76, t. XXI, f. 5. 583
— Globosum, regulare, mycelio hærens lacteo, modo Himantia facie aut veluti membranaceo-adglutinati, modo funiculos subsimplices agente; peridio papyraceo, glabro, diu candido, exsiccato non fuscato, tenui, tenaci, nec ægre a gleba solubili; gleba firma, subcartilaginosa, hysterangioides, e cinereo-virenti tandem ochracea; cellulis creberrimis, minutis, mox sporis repletis; septis exilissimis, centrum versus crassioribus; sporis sphaericis, 4,3 μ . vix diam., minute echinulatis, maturitate argillaceo-ochraceis.

Hab. inter strata foliorum delapsorum sub umbra in agro romano (BROOME). — Fungus usque ad 15 mm. latus. «An potius Octaviania?»

GAUTIERIA Vittad. Monogr. Tuber. p. 25 (Etym. a cl. GAUTIER, cui dictum genus), *Hydnospongos* Wallr. mscr. — Peridium haud distinctum seu nullum; gleba carnosa, firma, extus intusque celluloso-porosa, lacunosa v. alveolata; cellulæ interiores vacuæ, labyrinthæ, fungi in ambitu apertæ; sporæ acrogenæ, binæ, breviter stipitatae, ellipticae, obtusæ, longitrorsum striato-sulcatae. — Fungi globosi, crassi, firmi, carnosissimi, e mycelio copioso floccoso late in terra diffuso exsurgentes eique basi manifesta *Morchellarum* instar hærentes, maturi olidi tandemque putrescentes.

1. **Gautieria morchelliformis** Vittad. Monogr. Tuber. p. 26, t. III, f. VI, 584
Tul. Fungi Hypog. p. 62, Corda Icon. VI, p. 34, t. VII, f. 62. —

Subglobosa appendice basilari radiceformi, ramosissima, prima ætate e foveolis ubique adpressis granuloso-albida, demum rufescenti; gleba firma, celluloso-gyrosa, rubro-fusca, venis e basi oriundis variegata; cellulis internis exteriusque majusculis; sporis 19-23 $\approx$ 9, 5-12,5.

Hab. vix ab humo folisque tecta in quercetis collinis et montanis Italiæ borealis (VITTADINI) et pr. Nordhausen Saxonie, (WALLROTH) nec non in Amer. bor. Mexico. — Nunc gregaria, nunc solitaria, odore intensissimo Dictamni albi quodammodo analogo donata. Facile ob odorem, quem spargit, a canibus detegitur atque effoditur. Radix massam enormem inodoram, albido-farinaceam efformans; 1,5-3 cm. lata, 1-2 cm. alta.

2. **Gautieria graveolens** Vittad. Monogr. Tuber. p. 27, t. IV, f. XIII, 585
Tul. Fungi Hypog. p. 63, Corda Icon. VI, p. 34, t. VII, f. 63. — Rotundato-elongata appendice basilari radiceformi subsimplici, primo sublevis, albida, demum flavo-expallida, superficie venis tumidulis filiformibus reticulatim striata, cellulosa; cellulis internis saturatius coloratis externisque minutis, poriformibus; gleba primum albido-compacta, demum fusca, gelatinoso-molli, dendritice in carnem e basi excurrente; sporis 14-21 $\approx$ 8-11.

Hab. locis sabulosis nunc humo alte immissa, nunc fere emersa in quercetis Italiæ borealis et Germania. — Fungus exsiccatus summo opere indurat et substantia intercellularis veluti cornea evadit; odor vix tolerandus, quasi *Cepæ* emarcidæ. Radix simplex albida fragilis 2 mm. circ. crassa; plerumque 2 cm. alta, 2,5 cm. lata.

3. **Gautieria villosa** Quel. Quelq. esp. nouv. p. 290, t. III, f. 7, Winter 586
Die Pilze p. 873. — Globosa, alveo lato-perforata, granulata, tomentosa, fulva vel castanea, radice parum ramosa griseola instructa; gleba tenui, coriaceo-gelatinosa, glauca; cellulis sinuosis, anastomosantibus, gyrosis excavata; hymenio velutino, brunneo-croceo; sporis geminatis ellipsoideis 20 μ . diam. plicatis, apice depressis, basi mammillatis, pallide flavis.

Hab. subimmersa in humo silvarum Jura (MARTHES) et in Thuringia (KUNZE) nec non in Italia et Tyrolia merid. — 5 cm. alta; cellulæ 1-2 mm. latæ. Odor virosus, *Boleti luridi*. «An *Gautieria morchelliformis* mera varietas?».

4. **Gautieria monticola** Harkn. New. sp. Calif. Fung. p. 10. — Ob- 587
scure brunnea, irregulariter lobata, sursum subplana; stipite gracili, brevi; gleba ferrugineo-brunnea; basidiis ut videtur bisporis; steri-

gmatis filiformibus; sporis ellipticis v. obovatis, apiculatis, longitudinaliter vel oblique striatis, 10-12 $\approx$ 7-8, pallide brunneis.

Hab. in humo in California. — Fungus 10 cm. latus, 3 cm. crassus, odorem poponis putridi emittens.

MACOWANITES Kalchbr. in Garden. Chron., 1876, p. 785 (Etym. a MAC OWAN, cui genus merito dicatum), *Macowania* Kalchbr. — Peridium Epigæum, stipitatum, carnosum, in centro solidum sed circumcirca cavernosum. Cellulæ hymenio vestitæ, subtus apertæ, elongatæ, in stipitem decurrentes. Basidia bispora. Sporæ globosæ, hyalinæ, tuberculatæ.

1. **Macowanites agaricinus** Kaleh. loc. cit. — Hemisphæricus, sursum le- 588
vis impolitus, sordide brunneus, deorsum in processum stipitiforem, glabrum, album productus; gleba solida, pallida, in ambitu fovens cellulas hymenii copiosas, subtus in longitudinem protractas, apertas, aeri pervias, albas; odore gravi, alliaceo; sporis amplis, globosis, episporio crasso, tuberculoso.

Hab. in campis inter gramina ad pedem Acaciarum pr. Somerset East Africæ australis (MAC OWAN). — Magnitudine *Solani tuberosi* minoris. Procul dubio edulis.

Genera minus nota.

PHLYCTOSPORA Corda in Sturm D.C. Fl. p. 47, Anleit. p. 95 (Etym. a *phlyctis* vesicula et *spora*). — Peridium simplex, coriaceum, intus carnosum, dein cellulosum; cellulæ faretæ, irregulares; sporæ aggregatæ, compositæ, decolorantes, substantiæ immersæ; episporio celluloso-hyalino; nucleo globoso colorato; capillitium et basidia nulla (?). — Fungi subterranei.

1. **Phlyctospora fusca** Corda Anleit. t. C, 37, f. 7-10. — Hypogæa, 589
tuberculiformis, nuda, levis, brunnea; gleba primo alba, dein nigrescente carnosio-firma; sporis coacervatis, globosis, brunneis, episporio celluloso-hyalino tectis.

Hab. ad radices arborum in silvis Germaniæ, Bohemiæ et Lusitanæ.

2. **Phlyctospora Magni-Ducis** Sorok. Mater. p. 30, t. II, f. 21-34. 590
— Subemergens, tuberculiformis verrucoso-tuberculosa, fuscidula; gleba carnosio-firmiuscula, fusca; sporis globosis, coacervatis, asperulis, 3-4 μ . diam., brunneolis.

Hab. ad terram in Sibiria asiatica. — Peridium circ. 2 cm. altum, 3 cm. vix latum.

POMPHOLYX Corda in Sturm D.C. Fl. p. 51, Anleit. p. LXXVII et 96 (Etym. a *pompholyx* flores zinci). — Peridium simplex, coriaceum, intus venoso-reticulatum. Venæ carnosæ. Sporæ simplices, venarum parenchymati irregulariter immersæ (?) sphaerico-tetraedicae; episporio simplici verrucoso, basi hylo magno instructo. — Fungi tuberiformes, subterranei, aromatici, sapidissimi.

1. **Pompholyx sapida** Corda Anleit. t. C, 38, f. 1-5, Sturm. D. C. 521 Fl. t. 16. — Tuberculiformis, globosa, basi subplicata, alba, dein brunnea, levi, intus alba, demum violaceo-atra; sporis brunneis, verrucosis.

Hab. sub terra in Bohemia.

PHYCOMYCETEÆ

auctoribus Doct. A. N. BERLESE et Doct. J. B. DE TONI
Scholæ Botanicae Patavinae adjutoribus.

Phycomyceteæ De Bary *)

in Fuck. Symbolæ Mycologicae p. 66. Cfr. De Bary Morph.
und Biol. der Pilze, edit. II, p. 140.

Fungi mycelio unicellulari instructi, in animalibus et plantis variis entoparasitici, rarius saprophytici, aërophili vel hydrophili, ascis vero vel peritheciis vel ascomatibus genuinis carentes; generatione agamica (zoosporica vel conidica vel sporica) v. sexuali (oogonica et antheridica vel zygosporica) utentes.

Clavis analytica Familiarum

A) Genuinæ.

1. *Mucoraceæ*. Hyphæ sporangia gerentes; reproductio agamica sporica et chlamydosporica, sexualis zygosporica. — Fungi aërophili, in substantiis putrescentibus evoluti.

*) Studium cohortis *Phycomycetum* et potissimum *Mucoracearum* et *Chytridiacearum* nonnullis partibus admodum provectum, in ceteris vero valde mancum est et leve. Ita cum pro pluribus generibus et præsertim illis a cl. Bainier, Braun, Brefeld, De Bary, Schroeter, Van Tieghem, Zopf etc. elaboratis, diagnoses possidemus fusas et ob data micrologica plurima plene præstantes, pro nonnullis aliis specierum plurimarum diagnoses imperfectissimas tantum habemus.

Tamen satius duximus diagnoses etsi mancas referre omnium specierum Bonordenii, Braunii, Cordæ, Friesii etc. quas nuperiores auctores hucusque nec reformarunt nec deleverunt. Nobis revera persuasum habemus multas species auctorum citatorum a campo mycologico excessuras, sed opus hoc eliminationis monographis de fungillis his elegantibus sed adhuc valde vexatis scripturis libenter relinquemus.

Et nunc liceat mycologos omnes de mycetum biologia tractantes hortari ut prope prolixas suas expositiones diagnoses addant secundum normam artis taxonomicæ exaratas, h. e. latino idiomate conscriptas atque comparativas. Præter auctores in principio *Syloges* citatos, in tractatione *Phycomycetum* nobis præsto fuerunt sequentes, BAINIER Étude sur les Mucorinées, Paris 1882. — CORNU Monographie des Saprologniées, Paris 1872. — SCHROETER Kryptogamentflora von Schlesien, Breslau 1885-86. — VAN TIEGHEM Nouvelles recherches sur les Mucorinées, Paris 1875 et Troisième mémoire sur les Mucorinées, Paris 1876. — ZOPF Zur Kenntniss der Phycomyeten, Halle 1884.

2. *Peronosporaceæ*. Hyphæ sæpe ramosæ, conidia plerumque zoosporipara, subinde directe germinantia gerentes; reproductio agamica conidica; sexualis oogonica et antheridica. — Fungi aërophili, in plantis vivis entoparasitici, sæpissime foliicolæ.
3. *Saprolegniaceæ*. Hyphæ zoosporangia gerentes; reproductio agamica zoosporica, sexualis oogonica et antheridica. — Fungi hydrophili, in piscibus emortuis v. morientibus vel in insectis vel in plantis aquaticis, rarius terrestribus parasitici.
4. *Entomophthoraceæ*. Hyphæ conidia gerentes; reproductio agamica conidica et per sporas perdurantes, sexualis zygosporica. — Fungi aërophili, in insectis amphibiiis etc. vivis crescentes, mycelio primum in corpore animali se evolvente, dein (insecto emortuo) plerumque hyphas conidiophoras externe emittente, rarius in plantis parasitici vel saprophytici.

B) Recedentes.

5. *Chytridiaceæ*. Hyphæ nullæ vel obsoletæ et tunc sporangia amycelica nuda; reproductio agamica zoosporica; zoosporæ partitione simultanea efformatæ, e zoosporangio erupto exsistentes et cellulæ perdurantes crasse tunicatæ, in zoosporangium denique abeuntes; cellulæ perdurantes nunc e sporangio singulo vegetativo crasse tunicato efformatæ, nunc ex copulatione duarum cellularum, contento alterius in alteram (in zygosporam mutatam) incunte. — Fungi sive aërophili in plantis entoparasitici, sive hydrophili in algis, fungis et infusoriis entoparasitici.
6. *Protomycetaceæ*. Hyphæ subinde nullæ; reproductio agamica et zoosporica; sporangia crasse, subinde bi-tri-tunicata, tunica interna externis ruptis, cum protoplasmate exsistente. Fungilli aërophili in plantis entoparasitici.

Fam. 1. **Mucoraceæ** DE BARY

Hyphæ sporangiferæ hyalinæ vel coloratæ; reproductio duplex: agamica per sporas et chlamydosporas, sexualis per zygosporas.

A) Columella præsens; stylosporæ nullæ. — Hyphæ myceliæ crassæ, hand anastomosantes.

† Sporangium polysporum.

§ Tunica sporangii heterogenea, superne cuticularis, basi annulari-diffuens. *Pilobolæ*

§§ Tunica sporangii homogenea, omnino diffuens vel ex toto persistens. *Mucoræ*

†† Sporangium monosporum.

Chaetocladiæ

B) Columella nulla; stylosporæ præsentæ. — Hyphæ mycelicæ tennes et anastomosantes.

Sporangium sphaericum.

Mortierellæ

Sporangium cylindricum.

Syncephalidæ

Subfam. 1. Pilobolæ VAN TIEGH.

Tunica sporangii basi diffluens; sporangium polysporum.

Pilobolus. Sporangium projectum; sporæ pallide coloratæ.

Pilaira. Sporangium auctione ramuli elevatum; sporæ pallide coloratæ.

? *Chordostylum*. Sporangium primo velatum, dein protrudens; sporæ hyalinulæ.

Subfam. 2. Mucoræ VAN TIEGH.

Tunica sporangii omnino diffluens vel ex toto persistens; sporangium polysporum.

A) Hyphæ sporangiferæ vegetatione definita præditæ.

† Ramuli sporangiferi uniformes.

§ Hyphæ simplices, rarius ramosæ at non dichotomæ.

* Rami sexuales recti.

Mucor. Sporæ hyalinæ vel coloratæ.

** Rami sexuales arcuati.

Phycomyces. Spinulosi; sporæ subhyalinæ.

Spinellus. Nudi; sporæ nigrescentes.

§§ Hyphæ dichotomæ.

Sporodinia. Sporæ e brunneo subhyalinæ.

†† Ramuli sporangiferi dimorphi.

§ Ramuli sporangioliferi simplices.

Chaetostylum. Ramuli recti; sporæ e cæruleo subhyalinæ.

Helicostylum. Ramuli spirales; sporæ hyalinulæ.

§§ Ramuli sporangioliferi dichotomi.

Thamnidium. Sporæ e cæruleo hyalinæ.

B) Hyphæ sporangiferæ vegetatione indefinita donatæ.

† Ramuli sporangiferi plerumque curvati; tunica sporangii diffluens.

Rhizopus. Ramuli sporangiferi lunati vel circinnati subinde recti; columella subglobosa.

Absidia. Ramuli sporangiferi sympodice arcuati; columella conica.

Tieghemella. Ramuli ut in *Absidia*. Exstant quoque sporangiola.

†† Ramuli sporangiferi circinnati vel lunati; tunica sporangii non diffluens.

Circinella. Tunica sporangii medio transversim rumpens; sporangia globosa.

Pirella. Tunica sporangii valde firma; sporangia piriformia.

Subfam. 3. Chætocladiæ VAN TIEGH.

Hyphæ sporangiferæ apice sterili terminatæ, lateraliter pedicellis sporangiferis instructæ; sporangium monosporum.

Chætocladium. Sporangia decidua; sporæ coloratæ.

Subfam. 4. Mortierellæ VAN TIEGH.

Rami fructiferi racemosi; sporangium sphaericum, polysporum, columella destitutum.

Mortierella. Hyphæ sporangiferæ basi dilatatae.

Herpocladium. Hyphæ sporangiferæ æquales.

Subfam. 5. Syncephalidæ VAN TIEGH.

Hyphæ sporangiferæ apice in vesiculam sporangiferam inflatæ; sporangia cylindracea, simplicia vel ramosa; sporæ seriatae.

A) Hyphæ sporangiferæ pluries dichotomo-ramosæ, apice ramorum attenuatæ, vesiculam amplam sporangiis cylindræis numerosis præditam gerentes.

Piptocephalis. Sporæ cylindrææ vel fusoidæ.

B) Hyphæ sporangiferæ simplices vel ramosæ, apice in vesiculam tuberculigeram, sporangiis cylindræis, numerosis, simplicibus vel ramosis instructam gerentes.

Syncephalis. Hyphæ sporangiferæ simplices, subinde furcatæ, basi rhizoidibus adhærentes, e mycelio tenuissimo, anastomosante orientes.

Syncephalasium. Hyphæ sporangiferæ umbellatim ramosæ, basi rhizoidibus destitutæ.

Fam. 1. Mucoracæ DE BARY.

Hyphæ sporangiferæ hyalinæ vel coloratæ; reproductio duplex: agamica per sporas et chlamydoformas; sexualis per zygosporas.

Subfam. 1. Pilobolæ VAN TIEGH.

Hyphæ myceliæ crassæ haud anastomosantes; sporangia polyspora, columella prædita; tunica sporangii heterogenea.

PILOBOLUS Tode Meckl. p. 41 (Etym. *pilos* pileus et *bolos* jactus).

— Hyphæ erectæ, simplices, continuæ, roridæ, e basi attenuata sensim bullato-ventricosæ, sporangium ex apice elasticè projicientes; sporangia globoso-depressa, nigra; tunica pellicula sursum verrucosa, asperula partim prædita; sporæ uniloculares, globosæ, ex hyalino pallide coloratæ.

1. **Pilobolus crystallinus** (Wigg.) Tode Fungi Meckl. Sel. 1, p. 41, Grove 592
 Pilobol. p. 33, t. IV, f. 16, Schroet. Krypt. Flor. Schles. Pilze p. 212,
Hydrogera crystallina Wigg. Flora Holsat. p. 110, n. 1156, *Mucor*
obliquus Scop. Flor. Carn. 2, p. 494, *M. urceolatus* Bulliard Champ.
 1, p. 111, pl. 480, f. 1, *P. urceolatus* Pulton Midl. Fl. t. 31. —
 Hyphis sporangiferis gracilibus, pellucidis, roridis, lutescentibus,
 apice ventricosus-clavatis, 5-7 mm. alt.; sporangiis hemisphæricis,
 300 μ . latis, nigris, cuticula verrucosa reticulata; columella conoi-
 dea, atro-cærulea; sporis uniformibus, ellipticis, episporio tenui,
 7-10 $\approx$ 5-6, dilutissime flavidis.

Hab. in fimetis equinis et bovinis in tota Europa et in Amer.
 bor. — Forma *P. eucrystallinus* Grove Monograph of the Pilo-
 bolidæ p. 34 a typo vix distincta.

2. **Pilobolus Kleinii** Van Tiegh. Struct. Spor. Pilob. in Bull. d. l. Soc. 593
 Bot. de France 1875, Grove Pilobol. p. 35, pl. IV, 1-8, f. 10-13,
 Schroet. Krypt. Flor. Schles. Pilze p. 212, *P. roridus* Currey Linn.
 Journ. t. 162, pl. 2 non Pers. *P. crystallinus* Klein Zur Kennt. Pil.
 p. 360, pl. 23-7, f. 1-52. — Hyphis sporangiferis apice ventri-
 coso-inflatis, gracilibus, roridis; sporangiis unicoloribus, cuticula
 verrucosa; columella conica, quandoque medio constricta tum sur-
 sum in cylindrum desinente; sporis inæqualibus sphæroideo-elli-
 psoideis, 12-15 $\approx$ 6-9, aurantiacis.

Hab. in stercore vaccino et humano in Gallia, Germania, An-
 glia, Italia. — Sporæ in speciminibus majoribus, 12-20 $\approx$ 6-10, in
 minutis fere sphæoideæ. Sec. v. Tieghen. *P. crystallino* affinis.

3. **Pilobolus roridus** (Bolt.) Persoon. Synops. Fungor. p. 118, Grove 594
 Pilobol. pag. 36, t. VI, f. 4-6, Schroet. Krypt. Flor. Schles. Pilze.
 p. 212, *Mucor roridulus* Withering Bot. Arr. ed. 1, II, p. 784, *M.*
roridus Bolton Hist. Fung. III, 168, pl. 132, fig. 4, *Pilobolus mi-*
crosporus Klein Zur Kennt. Pil. p. 360, pl. 27-8, *Fungus virgi-*
nianus Pluk. Phyt. t. 116, f. 7. — Hyphis sporangiferis filifor-
 mibus, elongatis, 1-2 cm. altis, delicatulis, apice globosis, subhya-
 linis; sporangiis hemisphæricis, depressis, circ. 200 μ . latis, brun-
 neis, columella convexa; sporis ellipticis, 6-8 $\approx$ 3-4, dilute flavis.

Hab. in stercore mammalium in Germania, Gallia, Anglia, Sue-
 cia, Carolina sup.

4. **Pilobolus longipes** Van Tiegh. Trois. Mém. p. 27, pl. 10, f. 11-15, 595
 Bainier, Etude p. 46, pl. 2, f. 11-13, Grove Pilobol. p. 35, t. VI,
 f. 1, *P. roridus* Brefeld Bot. Unters. Zo pl. 4. f. 17, non Pers.
 — Maximus; hyphis sporangiferis filiformibus, elongatis, apice glo-

bosis, basi bulbo mycelio longe producto, subcylindrico, repente luteo; sporangiis $\frac{1}{2}$ mm. diam., unicoloribus, cærulescentibus; columella late cylindro-conica, pallide cærulea; sporis ellipsoideis vel subsphæroideis, episporio crasso, subcartilagineo, $13 \approx 11$.

Hab. in fimo equino et canino in Gallia, Anglia, Germania.

5. **Pilobolus nanus** Van Tiegh. Trois. Mém. sur les Mucorinées in Ann. des Scienc. nat. 1876, p. 341, pl. X, f. 16-22, Grove Pilobol. p. 36, tab. VI, 2. — Hyphis sporangiferis brevibus, 1 mm. altis, sursum globosis, mycelio hyalino articulado, articulis fusoides 5-septatis vel continuis; sporangiis globosis, cuticula flava, minute verrucosa tectis; sporis uniformibus, sphaericis, hyalinis, minutis, $3,5-4 \mu$. diam.

Hab. in fimo murino, in Gallia. — *P. rorido* affinis, a quo magnitudine, forma et homogeneitate sporarum atque exiguitate differt; cuticulâ flavâ ab aliis distinctus. Status chlamydosporus: *Mycogone colliculosa* Berl. et De Ton. V. Tieghem Trois. Mém. sur les Mucorinées Ann. des scienc. nat. 1876, p. 371, tab. X, fig. 22. (*Pilobolus nanus*) hyphis gracilibus alterne ramosis, ramulis conidiophoris brevibus, conidiis parce et magni-verrucosis, collo hyalino recurvato, pallide flavis, $15-20 \mu$. diam.

6. **Pilobolus minutus** Speg. Fungi Argentini pugillus primus p. 176 in Anal. de la Sociedad cientif. Argent. entrega IV, tomo IX. — Hyphis sporangiferis superficialibus, laxe gregariis, 2-5 mm. altis, primo filiformi-clavatis dein apice elliptico-ventricosus, semper hyalinis, basi filiformi plus vel minus elongata, minutissime rorida; sporangiis lenticularibus, $125-145 \mu$. diam., atris; sporis ellipticis vel sphæroideo-hyalinis, granuloso-faretis, $7-8 \mu$. diam., subchlorinis.

Hab. in fimo vaccino in umbrosis secus Rio de la Plata.

7. **Pilobolus Œdipus** Mont. in Mem. Soc. Linn. de Lyon 1826, p. 1-7, f. a-1, Syll. p. 299, Grove Pilobol. p. 33, t. IV, f. 14-15, Schroet. Krypt. Flor. Schles. Pilze p. 212, *P. crystallinus* Coem. Entwicklungsgesch. pl. 51-2 non Tode, *Hydrophora vexans* Auersw. in collect. (sec. Fuckel.) nec Klein nec Brefeld. — Hyphis sporangiferis brevibus, 1-2 mm. altis, crassiusculis, ventricosus-clavatis, basi bulbiformi, lutea; sporangiis sphæroideis, usque ad 400μ . latis, cuticula violaceo-fusca præditis; columella cylindro-conica; sporis sphæroideis, in eodem sporangio inæqualibus, episporio crasso, $10-18 \mu$. diam., pallidis.

Hab. in stercore humano in Italia, Gallia, Belgio, Germania,

- Anglia et America boreali. — Status chlamydosporus sistens *Myco-
cogonen ancipitem* (Coemans Spic. Mycol. n. 6, p. 11, fig. 5). Co-
nidiis nunc globulosis 20 μ . diam., nunc ovoideis 30–35 $\approx$ 20, saepe
pr. basim septatis, leniter constrictis, intus granulosis, aurantiacis;
hyphis dichotome v. vage ramosis, repentibus, septulatis, flavidis.
8. **Pilobolus exiguus** Bain. Ann. des scienc. nat. 1883, p. 81, tab. V, 599
fig. 5–6, Grove Pilobol. p. 33, t. VI, f. 3. — Hyphis sporangiferis
brevibus, crassis, apice et basi inflatis; sporangiis sphæroideis, nigris,
translucidis; sporis magnis, inaequalibus, sphæricis, 14–21, μ . diam.
flaveolis.

Hab. in fimo in Gallia. — *P. Ædipodi* propinquus,
a quo magnitudine sporarum et fungi exiguitate recedit.

9. **Pilobolus intermedius** (Coem.) Karst. Myc. Fenn. p. IV, p. 71, *Pi- 600*
lobolus Ædipus Mont. var. *intermedius* Coem. Spic. myc. p. 6. —
Hyphis sporangiferis 2–5 cm. altis, lutescentibus, apice ventricos-
clavatis; sporangiis hemisphæricis, nigris; columella cylindro-co-
nica, pallide cærulea; sporis sphæroideis vel subsphæroideo-elli-
psoides, episporio crasso, 12–17 $\approx$ 11–15, dilute flavis.

Hab. in stercore equino in Fennia australi, post pluvias vere
et æstate passim.

10. **Pilobolus argentinus** Speg. Fungi Argentini pugillus primus p. 176 601
in Anal. de la Sociedad científica argent. entrega IV, tomo IX. —
Hyphis sporangiferis immersis hinc inde dense gregariis, 5–6 mm.
altis, primo cylindraceo-clavatis, dein filiformibus, apice elliptico-
ventricosus, minute roridis, basi bulbosis, totis lutescentibus; spo-
rangiis globosis, 100–125 μ . diam., superne atro-olivaceis, inferne
viridi-lutescentibus; sporis sphæroideis, 12–15 μ . diam. crassius-
cule tunicatis, protoplasmate granuloso, flavo-virescente repletis.

Hab. in fimo equino in graminosis secus Rio de la Plata in
America australi. — *P. intermedio* affinis.

11. **Pilobolus roseus** Speg. Fungi Argentini pugillus primus p. 175 602
in Anal. de la Sociedad científica argent. entrega IV, tomo IX. —
Hyphis sporangiferis dense gregariis, 2,08–4,5 mm. altis, primo cla-
vatis, roseo-aurantiacis, apice rotundato-truncatis, dein basi fili-
formibus, vertice elliptico vel sphæroideo-ventricosus, perpulchre
hyalino-roseis, roridis; sporangiis hemisphæricis, 300–400 μ . diam.,
atris; sporis ellipticis, obtuse rotundatis, granuloso-faretis, 12–16 $\approx$
7–8, roseo-hyalinis.

Hab. in fimo vaccino a la Recoleta secus Rio de la Plata, in
Republica Argentina rarius *P. intermedio* affinis.

12. **Pilobolus lentiger** Corda Icon. I, p. 22, t. VI, f. 286, *P. (Edipus) *P. lentiger* Karst. Myc. Fenn. p. IV, p. 71, *Pycnopodium lentigerum* Corda Icon. V, p. 18, *Pilobolus crystallinus* Bonord. Handb. p. 128, t. 10, f. 203 non Tode, *Pilobolus (Edipus)* Bref. Bot. Unters. IV, p. 69, t. III, f. 1-10, t. 4, f. 11-14 non auct. *P. Kleinii* f. *sphaerospora* Grove Pilobol. p. 35, tab. IV, f. 9. — Hyphis sporangiferis brevibus, crassiusculis, apice ventricosus-clavatis, flavidis seu aureis, roridis; sporangiis aggregatis, hemisphaericis, tandem atris; sporis sphaeroideo-ellipsoideis, episporio tenui, inaequalibus, 10-12 $\approx$ 8-10, dilutissime flavis.

Hab. in stercore humano in Mustiala Fenniae, Bohemia, Germania. — Var. **macrosporus** Berl. et De Ton. *Pilobolus Kleinii* f. *sphaerospora* Grove Journ. Bot. p. 132, pl. 245, f. 5, *P. (Edipus)* Klein Zur Kennt. Pil. p. 360, pl. 27, fig. 50, pl. 26, fig. 40 b.: sporis sphaericis quandoque irregularibus; saepe granulosis, 16-21 μ . diam. «An satis distincta?»

Species minus notæ

13. **Pilobolus reticulatus** Van Tiegh. Trois. Mém. sur les Mucorinées in Ann. des scienc. nat. 1876, p. 336. — *Piloboli (Edipodis)* fabrica at sporangio sursum reticulato. Sec. cl. Grove (Monogr. Pilobol. pag. 33) pertinet ad *Pilobolum (Edipodem)*.
14. **Pilobolus pestis-bovinæ** Hallier. — Cfr. Rivolta Parass. Veg. p. 497, f. 200.

PILAIRA Van Tieghem Nouvell. rech. sur les Mucorin. in Ann. des scienc. naturell. 1883, p. 51 (Etym. *pilos* pileus et *airo* suffero). — Hyphæ sporangiferæ simplices, filiformes, continuæ, hyalinæ, rectæ vel flexuosæ, sursum saepe recurvatæ, primum lente dein rapide elongantes et sporangium sufferentes; sporangia hemisphaerica, subtus gelatinosa; sporæ ovoideæ vel sphaeroideæ, pallide coloratæ.

1. **Pilaira anomala** (Ces.) Schroet. Krypt. Flor. Schles. Pilze p. 211, *Pilaira Cesatii* Van Tieghem Nouv. rech. sur le Mucor. in Ann. des Scienc. Nat. 1875, pag. 52, pl. 1, fig. 14-24, Grove Pilobol. pag. 37, tab. VI, f. 7-8, *Pilobolus anomalus* Cesati in Klotzsch Herb. Myc. n. 1542, *Ascophora Cesatii* Coemans Monogr. du Gen. Pilob. p. 65, t. II, E, *Pilobolus Mucedo* Brefeld Bot. Unt. IV, 60-5, pl. 4, f. 18, 23-28 pro parte. — Hyphis sporangiferis cylindricis, filiformibus, gracilibus, elongatis, 6-12 cm. alt., continuis, saepe

apice recurvatis, hyalinis, flexuosis; sporangiis primo sphaeroidis demum hemisphaericis, usque 250 μ . diam., nigris, verruculosi; columella hemisphaerica, hyalina, usque 120 μ . diam.; sporis ovalibus, æqualibus, 8-12 $\approx$ 6-7, subhyalinis v. luteolis; zygosporis episporio nigro præditis, 100-120 μ . diam.

Hab. in fimo equino, suino, anserino etc. in Italia, Gallia, Germania, Anglia frequens.

2. **Pilaira nigrescens** Van Tieghem Nouv. Recerch. sur le Muc. in 607
Ann. des Scienc. Nat. p. 60, pl. 1, fig. 25-28, Schroeter Krypt. Fl. Schles. Pilze p. 211, Grove Pilobol. p. 37, t. VI, f. 9. — Hyphis sporangiferis gracillimis, filiformibus, 1-2 cm. altis, cylindricis, flexuosis; sporangiis hemisphaeroidis, verruculosi, atris; columella conica, fusco-cærulea; sporis sphaericis, inæqualibus, 5-6 μ . diam., e flavido hyalinis.

Hab. in fimo leporino in Gallia et Germania rarius.

3. **Pilaira dimidiata** Grove Journ. Bot. p. 132, pl. 245, f. 7, Pilobol. 608
p. 38, t. VI, f. 10, *P. inosculans* Grove Mid. Nat. VI, p. 119, *Pilobolus anomalus* Brefeld Bot. Unters. IV, 60-5, t. 4, f. 18, 23-28 pro parte. — Hyphis brevibus, $\frac{1}{2}$ -1 mm. altis, gracilibus, uniformibus, apice denique nutantibus; sporangiis primo flavidis, demum nigris; columella leviter colorata, convexa, prope æquatorem vesiculæ apicalis inserta itaque apophysim magnam hyalinam præbente, ubi adest in fungo vegeto constrictio profundula; sporis hyalinis, elliptico-oblongis, 12-14 $\approx$ 5-6, dilutissime flavidis.

Hab. in fimo canino in Britannia, haud frequens.

Species incerta.

4. **Pilaira Mucedo** Brefeld. Botan. Untersuch. über Schimmelp. I Heft 609
pag. 27.

Hab. in fimo equino in Germania.

CHORDOSTYLUM Tode emend. Corda Ic. II, p. 22 (Etyim. a *chorda* et *stylum*). — Stipites adscendentes, subclavati, supra pezizoides, sporangium membranaceum semiimmersum, primo velatum dein nudum protrudentes; sporæ farinosæ, simplices, floccis nullis inspersæ.

1. **Chordostylum Todei** Cord. Ic. I, fig. 285, p. 22, Bonord. Handbuch 610
p. 128. — Stipite adscendenteg racili, flexuoso, carnosulo, albo, piloso supra incrassato, infra attenuato, fusco, mycelio minuto, sub-

stellato, suffulto; sporangio obovato, glaberrimo, albido, pulpa ochracea; sporis minutis, subglobosis, diaphanis.

Hab. in foliis putridis quercuum, Prag Bohemiæ et Germania rarissime.

2. **Chordostylum hispidulum** Tode Meckl. p. 39, t. VII, f. 54. — Repens, tenacissimum, hispidulum; mycelio capillari decumbente, ramoso, subradicante; ramis apice tumescentibus candidis, seticulis hirtis, dein spadiceis et in calycem abeuntibus; sporangiis obovatis, immersis.

Hab. in foliis putridis præcipue fagineis, Mecklenburg Germaniæ. — Totus fungillus 2,5-12 cm. altus.

3. **Chordostylum byssoides** Tode Meckl. p. 38, t. VII, f. 53. — Erectum, parvum, byssinum, aggregatum; stipite capillari, debili, ramoso, pulverulento-tuberculoso, ramis subdivisis, patulis; sporangiis terminalibus globosis, atro-fuscis, circumscissis?, majusculis, deciduis.

Hab. in charta uda, Mecklenburg Germaniæ.

4. **Chordostylum Clavaria** Tode Meckl. p. 40, t. VII, f. 55. — Erectum, tenacissimum, simplex; stipite atro, capillari, glabro, subfistuloso, flexuoso; sporangio candido, piriformi, strigoso, coriaceo.

Hab. ad radices fagineas, Mecklenburg Germaniæ. — Stipes 2,5 cm. circ. longus.

ENDODROMIA Berk. in Hook. Journ. Bot. 1841, p. 78 (Etym. *endon*, intus et *dromos* cursus). — Sporangium tenerrimum, stipite percursum, hyphis (floccis) ramosis radiantibus faretum. Sporæ globosæ, nucleatæ, hyalinæ.

1. **Endodromia vitrea** Berk. l. c. p. 79, t. I, C, Cooke Handb. n. 1897, 61 — Minutissima; sporangio delicato, dein frustulatim sursum rupto; stipite recto, leniter sursum attenuato, in sporangium intrante; floccis radiantibus, ramosis; sporis globosis, nucleum mobilem gerentibus, hyalinis.

Hab. ad ramos emortuos in primis fraxineos in Britannia.

Subfam. 2. Mucoreæ VAN TIEGH.

Hyphæ mycelicæ crassæ haud anastomosantes; sporangia polyspora, columella prædita; tunica sporangii homogenea.

MUCOR Micheli Nov. gen. Plant. p. 215 (Etym. *mucor*, hoc est mucedo). — Hyphæ sporangiferæ erectæ vel ramosæ sæpius septatæ;

mycelium repens, hyalinum, septatum; sporangia globosa vel pulvinata; columella cupulata; sporæ uniloculares, globosæ, hyalinæ vel coloratæ.

A) Species sporangiis maturitate plus minus coloratis instructæ.

1. **Mucor Mucedo** Linn. Spec. Plant. II, 1655, *M. sphærocephalus* 615
Bull. t. 480, f. 2. — Hyphis sporangiferis simplicibus, erectis, sordide flaventibus, subfuscescentibus, 3–10 cm. long., sporangiis coacte sphæroideis, subtilissime echinulatis, flavido-vel subvirente-cinereis, siccis obscure fuscis, minutis; sporis ellipsoideis vel ovoideo-ellipsoideis, simplicibus, levibus, flavescens, 6–9 $\approx$ 3–4; zygosporis sphæroideis, episporio protuberantiis dein valde prominulis, irregularibus prædito, atro, 99–214 μ . diam.; columella ovoidea, flavido-fusca.

Hab. in substantiis organicis putridis fimoque frequens in tota Europa et America. — Cl. P. Van Tieghem formam sporangioliferam ab omnibus auctoribus admissam et descriptam demonstrat ad alias species pertinere et ex errore ut genus quoddam fructificationis *Mucoris Mucedinis* habitum. — ***Mucor caninus** Pers. Obs. myc. I, p. 96, t. 6, f. 3–4, et Syn. p. 201, Rivolta Parass. veg. p. 494: Hyphis sporangiferis simplicibus, albidis, laxis, erectis, longis; sporangiis sphæroideis, primum aquose-crystallinis, dein lutescentibus, demum brunneis, seu sordide ferrugineis, exiguis; columella globosa vel semiovata et subtus applanata, flava; sporis ovoideo-ellipsoideis, 7–13 μ . diam., subhyalinis. In stercore canino et felino per annum in tota Europa et America boreali.

2. **Mucor stercoreus** (Tode) Link Spec. V, p. 90, *Hydrophora stercorea* 616
Tode F. M. p. 6, *Ascophora stercorea* Corda Ic. VI, f. 31. — Hyphis sporangiferis obsoletis, erectis, simplicibus, lutescentibus; sporangiis globosis, primum luteo fuscis, demum flavo-nigris; columella oblonga, basi constricta; sporis globosis seu ovato globosis, majusculis, 15 $\approx$ 6–7, demum fuscis.

Hab. in stercore humano in tota Europa, passim. — Teste Cl. Schroeter ad *M. Mucedinem* spectat.

3. **Mucor spinosus** Van Tiegh. Trois. Mém. sur le Muc. p. 391 in Ann. 617
des scienc. Nat. 1876, Schroeter Krypt. Flor. Schles. Pilze p. 205. — Hyphis sporangiferis irregulariter crebreque ramosis, brevibus, 0,5–1 cm. altis, albis quandoque sursum inflatis; sporangiis ochraceo-fuligineis; columella anapophysata, brunnea, apice 10–12 spi-

nis praedita; sporis sphaeroideis, brunneis, minute verrucosis, 4-9 μ . diam.; zygosporis globosis, episporio flavo-brunneo.

Hab. in pane udo et in aliis substantiis organicis, Paris Galliae et Breslau Silesiae.

4. **Mucor inaequalis** Peck 26 Rep. St. Mus. p. 79. — Hyphis sporangiferis simplicibus aut uni-bipartitis, albis; sporangiis globosis, primo albis, demum caeruleo-atris aut brunneo-caerulescentibus; sporis subangulatis, subglobosis, inaequalibus, 5-12 μ . diam.

Hab. in substantiis organicis putrescentibus, Albany Americae borealis.

5. **Mucor fragilis** Bainier in Ann. Scienc. Natur. 1884, p. 209, t. VIII, f. 18-21. — Minutus; hyphis sporangiferis erectis, ramosis, apice sporangium nigrum, minutum, leve gerentibus; sporis ovoideis, minutis, 4 $\approx$ 2, caerulescentibus; columella quam in *M. erecto* magis applanata; zygosporis hinc inde tunica vere polyedrica tectis, demum nigris.

Hab. in farina Lini uda in Gallia.

6. **Mucor bifidus** Fres. Beitr. sur Myk. I et II, Heft. I pag. 10, t. 1, f. 13-23, Schroet. Krypt. Flor. Schles. Pilze p. 205. — Albus, diffusus; mycelio repente, ramoso, non septato; hyphis sporangiferis erectis, 0,5-1 cm. altis, sursum bi-raro-trifidis, quandoque simplicibus, ramis brevibus; sporangiis globosis, primum albis, dein pallide flavis, demum griseis; columella ovato-conica; sporis ovoideis vel sphaeroideis, hyalinis, 11-17 $\approx$ 10-11.

Hab. in caseo putri in Germania et Italia.

7. **Mucor erectus** Bainier in Ann. Scienc. Nat. 1884, p. 207, t. VIII, f. 2-11, Schroeter Krypt. Flor. Schles. Pilze p. 204. — Hyphis erectis, irregulariter ramosis, ramis leniter incurvis; sporangiis minutissimis, 15-35 μ . diam., globosis, maturitate brunneis; tunica levi, basi columellae inserta; columella globosa vel elliptica; sporis globosis v. ellipsoideis, 4-5 $\approx$ 2,5-4, episporio levi, hyalino; zygosporis sphaeroideis, 40-50 μ . diam., episporio rufo-brunneo, saepe seriem formantibus.

Hab. in tuberibus putrescentibus Solani tuberosi in Gallia et Germania.

8. **Mucor racemosus** Fres. Beitr. Mykol. p. 12, t. I, f. 24-31, Schroet. Krypt. Flor. Schles. Pilze p. 204. — Hyphis sporangiferis septatis, bifurcatis vel irregulariter ramosis, 0,5-0,4 cm. altis; sporangiis terminalibus, globosis minutis, 40-60 μ . diam., pallide luteis, vix perspicuis, columella ovali; sporis numerosis, globoso-ovoides, 5-

8 $\approx$ 4-5, hyalinis; zygosporis globosis, episporio flavo-brunneo, striato, 70-84 μ . diam.

Hab. in substantiis amylaceis corruptis in Italia, Gallia, Belgio, Germania, America. — Huc spectat *Pleurocystis Fresenii* Bonord.

9. **Mucor mollis** Bainier in Annales Scienc. Natur. Bot. 1884, p. 208, ⁶²³
t. VIII, f. 12-17. — Hyphis sporangiferis parce ramosis, apice parum constrictis, sporangium leve gerentibus; sporis ovoideis, 4 $\approx$ 2; columella lata; zygosporis primo pallidis (squamulis nigris tectis) dein nigris.

Hab. in in Gallia.

10. **Mucor Beaumontii** Berk. et Curt. North Am. Fungi n. 702. — ⁶²⁴
Hyphis sporangiferis brevibus, hyalinis; sporis ellipticis vel oblongis, obtusissimis, 20 μ . longis, atro-purpureis.

Hab. in foliis putrescentibus Brassicae oleraceae, Alabama Amer. bor. (BEAUMONT).

11. **Mucor subtilissimus** Berk. Hort. Journ. III, p. 98, f. 1-5, Cooke ⁶²⁵
Handb. n. 1893. — Mycelio repente; hyphis sporangiferis ramosis, ramis brevibus sparsis, sporangium minutum apice gerentibus; sporangiis evanescentibus; sporis oblongo-ellipticis.

Hab. in bulbis Allii Cepae, *Sclerotio cepavoro* affectis, in Britannia et America bor.

12. **Mucor clavatus** Link in Willd. Sp. pl. VI, p. 92, Penz. F. Agrum. ⁶²⁶
Contr. II, p. 20. — Hyphasmate decumbente, tenero, floccis albis; hyphis sterilibus cylindricis, haud septatis, hyalinis; sporangiferis erectis, solitariis, haud fasciculatis, simplicibus, apicem versus incrassatis, obconicis, brunneo-olivaceis, 12-18 μ . diam.; sporangiis sphaericis, tenuibus, in aqua dissilientibus, levibus, fuliginis, 110-180 μ . diam.; columella cylindrica, apice rotundata; sporulis sphaeroideis vel breve ellipsoideis, varia magnitudine, 8-21 μ . diam., brunneo-fuliginis, superficie tenuiter striata.

Hab. in fructibus putridis Piri communis et Citri Limonum in Germania, Italia, Hollandia, Amer. bor. — Var. **globifer** Link Species Plant. I, p. 92: minor; sporis quibusdam conglobatis, hinc majoribus («an inaequalibus?»). In eadem matrice in Germania.

13. **Mucor plasmaticus** van Tiegh. Nouv. Rech. Mucor. p. 27 et 33, ⁶²⁷
Constant in Bull. Soc. Bot. Fr. 1887, p. 33. — Usque ad 7 cm. altus; sporangiis terminalibus, flavis, 1 mm. crassis, dein flavo-cinereis, polysporis, tunica granulis calcareis incrustata; columella ovata vel piriformi, 250 $\approx$ 160; sporis ovatis 31-35 $\approx$ 15-16, granulis globulisque oleosis immixtis.

Hab. in fimo leporino pr. Chaville, Herblay etc. Gallie.

14. **Mucor succosus** Berk. Ann. N. H. n. 225, t. 12, f. 15, Cooke 62
Handb n. 1889. — Minimus; hyphasmate spongioso; sporangiis minutissimis globosis, primum flavis, dein olivaceis; columella minuta; sporis.....

Hab. in truncis cæsis Aucubæ japonicæ, Apethorpe Britannicæ.

15. **Mucor Cucurbitarum** Berk. et Curt. North Am. Fungi n. 701. — 62
Lanousus; sporangiis demum nigris, columella clavata; sporis breviter fusiformibus, 12 μ . longis.

Hab. in fructibus putridis Cucurbitæ Peponis et C. Melonis in Carolina infer. (RAVENEL) et New England (SPRAGUE). — A *M. clavato* differt forma sporarum.

16. **Mucor griseus** Bon. Abhandl. Aus dem Gebiete d. Mykol. II, p. 63
109, *Mucor flavidus* Pers.?? — Hyphis sporangiferis erectis, ramosis, septatis, ramis paucis alternis, griseis; sporangiis primum crystallinis, dein flavo-griseis, exsiccantibus; columella ovata subtus applanata, hyalina, grisea; sporis globosis vel ovato-globosis, in charta griseo-flavis, sub aqua hyalinis.

Hab. in pane, in cortice Aurantiorum matur. etc. in Guestphalia.

17. **Mucor plumbeus** Bon. Abhandl. aus dem Gebiete d. Mykol. II, 63
p. 109, Rivolta Parass. veg. p. 494, f. 233. — Hyphis sporangiferis subramosis, raro simplicibus, apice attenuatis, griseis; sporangiis globosis, primum aquose-crystallinis, dein turbidis, demum plumbeis et ciliatis; columella oblonga vel obovata, apice sæpe cornuta, a stipite discreta, fuliginea; sporis globosis, levibus, parvis, hyalinis dilute fusco-nigris, siccitate cinereo-nigris.

Hab. in pane nigro et aliis substantis in Guestphalia et Italia.

18. **Mucor Bonordenii** Berl. et De Ton., *Mucor microcephalus* Bon. 63
Abh. Geb. Myk. p. 108 et Handb. t. IX, f. 199, nec Wall. — Hyphis sporangiferis gracilibus, atro-brunneis, simplicibus, sporangiis globosis concoloribus; sporis oblongis fuscis.

Hab. in in Guestphalia. — A *M. microcephalo* Wallr. hyphis sporangiferis coloratis, sporangiis brevibus sporisque fuscis distinctus.

19. **Mucor glandifer** Bon. Abhandl. aus dem Gebiete d. Mykol. II, 63
p. 110, Rivolta Parass. Veg. p. 494, f. 234. — Hyphis sporangiferis parce ramosis, ad basim septatis; sporangiis globosis, diffluentibus, primum cinereis, dein fuscis; columella glandiformi, intus punctata, fusca; sporis ovatis, hyalinis.

Hab. in quisiuiliis in Guestphalia et in Italia.

20. **Mucor ciliatus** Bon. Abhandl. aus dem Gebiete d. Mykol. II, p. 105, 634
Rivolta Parass. veg. p. 493, f. 225. — Hyphis sporangiferis erectis, simplicibus, caespitosis, aequalibus, haud septatis albo-sericeis; sporangiis globosis, in superficie dense ciliatis, primum flavidis, dein fuscis, demum fusco-nigris; columella ovata, flavido-fusca; sporis majoribus, ovato oblongis, in charta nigrellis, dilute fuscis sub microscopio hyalinis.

Hab. in pane nigro in Guestphalia et Italia.

21. **Mucor microsporus** Bon. Abhandl. aus dem Gebiete d. Mykol. II, 635
p. 106, Rivolta Parass. Veg. p. 493, f. 227. — Hyphis sporangiferis simplicibus, apice aequalibus, sericeis, albis; sporangiis globosis, ex flavido-fuscis, demum nigris; columella globosa, hyalina; sporis minimis, ovatis, in charta cinereis, hyalinis.

Hab. in quisiuiliis in Guestphalia et Italia.

22. **Mucor acicularis** Wall. Fl. crypt. II, 319, *M. albo-virens* Fries. 636
S. M. — Hyphis sporangiferis teneris tenacellis, acicularibus, simplicibus praelongis, assurgentibus, hyalinis, sporangiis primo globosis, albo-viridulis, dein basi depressis, dilute cinereis, minutissimis; sporis.....

Hab. ad finum equinum stabulorum udorum, qui hyphis acicularum porrectarum instar inhorrescere videtur, in Germania.

23. **Mucor amethysteus** Berk. English Flor. V, p. 332, et Outl. of 637
fung. p. 407, Cooke Hand. Brit. Fung. p. 631. — Mycelio crasso explanato, niveo, dense intricato; hyphis sporangiferis, simplicibus, circ. 6 mm. altis, crassioribus quam in *M. clavato* intus granulosis; sporangiis depresso-globosis interdum minime collapsis, primo candidis, demum dilute flavescens et crystallinis, postremo violaceis vel atro-violaceis brunneisve; sporis globosis vel ellipsoideo-globosis, cum sporidiolis, obscure violaceis, facile separatis.

Hab. in fructibus subputridis Piri communis in Apethorpe Britanniae et in America sept.

24. **Mucor tenerrimus** Berk. Outl. p. 407, Cooke Hand. n. 1892, *Hy-* 638
drophora tenerrima Berk. Hook. Journ. 1841, p. 78, t. I, f. B. — Sparsus, minutus, albus; hyphis sporangiferis, sursum flexuosis, apice clavatis, sporangio columella globosa levissimo, bitunicato, tunicis connexis, subinde facile separandis; sporis ellipticis.....

Hab. in ramis in Britannia et Amer. bor.

25. **Mucor de-Baryi** (Bonord.) Berl. et De Ton., *Ascophora de-Baryi* 639

Bon. Geb. der Myk. p. 44, Rivolta Parass. Veg. p. 495. — Hyphasmate albo, stolonifero; sporangiis granulosus, cœruleo-nigris, demum reflexis, pileatis; columella clavata, deorsum semel septata; sporis globosis seu ovatis obovatisve sæpe utrinque acuminatis, ex cœruleo atris, striato-costatis.

Hab. in in Guestphalia et Italia.

26. **Mucor violaceus** (Mart.) Fries Syst. Myc. III, p. 323, *Thelactis violacea* Mart. Nov. Act. Ac. Cur. Nat. X, p. 508, t. 46, f. 6, Bonord. Handb. f. 209. — Cœspitosus, laxus, 5 mm. altus; hyphis æqualibus, medio basique ramulis 8-12 brevibus, tenerrimis, verticillato-radiantibus auctis; sporangiis terminalibus, oblongis, violaceis; sporis globosis, minutissimis.

Hab. in foliis putridis arboris ejusdam Brasilie.

27. **Mucor murinus** (Pers.) Berl. et De Ton., *Hydrophora murina* (Pers.) Fr. Syst. Myc. III, p. 315. — Mycelio lanoso, albo; hyphis fertilibus erectis, subulatis, albis; sporangiis globosis, flavis; sporis albidis, ovatis, compressis, phasecoliformibus, nucleo præditis.

Hab. in fimo murino etc. in Germania, Gallia et Italia.

28. **Mucor echinophilus** Schw. Syn. of North Am. Fungi p. 285, n. 2742. — Pusillus simplex; hyphasmate simplici, nigro-cinereo, breviusculo, subulato, basi incrassato; sporangio hyalino, demum cinereo, deciduo.

Hab. in spinis involucrium Castaneæ sativæ in Pennsylvania Americæ borealis. — Densissime prorumpit aut potius insidet in spinis, oculum nudum effugiens.

29. **Mucor lutescens** Link Spec. I, p. 98, Wallr. Crypt. Fl. n. 2038. — Hyphis teneris, decumbentibus albis, fertilibus simplicibus, erectis, infra sporangium luteum subclavatis eoque in sporas subglobosas secedente.

Hab. ad Brassicæ oleraceæ caules putres in Germania.

30. **Mucor Fimbria** Nees Syst. f. 78, Wallr. Crypt. Fl. n. 2034. — Hyphis obsoletis, fertilibus sparsis simplicibus brevibus, sporangium globosum opacum elevantibus.

Hab. ad Sphærarium stromata in Germania.

31. **Mucor cyanocephalus** Mart. Nov. Act. Acad. Nat. Cur. X, pag. 505, t. 46, f. 1. — Hyphis simplicissimis, 10-12 mm. longis, albidis, erectis, ob septa quaternatim approximata obscuris, basi dilatatis, laxiusculis; sporangiis ellipticis, obtusis, e tunica tenuissima fugaci constantibus; sporis minutissimis, anguste ellipticis, vix pellucidis.

Hab. in ligno putrescenti *Triplaris americanæ* per silvas horrendas Brasiliæ. — Cæspituli late expansi; sporangium 1-1,2 mm. latum.

32. **Mucor coccineus** (Mart.) Fries Syst. Myc. III, p. 323, *Thelactis coccinea* Mart. Nov. Act. Ac. Cur. X, p. 509, tab. 46, f. 7. 646
— Laxe congregatus, 12-15 mm. altus; hyphis æqualibus, simplicissimis, omnino nudis, 4-6-septatis, basi tantum ramulis 5-8 flexuosis instructis, apice sporangiferis; sporangio elliptico, coccineo; sporis globosis, mediocribus.

Hab. ad caules herbaceos plantæ fluitantis in Brasilia.

33. **Mucor aquosus** Mart. Erl. 362, Wallr. Fl. Crypt. n. 2028, Link Spec. Pl. I, p. 88. 647
— Hyphis obsoletis, fertilibus simplicibus, aggregatis, albis sporangium globosum, aquosum, pallide-ochraceum sustinentibus.

Hab. ad corpora sub aqua putrescentia in Germania.

34. **Mucor fungicola** (Corda) Berl. et De Ton. *Pleurocystis fungicola* 648
Corda Icones II, f. 80, *Ascophora fungicola* Corda Icones V, fig. 14. p. 20. — Cæspitulis laxis, tenuibus, arachnoideis, albidis; stipite albo pellucido; sporangiis globosis luteis dein luridis; sporis minutis, ovatis.

Hab. in Agaricis putrescentibus, Prag Bohemiæ.

35. **Mucor microcephalus** Wallr. Fl. crypt. n. 2021, nec Bonorden. 649
— Hyphis sporangiferis prælongis, gracilibus, flaccidis, simplicibus distinctis, sparsis, argenteis, assurgentibus, omnibus fertilibus; sporangiis sphericis exiguis, flavo-fuscis, asperulis dein (sub aqua) in sporas ovaes, hyalinas fatiscientibus.

Hab. ad setas porcinas sapone illinitas in Germania.

36. **Mucor tenuis** Link spec. I, 86, *M. Mucedo* var. *tenuis* Fr. Syst. 650
Myc. III, pag. 320. — Mycelio tenuissimo; hyphis sporangiferis, hyalinis, simplicibus, erectis, crassiusculis; sporangiis globosis, nigris; sporis globosis, pellucidis.

Hab. in fructibus putridis Piri Mali in Germania (EHRENBERG).

— «*Mucori Mucedini* peraffinis, a quo exiguitate videtur distinctus; in Thümen *Fungi pomicoli*, tab. II, fig. 4, hyphis sporangiferis septato-constrictis!!».

37. **Mucor glaucus** (Corda) Berl. et De Ton., *Ascophora glauca* Corda 651
Icones V, fig. 26, Rivolta Parass. Veget. p. 495, f. 274. — Cæspitibus latis, effusis, albidis; hyphasmate repente, laxo intertexto, albo; hyphis sporangiferis simplicibus, erectis, albis; sporangiis sub-

globosis, infra excavatis glaucis, albo-granulatis; sporis oblongis subconcatenatis albidis, 12 μ . longis.

Hab. in essentia Oppii, Prag Bohemiæ et Italia. — An ad *Rhizopodem nigrificantem* ducendus?

38. **Mucor virens** (Mart.) Fr. Syst. Myc. III, p. 323, *Thelactis virens* 65
Mart. Nov. Acta Acad. Cur. X, p. 508, t. 47, f. 5. — Densissime coacervatus; acervulis minimis sparsis; hyphis basi conico-dilatatis e supremo septo ramulos binos, oppositos, tenuissimos proferentibus, erectiusculis; sporangiis conicis, viridibus.

Hab. in foliis Ari cujusdam putrescentibus in Brasilia. — «An *Diamphora*?».

39. **Mucor flavus** (Mart.) Fr. Syst. Myc. III, p. 324, *Thelactis flava* 65
Mart. Nov. Acta Ac. Nat. Cur. X, p. 507, t. 46, f. 4. — Densissime coacervatus; cæspitulis suborbicularibus, latis, tandem confluentibus; hyphis strictis, quadriseptatis, circ. 7 mm. altis, septis duobus superioribus in vesiculam ellipticam, minimam dilatatis; inferioribus ramulis quaternis arcuato-cernuis instructis; sporangiis globosis, flavis.

Hab. in foliis Schousboeæ coccineæ putridis aquæ innatantibus Brasiliæ.

40. **Mucor aureus** Mart. Nov. Act. Acad. Nat. Cur. X, p. 506, t. 46, 65
f. 3. — Cæspitibus parvis, suborbicularibus, convexis, tenacellis; hyphis strictis, æqualibus, simplicissimis, 2-3-septatis, aureis; sporangiis pro ratione magnis, globosis, aureis; sporis magnis, numerosis.

Hab. ad ligna emortua inque caulibus Carludovicarum in Brasilia.

41. **Mucor fuliginosus** (Bon.) Berl. et De Ton., *Ascophora fuliginosa* 65
Bon. Geh. der Mik. p. 44, Rivolta Parass. Veg. p. 495, f. 271. — Hyphis fuliginosis; sporangiis punctatis, fuscis, magnis, globosis seu ovatis, utrinque acuminatis, fuliginosis pellucidis, albo-costatis.

Hab. in in Guestphalia et Italia.

42. **Mucor fodinus** Link Spec. plant. I, p. 84, *Rhacodium fodinum* 65
Pers. myc. I, p. 68. — Hyphasmate stipitiformi, effuso, crassissimo, tomentum tactu molle, effusum efficiente, floccis fuscis, rarius ramosis, valde intricatis, fertilibus parum ramosis; sporangiis concoloribus globosis; sporis sphaericis.

Hab. in fodinis salis culinaris in cellis, Parisiis Galliæ muris adhærens, nec non in Helvetia prope Bex.

43. **Mucor delicatulus** Berk. Engl. Fl. V, p. 332. — Hyphis sporan- 65

giferis simplicibus, brevibus, crassitudinem filii mycelici æquantibus; sporangiis globosis, pallide luteis; sporis globulosis.

Hab. in fructibus Citrulli putridis in Britannia et Belgio.

41. **Mucor Nucum** (Corda) Berl. et De Ton. *Ascophora Nucum* 659

Corda Ic. V, fig. 25, p. 54, Rivolta Parass. Veg. p. 495, f. 273.

— Cæspitulis laxis; stipite simplici, recto, lutescente, continuo; sporangio globoso, atro-cæruleo, glabro; columella dein campanulato-reflexa, luteola; sporis magnis glomeratis, oblongis, episporio plicato, laxo, albo; nucleo firmo cærulescente.

Hab. in fructibus Juglandis regiæ in Bohemia et Italia.

45. **Mucor fimetarius** Link Obs. I, p. 29 et Spec. I, p. 80, *Hydro-* 659

phora fimetaria Link Fr. S. M. p. 313, Bonorden Abhand. Geb.

Myc. p. 113. — Mycelio lanoso, albo; hyphis sterilibus ramosis, decumbentibus; fertilibus erectis, sericeis, ramosis, continuis intertextis; sporangiis primo hyalinis, dein cinereis, demum nigris; sporis hyalinis, globosis.

Hab. in fimo vaccino in Germania et Guestphalia.

46. **Mucor truncorum** Link Spec. I, p. 83, Wallr. Fl. Crypt. n. 2011. 660

— Hyphis arachnoideo-lanosis, albis, fertilibus ramosis, sporangia globosa dein deplanata, indurescentia, subtus umbilicata, fusca elevantibus.

Hab. ad truncos putrescentes passim in Germania.

47. **Mucor albus** (Preuss) Berl. et De Ton., *Thelactis alba* Preuss. 661

F. Hoyersw. n. 135. — Cæspitibus minutis, laxis, albis, mycelio repente, ramoso; hypha primaria recta, cellulosa, ramulis verticillato-radiantibus (5-8) aucta, apice ramulisque sporangiferis impellucidis subfuscis; sporis albis, obovatis.

Hab. in Daerjomycete lacrimante, Hoyerswerda.

48. **Mucor Juglandis** Link Obs. Myc. I, p. 18, et Sp. I, p. 82, Wallr. 662

Fl. Crypt. 2018. — Hyphasmate laniformi; hyphis albis, sporangiferis bifurcatis, ramosis, brevibus; sporangiis globosis, minutis, primum flavis demum nigrescentibus, verrucosis; sporis sphaericis.

Hab. ad nuces rancidas Juglandis regiæ in Germania et Belgio.

49. **Mucor glaucescens** Berl. et De Ton. *Mucor glaucus* Bon. Ab- 663

handl. aus dem Gebiete d. Mykol. II, p. 111, non Corda. — Hyphis sporangiferis erectis, subcrassis, dichotome et racemose-ramosis, haud septatis, dilute glaucis; sporangiis globosis, dilute glaucis; columella semiovata, subtus applanata; sporis variis, globosis v. ovato-globosis, ovatisque, dilute glaucis.

Hab. in pane nigro in Guestphalia.

50. **Mucor brevipes** Riess in botan. Zeitung 1863, p. 136. — Hyphis sporangiferis brevissimis, subramosis, septatis, pallidis; sporangiis globosis aculeato-pilosis, ex albo nigris; columella ovata; sporis ovatis, pellucidis, in charta griseis.

Hab. in in Germania et Guestphalia.

51. **Mucor capitato-ramosus** Schwein. Syn. Car. p. 285. — Ingens, persistens; floccis densis, fulvo-luteis, seminucialibus, caespitosis, apice divaricato-ramosis, quasi laxum capitulum sistentibus, onustis nempe sporangiolis magnis luteis, demum nigrescentibus.

Hab. in Boletis et Polyporis vetustis in Carol. inf.

52. **Mucor pygmæus** Link Spec. I, p. 83 Wallr. Fl. Crypt. n. 20-22, 66
M. carnis Link p. 83, *M. ferrugineus* Link p. 82. *M. gracilis* Link p. 82. — Hyphis dense intertextis albis, dein fuscescentibus, fertilibus, ramosis, assurgentibus, sporangio fuscescente vel olivaceo-fuscescente, exiguo; sporis

Hab. in pasta e sulphure et seminibus Anisi composita, in carnibus, pane mucido etc. in Germania.

b) Sporæ ovoideæ.

53. **Mucor Floræ** (Corda) Berl. et De Ton., *Ascophora Floræ* Corda 66
 Icon. V, f. 27, p. 54. — Caespitibus late effusis, tenuibus; hyphis primariis, altis, primum simplicibus, dein furcatis, demum subramosis; sporangiis globosis, fuscis, nitidis, punctatis; columella minuta sphaerica; sporis minutis ovatis, 7 μ . longa.

Hab. in glutine cocto farinae putri in Bohemia.

54. **Mucor flavidus** Pers. Syn. 199, Wallr. Fl. Crypt. n. 2020. — 66
 Hyphis erectis parce ramosis, bi-aut trifidis, crassis, curtis, albidis, caespitosis; sporangiis primum flavis, dein fusco-flavis, levibus; columella globosa seu ovata hyalina, subtus applanata; sporis plerisque globosis seu ovato-globosis, hyalinis.

Hab. in Agaricis putridis in Germania. — «*Mucori bifido* affinis».

55. **Mucor Rhizopogonis** (Corda) Berl. et De Ton. *Ascophora Rhizopogonis* Corda Icones VI, fig. 30, pag. 11. — Caespitulis laxis, effusis candidis; stipite recto 5-7 mm. longo, tenui, simplici, rarius dichotomo, hyalino, albo; sporangio minuto, sphaerico, flavo-fuscescente; columella magna obovata; sporis ovoideis, inaequalibus, albis, binis ternisque, sæpius lateribus inter se coherentibus.

Hab. in Rhizopogone albo putri in Bohemia.

56. **Mucor Candelabrum** (Corda) Berl. et De Ton., *Ascophora Candelabrum* 670
Corda Ic. III, fig. 44, p. 15, *Pleurocystis Candelabrum*
Bonorden. — Cæspitibus minutissimis, albis; stipite erecto, rigido
simplici vel furcato, hyalino, albo; ramulis lateralibus adscenden-
tibus; sporangiis globosis, luteis; columella primum globosa dein
pileata; sporis ovoideis albis interstitiis minutissimis concatenatis.

Hab. in acervulis Melanconii bicoloris, Prag Bohemiæ.

57. **Mucor Castaneæ** Rabenh. Deutsch. Krypt. Fl. p. 132, n. 1208. 671
— Mycelio arachnoideo, tenui, effuso, laxo, candido; hyphis spo-
rangiferis erectis dichotomo-furcatis, diaphanis, sordide lutescenti-
bus, basi ramorum dilatatis; ramulis primo strictis, demum sub-
cernuis; sporangiis fere obovatis, impellucidis, nubilosis; sporis con-
coloribus, longiusculis, numerosis, diaphanis.

Hab. in fructibus frictis Castaneæ sativæ, Milano in Italia.

58. **Mucor Artocarpi** B. et Br. Fungi of Ceyl. n. 1184, — Fuscus, 672
congestus; hyphis inarticulatis; sporangiis globosis vel obovatis;
sporis subellipticis.

Hab. in Artocarpi integrifoliæ fructibus, Ceylon. — An spe-
cies bona? Columella nulla.

59. **Mucor curtus** B. et C. North Am. Fungi n. 703. — Hyphis spo- 673
rangiferis brevibus nigris; sporis fusiformibus, utrinque subappen-
diculatis, $11 \approx 2$.

Hab. in Cucurbitæ Melonis fructibus putridis in Carolina
inferiore.

60. **Mucor lateritius** Lk. Sp. I, p. 83, Wallr. Fl. Crypt. n. 2024. — 674
Hyphis arachnoideis dense intertextis, aurantiacis, sporangium glo-
bosum minutissimum sustinentibus.

Hab. ad panem mellitum in Germania (EURENBERG).

61. **Mucor circinelloides** Van Tiegh. Nouv. Rech. sur le Muc. p. 94, 675
Ann. des scienc. Nat. 1873. — Minutus; hyphis sporangiferis erec-
tis, ramosis, ramis alternis brevibus recurvatis, sporangium mi-
nutum gerentibus; sporangiis minutis, globosis; sporis ovoideis,
 $4-5 \approx 3$.

Hab. in fimo equino, Paris Galliæ. — Habitu valde affinis *Cir-
cinellæ simplicis*.

62. **Mucor pruinus** B. et Br. Ann. Nat. Hist. n. 1495. — Minutus, 676
niveus; sporangiis reticulatis, globosis; sporis irregularibus, $17-30$.

Hab. in ollis plantarum, Sibbertoft Britanniæ.

63. **Mucor subtilis** (Corda) Berl. et De Ton., *Ascophora subtilis* Corda 677
Ic. II, fig. 81, pag. 20. — Cæspitibus minutissimis, albidis; stipite

gracili, tenuissimo, albo; sporangiiis globosis, verrucosis; sporis ovatis magnis pellucidis, albis, intus guttulis faretis.

Hab. in frustulis ligni pinei, Prag Bohemiæ.

64. **Mucor nigropunctatus** Berl. et De Ton., *Ascophora nigrescens* 67
Handb. Riv. Parass. Veg. p. 495, f. 271, non Schum. — Sporangiiis nigro-punctatis; columella magna; sporis griseo-fuscis, ovato-acuminatis

Hab. in in Italia.

65. **Mucor nigrescens** Schum. Saell. II, p. 237, nec Bonord. — Bys- 67
sinus; hyphis sporangiferis simplicibus; sporangiiis fusco-cinereis; sporis globosis.

Hab. in ramulis foliisque vivis Rhamni Frangulæ in Suecia.

B) Species sporangiiis maturitate hyalinis instructæ.

66. **Mucor corymbifer** Cohn in Lichtheim Ueber path. Mucor., Schroe- 68
ter Krypt. Flor. Schles. Pilze p. 205. — Mycelio niveo, demum pallide griseo, hyphis mycelicis in substrato vel per aerem exeuntibus, hyalinis; hyphis sporangiferis non erectis (verticalibus), racemose ramosis, apice 1-12 sporangia racemosa gerentibus; sporangiiis etiam maturitate hyalinis, piriformibus, majoribus usque ad 70 μ . diam., mediis 45-60 μ ., minoribus 10-20 μ . tunica levi, hyalina; columella conica, sursum expansa, subinde papillata, brunneola; sporis ellipticis, 3 $\approx$ 2, hyalinis.

Hab. Bernæ Helvetiæ et in Silesia. — Sec. cl. Cohn animalibus noxiis.

67. **Mucor Harzii** Berl. et De Ton., *M. corymbosus* Harz Einige 68
neue Hyphomyc. Beiträg zur. System derselb. pag. 56, t. V, f. 1 a-e., nec Wallr. — Hyphis erectis, 1-4 mm. altis, continuis, hyalinis, sursum umbellato-ramosis, ramo simplici, sterili ceteris longiore; ramulis alternis sporangium sustinentibus; sporangiiis sphaericis faretis subhyalinis, maturitate erumpentibus; sporis minutis, globosis, 7 μ . diam., hyalinis.

Hab. in ovariis secalis Clavicipite purpurea affectis in Berlino. — A *Mucore corymboso* Wallr. nobis distinctus videtur.

68. **Mucor hyalinus** Cooke Handb. n. 1890, Pop. Sci. Rev. Jan. 1861, 68
tab. 68, fig. 5. — Mycelio repente, profuso; hyphis sporangiferis hyalinis, erectis, ramosis; ramis simplicibus, quandoque divisis, sporangio minuto globoso, hyalino, tenui terminatis; sporis minutis, subglobosis.

Hab. in foliis Buxi in Britannia.

69. **Mucor Paolettianus** Berl. et De Ton. *) *Hydrophora hyalina* 683
 Harz. Einige Neue Hyphomyc. p. 58, t. III, f. 5. — Hyphis usque
 ad 1,5 mm. altis, sterilibus adscendentibus, fertilibus erectis vel
 adscendentibus, simplicibus ramosisve, e mycelio ramoso repenti,
 plasmate granoso-diffuenti farcto exsurgentibus, sporangiola hya-
 lina gerentibus; sporangiolis globosis, 15-30 μ . diam., membrana
 mox diffuenti; sporis sphaeroideis, 15-20 vel pluribus in quoque
 sporangio.
Hab. in charta lurida, Wien Austriæ. — A *Mucore hyalino*
 Cooke distinctus.
70. **Mucor minimus** Link Spec. I, p. 89, Wallr. Fl. Crypt. n. 2023, 684
M. hydrophora Pers. Syn. 202, Nees Syst. f. 77, *Hydrophora*
minima Tode Meckl. II, 5, t. 8, f. 65. — Hyphis obsoletis, ferti-
 libus simplicibus, aggregatis, rigidulis, lutescentibus, sporangium
 crystallinum elevantibus.
Hab. ad ramos fagineos in Franconia et Italia.
71. **Mucor corymbosus** Wallr. Fl. crypt. II, 321 nec Harz. — Hy- 685
 phis sporangiferis albis, sparsis, arachnoideo-lanosis (exsiccando te-
 nacellis) persistentibus, hyalinis, in ramulos fertiles divulsis; ra-
 mulis corymbosis, brevibus, conformibus; sporangiis globosis, majus-
 culis, candidis farctis; sporis sphaericis, pellucidis.
Hab. ad corticem lichenosum Rhamni Frangulæ humi jacen-
 tem in sepimentis Thuringiæ.
72. **Mucor agaricinus** (Wallr.) Berl. et De Ton. *Pilophora agaricina* 686
 Wallr. Flor. Crypt. Germ. n. 2031. — Hyphis simplicibus conti-
 nuis, tenerrimis, crystallinis, albis; sterilibus laxè implexis, crispulis;
 fertilibus erectiusculis brevioribus, præter apices crassiusculos con-
 formibus, sporangio primum hemisphaerico, albo dein in basim at-
 tracto, obconico, plicato-lamelloso; sporis globosis in discum tersum
 digestis aeneo-virentibus.
Hab. ad panem ex oleo coctum mucidum in Germania (WALL-
 ROTH).
73. **Mucor oosporus** Link Spec. I, p. 84, Wallr. Fl. Crypt. n. 2325. 687
 — Hyphis sporangiferis albis, subsimplicibus, depressis; sporangiis
 globosis concoloribus; sporis oblongis, 30 $\approx$ 14.
Hab. in stercore canino passim in Germania Suecia et Hollandia.

*) Exstantibus *M. hyalino* Cooke et *M. Harzii* Berl. et De Ton. hanc spe-
 ciem libenter dicamus egregio amico JULIO PAOLETTI, qui in elaboranda hac
 Sylloges parte diligentem nobis operam præstitit.

— «Sporis multo majoribus certe a *Mucore canino* distinctus neque, ut videtur, cum eo comparandus».

74. **Mucor terrestris** Link Spec. I. 83, Wallr. Fl. Crypt. n. 2023. 68

— Mycelio arachnoideo dense implexo, albo; hyphis sporangiferis parce ramosis; sporangiis globosis, albis; sporis

Hab. ad Confervarum putrid. strues exstructas in Germania.

— «A *Mucore aciculari* hyphis sporangiferis ramosis distinctus. An satis?»

75. **Mucor cinereus** (Preuss) Berl. et G. De Ton. Preuss *Ascophora* 68

cinerea Preuss Fungi Hoyersw. n. 134. — Cæspitibus effusis cinereis; hyphasmate longo stipitibusque subfurcatis ramosis brevibus; sporangio sphaerico plus minusve magno, hyalino, argenteo; columella obovata, annulo granuloso cincta; sporis subovatis magnis cinereis; episporio hyalino, nucleo repleto.

Hab. in mica panis, Hoyerswerda.

76. **Mucor fuscus** (B. et C.) Berl. et G. De Ton. *Ascophora fusca* 68

Berk. et C. North Am. Fungi n. 651. — Cæspitosus, fuscus, primitus albus; hyphis articulatis; sporangiis globosis, pellucidis dein collapsis, campanuliformibus; sporis sphaeroideis, 10 μ . diam.

Hab. in fructibus Artocarpi in Amer. bor.

77. **Mucor modestus** Bain. in Ann. Sc. Nat. 1884, pag. 210. — Sporangio 68

hyalino; zygosporis nigris, striis radiantibus signatis.

Hab. in in Gallia.

78. **Mucor tristis** Bain. in Ann. Sc. Nat. 1884, p. 210. — Sporangio 68

minuto; zygosporis notis.

Hab. in in Gallia.

Species tantum nomine notæ vel dubiæ.

79. **Mucor Dimiæi** Schulzer Pflanzen Slavoniens p. 36, n. 180-1865. 68

— In carne suina recente in cellis Slavoniæ.

80. **Mucor scarlatinus** Hallier Zeitsch. t. III, 4. 1869, p. 124, Riv. 68

Parass. Veget. p. 496, f. 239.

81. **Mucor Penicillium** Schnetzel. Obs. sur la maladie «Blanc» p. 1141. 68

PHYCOMYCES Kunze Mykol. II. p. 113 (Etym. a *phycos* alga et *myces* fungus, ob similitudinem cum Phyceis). — Hyphæ sporangiferæ erectæ non ramosæ, continuæ, nitentes, quandoque prælongæ. Sporangia sphaeroidea v. piriformia (in *P. splendenti*), fusca, tenuissima, ad maturitatem rupta et basi columellæ annulum relinquentia. Spore

ovoideæ vel sphaeroideæ, hyalinæ. Rami zygosporia recurvati et spinosi. Spinae rigidae, dichotome divisæ.

1. **Phycomyces nitens** (Agardh) Kunze Mykol. Hefte II, p. 113, *Ulva* ⁶⁹⁶
nitens Agardh Syn. Alg. Scand. p. 46 (1817), *Periconia Phycomyces* Bon. Handbuch Myc. *Mucor nitens* Spr. Syst. IV, p. 359, *M. Phycomyces* Berk. Outlines p. 28 et 407, *M. romanus* Carnoy Recherch. sur le Champ. Bull. Soc. R. Belg. t. IX, n. 2, p. 157-321, *Byssus olivaceus* Winch Fl. North p. 121. — Hyphis sporangiferis decumbentibus, colore aeneo nitentibus, continuis, 10-20 cm. long. in stratum myceliale effusum digestis, ramo crasso e mycelio oriente 3-4-fasciculatim insertis, quandoque 1-2 sterilibus; sporangiis globosis, polysporis, nigrescente-opacis, columella primum sphaeroidea dein cylindrica; sporis ellipsoideis, elongatis, obtusis, 20-30 $\approx$ 12-15, pallide olivaceis.

Hab. in substantiis adiposis nec non in fimo animalium in Gallia, Italia, Germania, Britannia, Belgio, et Carolina inf. — Sporæ germinantes sec. Cl. Van Tieghem giguunt prima die hypham sporangiferam brevem 24-100 μ . altam, sporangio minuto 25 μ . diam. terminatam, cujus sporæ sphaeroideæ episporio hyalino, tantum 16 μ . diam. metiuntur. Zygosporæ magnæ $\frac{1}{3}$ mm. diam, globosæ fuscæ. Rami zygosporæ arcuati spinas dichotome divisas gerentes.

2. **Phycomyces microsporus** Van Tieghem Nouv. recherch. sur le ⁶⁹⁷
Muc. Ann. des Scienc. Nat. 1875, p. 64. — Hyphis sporangiferis, simplicibus, solitariis, 3-5 cm. altis, basi aeneo-viridibus, sursum flaveolis vel totis aeneo-viridulis; sporangiis flaveolis vel nigris (in hypha concolore) globosis polysporis; columella cylindrica, medio parum constricta; sporis sphaeroideis, subinaequalibus, minutis 8 μ . diam., subhyalinis.

Hab. in fimo equino, Paris Galliae.

3. **Phycomyces splendens** Fr. Syst. mycol. t. III, pag. 308. — My- ⁶⁹⁸
celio effuso, floccoso, albo; hyphis sporangiferis, erectis, praelongis, strictis, olivaceo-fuscis, splendentibus, levigatis; sporangiis piri-formibus, demum umbilicato-apertis; sporis magnis, hyalinis.

Hab. inter corticem coriarium, Ronneby Blekingiae. — Sec. cl. Schroeter (Krypt. Flor. Schlesien Pilze p. 209) ad *Phycomycetem nitentem* ducendus videtur.

SPINELLUS van Tieghem Nouv. recherch. sur le Mucor. Ann. des Scienc. Nat. 1875, p. 66. (Etym. a *spina* ob ramos mycelicos dense spinigeros). — Filamenta mycelica primum hyalina dein superiora

brunneola, ramosa. Rami perpendiculares, solitarii vel verticillati, spinas acutas copiose gerentes, primum hyalinas dein brunneas. Hyphæ sporangiferæ erectæ, simplices, primum hyalinae dein coloratæ, sporis coloratis. Rami sexuales æquales, basi approximati, dein divergentes, demum sese recurvato-approximantes. — Genus *Phycomyceti* et *Rhizopodi* propinquum, a quibus vero facile distinguitur. Verisimiliter species nonnullæ *Mucoris* huc ducendæ sunt, quod ipsi fecissemus, si species plenius cognitæ essent.

1. **Spinellus fusiger** (Link) van Tiegh. in Ann. Scienc. Nat. 1875, 63, p. 66, t. I, f. 29-37, *Ascophora chalybea* Dur. et Mont. Fudsch. d. Nat. Ges. en Phys. XII, p. 283, t. I, f. 4-10, *Mucor fusiger* Link spec. Plant. I, pag. 93, Schroet. Krypt. Flor. Schles. Pilze p. 208. — Mycelio ramoso, ramis spinigeris, non septatis; hyphis sporangiferis erectis, simplicibus basi inflatis, cylindricis, primum albis, dein brunneis, 3-4 cm. longis; sporangiis globosis, primum hyalinis, demum nigrescentibus; columella lata, cylindrica, atrocærulea; sporis ovalibus, elongatis et fusiformibus, raro reniformibus, 32-42 $\approx$ 8-12, griseis; zygosporis dolioliformibus, 200-400 μ . diam., subnigris.

Hab. in Agaricis putrescentibus in tota fere Europa et Carolina inferiore Americæ borealis.

2. **Spinellus macrocarpus** (Corda) Karst. Myc. fennica p. 73, *Mucor macrocarpus* Corda Icon. II, p. 21, f. 84. — Hyphis sporangiferis simplicibus, erectis, albis, pellucidis, circiter 1 cm. longis; sporangiis sphæroideis, demum atris, 120-150 μ . diam.; sporis fusoideo-elongatis, sæpe inæqualateralibus, dilute flavescentibus, 39-65 $\approx$ 12-20.

Hab. in pileis Mycenæ galericulatae in Bohemia, Anglia, Germania, Italia et in agro Mustialensi Fenniae. — A *Sp. fusigero* sporis majoribus diversus.

3. **Spinellus sphærosporus** van Tieghen Ann. des Scienc. Nat. 1875, 70, p. 75, t. I, f. 38-39. — Hyphis sporangiferis gracilibus, 1 cm. alt.; sporangiis globosis; columella late cylindrica, cæruleo-atra; sporis sphæricis, cinereis, inæqualibus, 10 μ . diam. zygosporis, 100-150 μ . diam.

Hab. in Agaricis putrescentibus in Gallia.

SPORODINIA Link Spec. plant. VI. 1, p. 94. (Etym. a *spora* et *dineo* volvo). — Hyphæ magnæ septatæ, erectæ, jodii ope violaceæ; sursum pluries dichotome ramosæ. Rami divaricati, extimi fu-

soidei. Sporangia globosa. Columella hemisphærica. Sporæ sphæroidæ, magnæ, episporio crassiusculo donatæ, intus granulosæ. Rami zygospori erecti, æquales. — In fungis carnosis parasitica. — Forma conjugationis est *Syzygites megalocarpus*.

1. **Sporodinia Aspergillus** (Scop.) Schröt. Krypt. Fl. Schl. p. 209, *Mu-* 702
cor Aspergillus Scopoli Fl. Carn. Ed. II, (1772), p. 494, n. 1642, *Monilia spongiosa* Pers. Myc. I, 30 (1801), *Sporod. grandis* Link Spec. I, p. 94, *Aspergillus maximus* Link, *A. globosus* Link Obs. I, 14, f. 15, *Syzygites megalocarpus* Ehrenberg. Verh. Ges. Nat. Freud. Berlin. I, p. 98 (1829), *Mucor ramosus* Bull. t. 480, *Sporodinia dichotoma* Corda Ic. I, f. 284, *Nematogonium simplex* Bonord. Handb. p. 116, f. 187, *N. fumosum* Bon. l. c. f. 186, *Mucor dichotomus* Bref. Bot. Unt. IV, p. 95-96, pl. 6, f. 23-23. — Cæspitulis primum albis, dein ochraceis; hyphis sporangiferis erectis, magnis, 1-3 cent. altis, dense gregariis, intricato-ramosis, ramis 5-6-ies dichotomis, divaricatis, extimis fusiformibus in sporangium ovatum, pellucidum, evanescens desinentibus; columella hemisphærica; sporis globularibus, granulis repletis, episporio brunneo donatis, inæqualibus, 12-35 μ . diam.

Hab. in fungis carnosis putrescentibus in fere tota Europa. — *Syzygites megalocarpus* cæspitulis effusis irregularibus olivaceo-brunneis vel glaucis; hyphis zygosporiferis erectis subdichotome ramosis, brunneis; ramis zygosporis rectis, conoideis, brunneis, zygosporis obscuris, sphæroideis, 300 μ . diam. Inter hyphas Sporodiniæ grandis, eodem mycelio exoriens.

2. **Sporodinia Pouchetii** (Mont.) Berl. et De Ton. *Aspergillus Pou-* 703
chetii Montagne Plant. cellul. nouv. cent. VII, p. 122. — Hyphis sterilibus subcontinuis in aquam aere destitutam immersis, undulato-flexuosis, conglomeratis, intricatis, tenuissimis, helvolis; fertilibus emergentibus, cylindricis, albis, ramosis; ramis brevibus alternis, remote articulatis, deorsum intus gonimicis; sporangio sphærico, membranaceo, levi, brunneo, 70 μ . diam., tandem evanido terminatis; sporis ovoideis, concoloribus, 3-8 $\approx$ 3-5, primitus columellæ globosæ, 28 μ . diam. sessilibus, concatenatis.

Hab. in aqua aere prorsus destituta cauliculis Fœni affixa, Rouen Galliæ.

3. **Sporodinia Bellemontii** (Mont.) Berl. et De Ton. *Aspergillus Bel-* 704
lemontii Mont. Plant. cellul. nouv. cent. VIII, p. 121. — Hyphis sterilibus laneis, procumbentibus, cinereis; fertilibus continuis, 20-30 μ . crassis, erectis, confertis, dichotome trichotomeve ramosis-

simis; ramis patentibus subdivaricatis, ultimis incrassato-rotundatis; sporangiis globosis, mox ruptis, 80 μ . diam.; sporis concoloribus, sphericis, 10-20 μ . diam. æquantibus, capitulum columelliforme, ramorum peridio soluto evanidoque, circumdantibus; hyphis primariis quandoque crystallis globosis, echinatis præditis.

Hab. ad Mycenam quamdam putredine consumptam in silvula Nointel prope Bellemontium ad Isaram Galliæ. — A *Sp. Aspergillo* colore hyphisque continuis, sæpe trichotomis, distincta. «An satis?».

4. **Sporodinia carnea** (Ehrenb.) Wallr. Fl. Germ. n. 2007, *Mucor carneus* Link Spec. I, 88, *Polyactis carnea* Ehrenb. Sylv. 12, p. 15. — Hyphis obsoletis, fertilibus, erectiusculis, brevibus, in apicem globosum, illico in sporas primum albas dein carneas fatiscentem intumescens.

Hab. ad Pini silvestris folia putrida agri Berolinensis Germaniæ.

5. **Sporodinia candida** Wallr. Fl. Germ. n. 2008. — Hyphis vage ramosis, erectis, remote septatis, tenerrimis, hyalinis, distinctis, fasciculato-aggregatis, hyphasma plumosum mentientibus, candidissimis, ramulis sporophoris suboppositis, lateralibus approximatis patentibus e basi tenuata tubæformibus, sporas microscopicas, ovato-subrotundas, concolores eructantibus iisque in globum congestis coronatis.

Hab. ad folia Sambuci nigre tabida Thuringiæ. — Elegantissima; oculos nudos habitu tenero plumoso, armatos ramulorum dispositione opposita ex apice tubæformi sporophora alliciens. — «A *Sp. Aspergillo* colore et matrice differt; an satis distincta?».

CHÆTOSTYLUM Van Tiegh. Recherch. sur les Mucorinées pag. 328 (Etym. a *chæte* seta et *stylus*). — Hyphæ sporangiferæ sparsæ, erectæ, ramosæ in apicem sterilem vel in sporangium globosum, magnum abeuntes. Rami subverticillati sporangiola indehiscencia pedicellis instructa, polyspora vel sporangiola 1-4-spora, columellâ destituta gerentes.

1. **Chætostylum Fresenii** Van Tiegh. et Le Monn. Ann. Scienc. Nat. 1873 pag. 338, t. 23, f. 61-62. *Bulbothamnidium elegans* Klein Myc. Mittheil. in Verhand. zool. bot. Wien 1870, t. 20 *Thamnidium Fresenii* (Van Tiegh. et Le Monn.) Schroet. Krypt. Flor. von Schlesien Pilze p. 210. — Hyphis sporangiferis erectis, 1-3 cm. altis, simplicibus, sporangio magno terminatis vel lateraliter

ramosis; ramis sporangiola plurima pedicellata gerentibus et in apicem sterilem abeuntibus; sporangiis globosis, tunica molli; columella cylindrica vel piriformi; sporis ellipticis, 8-10 $\approx$ 5-6, e caeruleo subhyalinis; sporangiolis globosis, columella destitutis; sporis ellipticis.

Hab. in fimo murino, equino etc. in Germania, Gallia et Belgio.

HELICOSTYLUM Corda Icon. Fungor. V, p. 17 et 55 (Ety. ab *helix* et *stylus*, ob ramulos circinatos). — Hyphæ sporangiferæ, erectæ, raro repentes, sporangium glabrum, magnum, columella præditum gerentes, ramosæ. Rami aut ramuli apice recurvati, sporangiolo globoso vel piriformi columella minuta vel nulla instructo præditi. Sporæ ovoideæ, hyalinæ, in utroque sporangio æquales.

1. **Helicostylum elegans** Corda Ic. V, pag. 17 et 55 tab. II, fig. 28, ⁷⁰⁸
Pleurocystis Helicostylum Bon. Hand. der all. Myk. pag. 124,
Ascophora amœna Preuss Hoyersw. — Hyphis sporangiferis erectis 3-4 cm. altis, sporangio globoso, polysporo, magno, columella elongata, crassa prædito terminatis, ramosis; ramis vel ramulis spiraliter recurvatis, ramis quandoque in apicem acutum desinentibus ramulisque sporangiolo globoso, præcedenti minore columella carente globoso, albido vel pallide griseo oligosporo caduco donatis; sporis ovoideis in utroque sporangio æqualibus, hyalinis, 6-8 $\approx$ 1-6.

Hab. in substantiis organicis putr. in Gallia, Germania, Britannia. — A *M. Mucedine* hyphis sporangiferis non raro simplicibus vix distinguitur.

2. **Helicostylum glomeratum** (Van Tiegh. et Le Mon.) Van Tiegh. *Cir-* ⁷⁰⁹
cinella glomerata Van Tiegh. et Le Monn. Recherch. sur le Muc. pag. 299, pl. 22, fig. 50-53, Ann. Scienc. Nat. 1873. — Hyphis sporangiferis erectis, 1-2 cm. altis, 30 μ . latis, ramosis, sporangio verrucoso, sphaeroideo, magno terminatis; columella lata, ovoidea subtus insertionem sporangii ex apophysi oriente; ramis longis, lateribus hyphæ primariæ oppositè exorientibus vel in apice ejusdem 3-4 verticillatis, sursum inflatis, in ramulis, vesicula insertis, divisis, ramulis denique apice recurvato, in sporangiolum piriforme, polysporum desinentibus; sporis ovoideis, in utroque sporangio æqualibus, minutis, levibus, 3 $\approx$ 2, hyalinis.

Hab. in fimo equino, Paris Galliæ. — Hypha primaria quandoque simplici fungillus a *Mucore* non facile distinguendus.

3. **Helicostylum nigricans** Van Tiegh. Trois. Mem. sur les Muc. p. 374, ⁷¹⁰

pl. 13, fig. 79-83, Ann. des Sc. Nat. 1876. — Hyphis sporangiferis erectis, 1 cm. altis, primum albis dein nigricantibus, sporangio globoso, magno, columella ovoidea prædito terminatis, ramosis, ramis regione inflata hyphæ insertis, verticillatis, gracilibus brevibusque, apice recurvatis, sporangiolum sphaericum, polysporum; columella leniter campanulata, parva: sporis ovatis, hyalinis in utroque sporangio æqualibus, $8-9 \approx 5-6$.

Hab. in, Paris Galliæ. — Hyphis sporangiferis quandoque simplicibus cum *Mucore* facile confunditur; ab *H. piriformi* umbellulis sessilibus, sporis majoribus, sporangiolis sphaeroideis distinctum.

4. **Helicostylum piriforme** Bain. Ann. Sc. Nat. 1883, p. 85, tab. 4, fig. 5-11. — Hyphis sporangiferis erectis, parce ramosis, ramis, gracilibus elongatis, sæpe sporangio globoso, magno 168 μ . diam., columella ovoidea, crassa prædito donatis, ramulis brevibus crassis, solitariis vel verticillatis, in pedunculis cylindricis, subtilibus, continuis, apice recurvatis, in sporangiolum piriforme, 21 μ . diam. desinentibus; sporis levibus, albidis, ovoideis, $8\frac{1}{2} \approx 4$.

Hab. in substantiis organicis putr. et in fimo animalium, Paris Galliæ.

5. **Helicostylum repens** Van Tiegh. Trois. Mem. sur les Muc. Ann. Scienc. Nat. pag. 389. — Hyphis sporangiferis sæpe decumbentibus, usque ad 5 cm. longis, ramosis, in apicem subulatum plerumque desinentibus, albis, denique haustoria emittentibus, ramis primariis et secundariis erectis; sporangio crasso, globoso vel umbellula ramulorum terminatis, ramulis apice recurvatis, sporangiolum piriformi præditis; sporis ovoideis, in utroque sporangio inæqualibus, $12 \approx 10$; columella in utroque sporangio demum brunnea.

Hab. in fæce vini compressa, Paris Galliæ. — Hyphis sporangiferis repentibus et sporis inæqualibus, fortasse e genere removendum.

6. **Helicostylum? Saccardoi** Berl. et De Ton. *Mucor helicostylus* Saccardo Mich. vol. I, p. 13. — Totum ex hyalino flavicans; hyphis sporangiferis continuis, sursum circinatis vel saltem curvis; sporangiis globosis, flavis; columella globosa, 50-60 μ . diam.; sporis ovato-oblongis, $18-20 \approx 10-12$, raro-15, perfecte hyalinis.

Hab. in stercore humano et felino, Selva Italiæ borealis. — Species nonnullis characteribus nondum notis forte dubia; notis genericis *Helicostylo* affinis; sporangio levi nec punctulato hyphisque apice vesiculososis ab *H. elegante* satis recedere videtur.

THAMNIDIUM Link Spec. Plant. I, p. 97 (Etym. a *thamnon* arbustum).

— Hyphæ sporangiferæ sparsæ, erectæ, sporangium globosum, magnum, polysporum ferentes, ramosæ (raro simplices). Rami verticillati, 2 vel pluries dichotomi, in tota hypha primaria inserti. Ramuli patuli, sporangiolo præditi. Sporangiola globosa, paucas sporas continentia, rarissime monosperma.

1. **Thamnidium elegans** Link Obs. p. 45 t. II, f. 45, et Spec. Plant. I, 714

p. 97, Schroet. Krypt. Flor. Schles. Pilze p. 210, *Melidium subterraneum* Eschw. De Fruct. gen. Rhiz. comm. *Mucor elegans* Fr. Syst. Myc. I, p. 183, *Ascophora elegans* Corda Icon. III, fig. 43, *Mucor Mucedo* De Bary et Woron. Beitr. p. 16, *Ascophora pulchra* Preuss Fungi Hoyerswerda n. 133, *Thamn. Van Tieghemii* Berk. et Br. Ann. Nat. Hist. n. 1496. — Hyphis sporangiferis erectis, ramosis: hypha primaria sporangio sphæroideo, polysporo, columella magna prædita; ramis verticillatis vel solitariis, pluries dichotomis, ramulis extimis sporangiolum sphæricum, 4-10, raro 1-3 sporas continens, gerentibus; sporis ovalibus in utroque sporangio æqualibus, hyalinis, raro cærulescentibus, 8-10 = 6-8.

Hab. in substantiis organicis putridis satis frequens in Germania, Gallia, Italia, Belgio, Britannia, Hoyerswerda. — Variæ formæ hujus fungilli observantur. — I. Hyphis sporangiferis, simplicibus, magnum sporangium ferentibus (*Mucor* pl. auct.). — II. Hyphis sporangiferis ramosis, sporangio majori nullo, ramis sporangioliis præditis (*Melidium*). His characteribus magna fuit de hac specie controversia, at patientissimis observationibus clariss. viri Van Tieghem nunc eam autonomam putare licet.

2. **Thamnidium verticillatum** Van Tieghem Trois. Mem. sur les Muc. 715

Ann. Sc. Nat. p. 376, pl. 13, fig. 84-88. — Minutum, hyphis sporangiferis erectis 8-10 mm. altis, sporangium sphæricum, verrucosum, columella cylindro-conica donatum ferentibus, primum sursum ramosis, ramis 4-6 verticillatis, longis apice bis dichotomis ramulis patulis sporangiola sphærica, levia, columellâ minutâ plano-convexâ prædita, gerentibus; sporis in utroque sporangio sphæricis, hyalinis 5-6 μ . diam.

Hab. in fimo equino in Gallia. — Species perpulehra generum *Thamnidium* et *Thelactis* copula. Verticillo apicali alia (2) inferne adjunguntur, quorum rami tantum semel dichotomi.

3. **Thamnidium? paradoxum** (B. et C.) Berl. et De Ton. *Mucor para-* 716

doxus Berk. et Curt. North Amer. Fungi n. 377. — Hyphis sporangiferis brevibus, hyalinis; sporangiis difformibus, majoribus apice

hyphæ longiori insertis, globosis; sporis 14 μ . longis, oblongis; minoribus vero obovatis apice hypharum e mycelio oriundarum, breviorum insertis, sporis 10 $\approx$ 2 $\frac{1}{2}$ μ . præditis.

Hab. in Boletis putridis in Pennsylvania Amer. bor.

RHIZOPUS Ehrenberg De Mycetog. (Nova Acta X, p. 198) (Ety. a *rhiza* radix et *pus* pes). — Mycelium stolonibus reptantibus, rectis vel flexuosis, subtus radículas fasciculatas, super hyphas sporangiferas ferentibus, constans, primo album dein nigrescens. Hyphæ sporangiferae rectæ vel apice circinatæ, simplices, concolores. Sporangia globosa polyspora, apophysi membranacea basi prædita. Sporæ ovoideæ vel sphaeroideæ plerumque coloratæ.

1. **Rhizopus circinans** Van Tiegh. Trois. Mem. sur les Muc. p. 369, 719 pl. 12, fig. 69-73. — Stolonibus curvatis super hyphas sporangiferas, subtus radículas emittentibus; hyphis sporangiferis solitariis, raro binis, apice recurvatis, 120-180 μ . altis; sporangiis globosis, verrucosis, apophysatis; columella globulosa; sporis angulatis, minutis, levibus, sphaeroideis 5-6 μ . diam. brunneis.

Hab. in seminibus germinantibus Phœnicis dactyliferae loco udo neglectis, Paris Gallia. — Totus fungus primum albus dein nigrescens.

2. **Rhizopus echinatus** Van Tiegh. Trois. Mem. sur les Muc. p. 370, 719 pl. 12, fig. 64-68. — Hyphis sporangiferis erectis, simplicibus, 3-4 fasciculatis, præcedenti longioribus gracilibus, primum albis dein coloratis; sporangiis minutis, crasse apophysatis, sphaeroideis, verrucosis; sporis globosis dense spiniferis, 15 μ . diam. brunneis.

Hab. ad muscas emortuas loco udo diu servatas, Paris Gallia.

3. **Rhizopus nigricans** Ehrenberg De Mycetogenesi in Nova Acta X, p. 198, tab. 11, *Mucor stolonifer* Ehrenb. Sylvæ mycol. 13, p. 25, Schroeter Krypt. Flor. Schles. Pilze p. 206, *Ascophora Mucedo* Tode Fung. Mecklemb. fasc. II, Bon. G. der Mykol. pag. 41, a *Rhizopus* Ehr., *A. Cordana* Bon. p. 44, *A. Coëmansii* Bon. l. c. p. 44. — Hyphis sporangiferis erectis, simplicibus, 3-10 fasciculatis, rarissime solitariis, continuis, 2-3 mm. alt., basi longos stolones reptantes, ramosos emittentibus; sporangiis globosis, olivaceo-nigris, granulosi; columella hemisphaerica; sporis concatenatis, globosis vel ellipticis 14 $\approx$ 11, griseis.

Hab. in fructibus, foliis, ramis etc. putridis in tota Europa, America etc. — Cl. Zimmermann (Das Genus *Mucor*) *Mucoris stoloniferi* hæc citat synonyma: *Ascophora Mucedo*, *A. glauca*,

Mucor ascophorus, *M. clavatus* et *Rhizopus nigricans*. — Var. **luxurians** Schroet. Krypt. Flor. Schles. Pilze p. 207: hyphis sporangiferis maxima parte ramosis, ramis apice vesicula globosa magna, 2 vel plures ramulos apice sporangio terminatos gerente instructis. In substantiis organicis in Germania.

4. **Rhizopus microsporus** Van Tiegh. A. S. N. 1875, p. 83, tab. 2, 720 fig. 46-48. — Stolonibus rectangulariter fracti-flexis, ad angulos radículas et hyphas sporangiferas gerentibus, hyphis erectis simplicibus, solitariis raro binis vel trinis, brevibus 500-600 μ . alt.; sporangiis globosis, apophysatis, columella globosa; sporis subangulatis, verrucosis, nigrescentibus, 4 μ . diam.

Hab. in fimo equino, Paris Galliae. — «*Rh. nigricanti* affinis, a quo exiguitate distinctus.

5. **Rhizopus minimus** Van Tiegh. A. S. N. 1875, pag. 84, tav. 2, 721 fig. 49-51. — Stolonibus rectangulariter fracti-flexis, apicibus angulorum hyphas fertiles et radículas gerentibus; hyphis sporangiferis minimis, 100-200 raro 300 μ . altis, nigrescentibus continuis, solitariis, sporangiis globosis, apophysatis, nigris columella obscura; sporis minutis sphaeroideis, brunneis vel cœruleo-brunneis, subangulosis, verrucosis, 3 μ . diam.

Hab. in fimo equino, Paris Galliae. — Species minima, *Rh. microsporo* affinis sed minor.

6. **Rhizopus Cohnii** Berl. et De Ton., *Mucor rhizopodiiformis* Cohn 722 in Schroet. Krypt. Flor. Schles. Pilze p. 207. — Mycelio primo candido, dein griseolo. in substrato repente; hyphis mycelii brunneis, stoloniformibus, arcuatis, rhizoidibus, brevibus, ramosis, brunneis instructis; hyphis sporangiferis unicellularibus vel e plurimis caespitosis, rhizoidibus oriundis, brunneis, 120-125 μ . longis, haud ramosis; sporangiis globosis, circ. 66 μ . diam., maturitate nigris, tunica levi, opaca; columella ovata vel piriformi, 50-75 μ . lata; sporis globosis, levibus, 5-6 μ . diam., subhyalinis.

Hab. in pane udo, Bern Helvetiae (LICHTHEIM). Breslau Germaniae (COHN).

7. **Rhizopus elegans** (Eidam) Berl. et De Ton., *Mucor elegans* Eidam 723 XIII, Wand. der Bot. sect. aer Schles. für vaterländ. Cult. 1883, Schroeter Krypt. Flor. Schles. Pilze p. 207. — Hyphis sporangiferis 1-2 mm. altis, caespitulosis, basi e mycelio intricato exsurgentibus; sporangiis terminalibus globosis, brunneis, 50-70 μ . diam., tunica eleganter denseque spinosa, hyalina; columella globosa. brunneola; sporangiis lateralibus minoribus, 33 μ . diam., globulo-

sis, brunneis; sporis sphaeroideis, levibus, 5-7 μ . diam., pallide brunneis.

Hab. ad semina germinantia Fabæ, Pisi et Maydis pr. Breslau Silesiæ (RIDAM).

8. **Rhizopus reflexus** Bain. Ann. Sc. Nat. 1883, p. 82, t. 4, fig. 1-4.

— Hyphis sporangiferis erectis simplicibus, apice recurvato, parvis, 2-2½ mm. altis, sporangiis globosis, 200 μ . diam.; columella globosa basi lata; sporis leviter angulosis, oblongis, minutissime striatis, 8-10 μ . longis.

Hab. in foliis Ari maculati loco udo putrefactis, Paris Galliæ.

9. **Rhizopus? fructicola** (Corda) Berl. et De Ton., *Ascophora fructi-*

cola Corda lc. II, fig. 82, p. 20. — Cæspitibus laxis, argenteo-nitidis; stipite recto, tenui, longo septato, sporangio sphaerico, luteo-fusco; columella obovata pedunculata, annulo granuloso cincta; sporis minutis.

Hab. in fructibus Sambuci nigrae in Bohemia.

ABSIDIA Van Tiegh. Trois. Mem. sur les Muc. Ann. Sc. Nat. 1876,

p. 350 (Ætym. *absis* arcus). — Stolones mycelici arcuati. Arcus pedibus rhizophoris, sursum in medio curvæ hyphis sporangiferis continuis vel sursum uniseptatis simplicibus hyalinis, rectis vel apice recurvatis præditi. Sporangia piriformia. Columella conica. Sporæ ovoideæ vel globosæ hyalinæ. Zygosporæ doliiformes, nigrae verrucosæ, ramis verticillatis et circinatis obvallatæ. — Genus sporangii insertionem et radicibus, *Rhizopodi* affine, quo a characteribus citatis aperte recedit.

1. **Absidia capillata** Van Tiegh. Trois. Mem. sur les Muc. Ann. des

Scienc. Nat. 1876, p. 362, pl. 11, fig. 23-36. — Hyphis sporangiferis 3-5 fasciculatis, continuis, rectis, simplicibus; sporangiis piriformibus; columella conica, cœruleo-nigra; sporis ovoideis, 2-5 = 2-2½; zygosporis dolioliformibus, nigris, verrucis conicis præditi, 80 μ . diam. inter ramos brunneos circinatos et intricatos simplices vel parum ramosos zygosporis insertos absconditis.

Hab. in fimo equino, Paris Galliæ.

2. **Absidia reflexa** Van Tiegh. Trois. Mem. sur les Muc. Ann. des

Scienc. Nat. 1876, p. 363, pl. 12, fig. 49-54. — Hyphis sporangiferis solitariis, basi ramis brevissimis præditi, sursum circinatis, ad apicem septatis; sporangiis piriformibus; columella conica, obtusa; sporis sphaeroideis, 6 μ . diam. hyalinis.

Hab. in fimo equino, Paris Galliæ.

3. **Absidia septata** Van Tiegh. Trois. Mem. sur les Muc. Ann. Scienc. Nat. 1876, pag. 363, pl. 11, fig. 37-48. — Hyphis sporangiferis erectis 2-5-fasciculatis, prope sporangium septo præditis; sporangiis piriformibus, usque ad septum nigro-coloratis; columella conica; sporis sphaeroideis, 2-3 μ . diam. hyalinis; zygosporis subsphaeroideis, 50 μ . diam., nigris, verrucosis, ramis circinatis, verticillatis, simplicibus, brunneis obvallatis.

Hab. in fimo equino, Paris Galliæ.

TIEGHEMELLA Berl. et De Ton., *Absidia* Van Tiegh. p. p. (Etym. genus cl.^o PH. VAN TIEGHEM dicatum). — Genus characteribus *Absidiæ* præditum, a quo nostro sensu recedit fructificatione quoque sporangiolifera. Vide characteres *Tiegh. repens*.

1. **Tieghemella repens** Berl. et De Ton. *Absidia repens* Van Tiegh. Trois. Mem. sur les Muc. Ann. Sc. Nat. 1876, p. 363, pl. 12, f. 55-63. — Hyphis sporangiferis 3-5 fasciculatis, erectis, sporangio piriformi terminatis, ad verticem septatis; columella basi conica, sursum in tubum cylindricum, apice sphaeroideo-inflatum desinente; sporis ovoideo-elongatis, 7 $\approx$ 3, hyalinis; sporangiolis elongatis ramis brevibus, solitariis gracilibus suffultis, oligosporis; columella acute conoidea; sporis sphaeroideis vel subsphaeroideis 3-4 μ . diam.

Hab. in fragmentis seminum Bertholletiae excelsae in Sphagno humido servatis Paris Galliae. — Totus fungus primum albus deum brunneus

CIRCINELLA Van Tiegh. et Lemonnier in Ann. Scienc. Nat. 1873, p. 300 (Etym. a *circine* ob ramos circinatis). — Hyphæ sporangiferae erectae, ramosae. Sporangia globosa, polyspora, ramis recurvatis (pedunculis) suffulta, columella instructa, tunica non diffloenti at medio in circulo lacerata. Sporae sphaeroideae, hyalinae vel coloratae.

1. **Circinella spinosa** Van Tiegh. et Le Monn. Rech. sur les Muc. Ann. des Scienc. Nat. 1873, p. 305, pl. 21 et 22, fig. 24-49. *Mucor spinulosus* Schroet. Krypt. Flor. Schles. Pilze p. 206. — Hypha primaria erecta, sursum flexa, ad angulum ramum verticaliter crescentem, quasi hyphae primariae continuationem emittente, ramo quoque apice flexo et ramulum apice flexum emittente, apicibus hyphae et ramorum acutis, saepe septatis e latere pedunculum (raro duo) sporangiferum circinatum gerentibus, ramis extimis circinatis sporangiferis; sporangiis globosis; columella cylindrica vel conoi-

dea, quandoque medio parum constricta; sporis sphaeroideis, cœrulescentibus, levibus, 4 μ . diam.

Hab. in stercore humano, Paris Galliæ et pr. Breslau Germaniæ. — An *Helicostylum Muscæ* Sorokine? Habitus fungilli est hyphæ sporangiferæ erectæ (ex ramis superpositis constantis) lateribus spinis sporangiferis præditæ.

2. **Circinella simplex** Van Tiegh. Nouv. Rech. sur les Muc. Ann. des Scienc. Nat. 1875, p.92, pl. 2, fig. 52-54. — Hyphis sporangiferis erectis, 2-3 mm. altis, brunneis, ex ramis superpositis formatis, apicibus ramorum alterne recurvatis, brevibus, sporangia globosa cœrulescentia ferentibus, ramis et sporangiis ad apicem magnitudine decreescentibus; columella cylindro-conica; sporis minutis, sphaeroideis 3 μ . diam., hyalinis.

Hab. in stercore canino, Paris Galliæ.

3. **Circinella umbellata** Van Tiegh. et Lemonn. Recherch. sur les Muc. Ann. des Scienc. Nat. 1873, p. 300, pl. 21, fig. 18-23, *Mucor umbellatus* Schroet. Krypt. Flor. Schles. Pilze p. 206. — Hyphis sporangiferis erectis, 5-6 cm. altis, simplicibus vel ramosis, apice acutis vel digitatis, rectangulariter fracti-flexis, ad angulos 2-20 ramos sporangiferos circinatos, basi septatos gerentibus, brunneis: sporangiis sphaeroideis, cœrulescentibus; columella cylindro-conica, magna; sporis globosis, levibus, cœruleis, 6-8 μ . diam.

Hab. in substantiis putrescentibus, socio *Mucore Mucedine*. Paris Galliæ, Amsterdam Hollandiæ et prope Breslau Germaniæ. — Var. **Moreliæ** B. et Br. in Trans. Linn. Soc. 1878, pag. 406, n. 83: a typo differt sporis majoribus, dilutissime branneis. — Var. **asperior** Schroet. Krypt. Flor. Schles. Pilze p. 206: paullo validior; tunica punctata, brunneola, columella apice plus minusve granulata, hinc illinc subtuberculata. In fimo leonis, hyanæ etc. in Horto zoologico Breslau Germaniæ.

Species nobis tantum nomine nota.

4. **Circinella Muscæ** (Sor.) Berl. et De Ton., *Helicostylum Muscæ* Sorokine Recherch. sur le dev. de l'Hel. Musc. (Bull. de la Soc. Imp. des Naturalist. de Moscou 1870, t. XLIII, p. 256, p. 4.

PIRELLA Bain. in Ann. Scienc. Natur. 1883, p. 84 (Etym. *pirum*, ob sporangia *piriformia*). — Genus *Circinelle* affine, a quo præcipue differt columella longiori sporangiisque piriformibus (Conf. *P. circinans*).

1. **Pirella circinans** Bain. in Ann. Scienc. Natur. 1883, p. 84, t. 5, 734 fig. 11-14. — Hyphis sporangiferis erectis ramosis, continuis sursum circinatis, ramulis sporangium piriforme, verrucosum, 48-126 μ . diam. gerentibus, nonnullis sterilibus, subulatis, circinatisque; columella magna, panduræformi; sporis ovoideis, minutis, 2-6.

Hab. in fimo (?), Paris Galliæ.

Genera minus nota.

DIAMPHORA Martius Nova Acta A. C. X. p. 511, Corda Anleit. p. 71 (Etym. a *dis* duo et *amphora*). — Hyphæ erectæ, septatæ, basi radicante-ramosæ, medio simplices, apice bifidæ. Sporangium subcylindricum in utroque apice laterale, operculatum. Sporæ inæquales, aliæ septatæ ellipticæ, aliæ minutissimæ, globosæ.

1. **Diamphora bicolor** Mart. Erlang. p. 363, Bonord. Handb. p. 120, 735 f. 211, Corda Anleit. t. C 24, f. 17, Fries Syst. Myc. III, p. 325. — Minutissima, cæspitosa, fugax, ambitu suborbiculari; hyphis fertilibus erectis septatis, apice cernuis, basi ramulos nonnullos, flexuosos, intricatos, septatos, tenuiores emittentibus; sporangiis fuscis, furcello terminali lateraliter affixis, oppositis, cylindræis, operculo fugaci tectis; sporis numerosis, inæqualibus.

Hab. in fructibus putridis Joncquetiæ in prov. Paraënsi Brasiliæ.

DIDYMOCRATER Mart. Flor. Erlang. p. 363 (Etym. a *didymus* duplex et *crater* vas). — Hyphæ erectæ, subsimplices, molles s. fluxæ, septatæ, laxè cæspitosæ. Sporangium cyathiforme, geminatum, cylindræum, vertice in os orbiculatum reclusum. Sporæ minutæ, continuæ.

1. **Didymocrater obscurus** Martius in Nov. Acta Ac. Nat. Cur. p. 510, 736 t. 46, f. 8. — Subsolutarius, sparsus, 4 mm. altus; hyphis conspiciue septatis, pellucidis, æqualibus, simplicissimis, apice sporangiferis; sporangiis geminatis, cylindræis, basi attenuatis, fuscis: sporis minutis, ovato-globosis, pellucidis.

Hab. ad ligna putrida in silvis horrendis æterno rore humidis ad flumen lignorum in Brasilia.

2. **Didymocrater elegans** Mart. Erl. p. 363, Link Spec. I, p. 99, Wall. 737 Flor. Crypt. Germ. n. 2075. — Hyphis erectis, subsimplicibus, septatis, subfibrillosis, curtis, laxè gregariis; sporangiis terminalibus, geminatis, cylindræis, tenuissime membranaceis, fragilibus; sporis numerosissimis, globosis, microscopicis fortis, viridi-cinereiscentibus.

Hab. ad eulmos graminum male exsiccatorum herbariorum pr. Erlangen Germanicæ. — *D. obscuri* minor, vix 1 mm. altus.

3. **Didymocrater duplex** (Bonord.) Berl. et De Ton., *Crateromyces duplex* Bonord. Handb. p. 120, f. 210. — Vix 3 mm. altus; hypha simplici; sporangiis geminatis, cyathiformibus, griseolis.

Hab. in in Guestphalia.

CRATEROMYCES Corda in Sturm Deutsch. Fl. III, p. 59, Anleit. p. 67 (Etym. a *crater* vas et *myces* fungus). — Hyphæ erectæ, simplices. Sporangium ovatum, cyathiforme, hyalinum, solitarium, terminale, apice apertum. Sporæ continuæ, homogeneæ, hyalinæ.

1. **Crateromyces candidus** Corda in Sturm Deutsch. Flor. III, Bonord. Handb. f. 207, p. 59. — Usque ad 3 mm. altus; hyphis simplicibus, erectis, albidis, gracilibus; sporangio unico, apice hyphæ inserto, cylindraceo-ovato; sporis globosis, levibus.

Hab. ad caules in Guestphalia.

CAULOGASTER Corda ap. Sturm 12, p. 61 (Etym. a *caulos* caulis et *gaster* uterus). — Hyphæ erectæ, simplices, longæ, flexuosæ, carnosæ, clavatæ, sporangiolis lateralibus, irregulariter adnatis. Sporangiola ovata, sublibera, membranacea, extus echinato-pilosa; Sporæ heterogeneæ, globosæ, simplicissimæ, nullis floccis intertextæ.

1. **Caulogaster chordostyloides** Corda in Sturm Deutsch. Fl. III, p. 12, t. 31, Bonord. Handb. f. 204. — Albidum; hyphis carnosis, clavatis, sporangiolis ovatis; sporis globosis brunneis.

Hab. in reliquis fructuum Aceris in Germania et Bohemia.

SCLEROCYSTIS B. et Br. Fungi of Ceylon p. 137 (Etym. a *scleros* durus et *cystis* vesica). — Hyphæ compositæ in stipitem cylindricum coalitæ. Capitulum sporangiorum globosum tomentosum. Cystæ seu sporangia elliptica.

1. **Sclerocystis coremioides** B. et Br. Fungi of Ceylon n. 1183. — Primum habitu *Coremii*; capitulis globosis, duris, compactis; hyphis rigidis compositis; cystis seu sporangiis ellipticis, rugulosis, subinde ubique piligeris.

Hab. in insula Ceylon.

HEMISCYPHE Corda in Sturm DC. Fl. III, p. 55 (Etym. ab *hemi* dimidius et *scyphe*). — Sporangium inferum, cupuliforme, tenue hyalinum. Capitulum oblongum, conglobatum. Columella cupulae

insidens, centralis, magna, ovata, sporis continuis, homogeneis, arcte conglobatis tecta. — An a genere *Mucore* distinctum?

1. **Hemiscyphe stilboidea** Corda in Sturm Deutschl. Pilze III, p. 55, 742
Penzig Fungi Agr. in Mich. II, p. 455, et Fung. it. t. 1190. — Albida, byssoidea, mycelio repente; stipite erecto, simplici, septato, hyalino, apice in cupulam dilatato; columella magna, ovata, centro cupulae insita; sporis oblongis, hyalinis, continuis, apice obtusiusculis.

Hab. in fructibus putridis Citri Limonum, Piri Mali et P. communis, in Italia et in Germania.

2. **Hemiscyphe stricta** Preuss F. Hoyersw. n. 131. — Cæspitulis minutis albis; mycelio repente, ramoso, intertexto; hypha solitaria, erecta supra ramosa; sporangio terminali, globoso, fuscescente, irregulariter circumscisso; columella conica, humili; sporis ovatis, episporio diaphano, nucleo granulato.

Hab. in foliis dejectis putridis pr. Hoyerswerda.

3. **Hemiscyphe rhizopoides** Preuss Hoyersw. n. 132. — Mycelio ramoso continuo dilute fusco; hyphis fasciculatis erectis, dilute fuscis, sporangium globosum, glabrum, nitidum, circumscissum, fuscum, intus turbidum gerentibus; columella centrali, glabra, conico-mammiformi; sporis globosis, episporio glabro, pellucido, nucleo faretis.

Hab. in Botryte (Polyactide) racemosa, Hoyerswerda.

4. **Hemiscyphe bicolor** (Corda) Bonord. Handb. p. 205, *Calyssosporium bicolor* Corda Anleit. t. C 23, f. 1. — Hyphis erectis, brunneis; sporangiis subglobosis vel ovoideis; sporis globosis, albidis.

Hab. in Bohemia. — «An a *Hemiscyphe rhizopoides* Preuss. distincta?»

AEROPHYTON Eschweil. Syll. ad Flor. Rat. I, p. 163, Fries Syst. III, p. 328 (Etym. *aer* et *phyton* planta). — Hyphae conotociae, articulatae, apice clavatae. Clavulae sporangiola subrotunda, adhaerentia gerentes. Sporae minutissimae.

1. **Aerophyton principis** Eschw. loc. cit., Fries Syst. Myc. III, p. 328. 746
— Tenerrimum, persistens, 7 mm. altum; hyphis candidis, apice ut plurimum sterilibus, ramis inordinatis, fertilibus articulis diametro hypharum bis terve longioribus.

Hab. in foliis Cassellae Brasiliensis in hortis Bavariae. — Etiam nudo oculo jam arbusculi imaginem praebens, marcescens funiculi ad instar collabascens.

Subfam. 3. Chætocladiæ VAN TIEGH.

Hyphæ myceliæ crassæ, hand anastomosantes; sporangia monospora, columella prædita.

CHÆTOCLADIUM Fres. Beiträge zur Mykol. p. 97 (Etym. a *chæte* seta et *clados* ramus). — Hyphæ sporangiferæ indefinitæ, 3-5-ies verticillatæ. Rami et ramuli terni apice sterili, acuto. Sporangia globosa verrucosa, monosperma in processibus ternis ramulorum claviformibus inserta. Sporæ coloratæ, glabræ, sphæroideæ.

1. **Chætocladium Jonesii** (Berk. et Broom.) Fres. Beit. zur Mykol. p. 97, *C. Fresenianum* Brefeld Bot. Unt. p. 55, Schroet. Pilz. Schles. p. 215, *Botrytis Jonesii* Berk. et Broom. Ann. and Magaz. of nat. Hist. n. 760, t. 15, fig. 12. — Hyphis sporangiferis erectis, apice sterilibus, ramosis, ramis et ramulis verticillatis, divergentibus, vesicula inflata insertis; sporangiis globosis, monospermis, 60-100 μ . diam.; sporis 6-8 μ . diam., sphæroideis, glabris, cærulescentibus.

Hab. in fimo equino sæpissime inter hyphas *Mucoris Mucedinis* et in iis pseudo-parasitice vivens in Gallia, Germania, Britannia, Belgio, Neerlandia et America bor.

2. **Chætocladium Brefeldii** Van Tieghem et Lemon. Recherch. sur les Muc. Ann. des Scienc. Nat. 1873, p. 342, t. 23, f. 71-79, *C. Jonesii* Brefeld. Bot. Unt. I, p. 29-40, pl. 4, Schroet. Pilz. Schles. p. 215. — Præcedenti simile at gracilius; hyphis sporangiferis erectis ramosis, ramulis verticillatis ternis vel quaternis; sporangiis minutis, sphæricis, cærulescentibus, 30-50 μ . diam.; sporis globosis 2-4 μ . diam.; zygosporis globosis, 40-50 μ . diam., pallide brunneis.

Hab. inter *Mucoris Mucedinis* et *Rhizopodi nigricantis* hyphas in Germania et Gallia.

Subfam. 4. Mortierellæ VAN TIEGH.

Hyphæ myceliæ tenues, anastomosantes; sporangia sphærica, columellâ destituta, polyspora.

MORTIERELLA Coemans, Quelques Hyphom. nouv. Bull. Ac. Belg. 2^e ser. t. XV, 1^{re} part., p. 536 (Etym. a B. DE MORTIER botanico belgico). — Mycelium dichotome ramosum, anastomosans, stylosporis echinulatis præditum. Hyphæ sporangiferæ in cæspitulos congestæ, basi inflatæ, erectæ, sporangio crasso, sphæroideo, columel-

la carente, levi terminate, ramosæ. Rami graciles, primum horizontaliter expansi, demum erecti, sporangiololo terminati, quandoque ramulos verticillatos, sporangioliferos gerentes. Sporæ minutæ, globosæ vel ellipsoideæ, inæquales, nucleo præditæ. Zygosporæ notæ.

1. **Mortierella simplex** Van Tiegh. et Le Mon. Rech. sur les Mucorinées p. 348, tab. 24, fig. 103-106, Ann. du Sc. Nat. 1873. — Hyphs sporangiferis erectis, continuis, simplicibus, $\frac{7}{10}$ -1 mm. altis, sursum lenissime attenuatis, sporangio magno, globoso, polysporo terminatis; sporis valde inæqualibus, præcipue sphaeroideis vel ovoideis, granulosis, uni-magni-nucleatis, refrangentibus, episporio levi, hyalinis.

Hab. ad terram humosam, Paris Gallie. — « An potius *Herpocladium*? »

2. **Mortierella fusispora** Van Tiegh. Trois. Mém. sur les Mucorinées Ann. Sc. Nat. 1876, pag. 385, tab. 13, fig. 105-107. — Mycelio effuso, arachnoideo, repente, fugaci; hyphs sporangiferis simplicibus, 0,5 mm. altis, subcylindræis, basi leniter incrassatis; sporangiis sphaeroideis, majusculis; sporis ovato-elongatis, subfusiformibus, 22-24 $\approx$ 5-6.

Hab. in fimo cuniculorum, Paris Gallie. — Stylosporæ sphaeroideæ, crasse tuberculosæ, 12 μ . diam. brunneæ (*Mycogone*).

3. **Mortierella strangulata** Van Tiegh. in Ann. Sc. Nat. 1875, p. 102, tab. 2, fig. 70-76. — Mycelio repente, dichotome ramoso, anastomosante, valido; hyphs sporangiferis erectis, ex rosula filamentorum mycelicorum, brevium et repetito dichotomorum oriundis, simplicibus, crassis, sursum leniter attenuatis, 800-1000 μ . longis et 75 μ . latis ad basim, superne 25 μ . crassis, hyalinis, protoplasmate granuloso repletis, vertice in collum breve, cylindricum, 1-septatum abrupte desinentibus, sporangium sphaeroideum magnum, 80-120 μ . diam. gerentibus; sporis minutis ovoideis vel trinacriiformibus vel quadrangularibus, obtusis, valde inæqualibus, 6-9 hyalinis; stylosporis globosis, minute verrucosis, 18-20 μ . diam.

Hab. in fimo murino, Paris Gallie.

4. **Mortierella pilulifera** Van Tiegh. Ann. Sc. Nat. 1875, pag. 105, tab. 2, fig. 63-69. — Mycelio repente, dichotome ramoso; hyphs sporangiferis, erectis, simplicibus, basi filamentis mycelicis rosulatis, in vesiculam protoplasmate repletam hinc inde inflatis instructis, gracilibus, 5 mm. altis, sporangio minuto subhyalino, dein evanescente terminatis; sporis gelatinoso-congestis, ovoideis, 7-9 $\approx$ 4-5, hyalinis.

Hab. in fimo cuniculorum, Paris Gallia. — Vesiculis mycelicis et hypharum sporangiferarum longitudine species valde distincta.

5. **Mortierella tuberosa** Van Tiegh. in Ann. des Sc. Nat. 1875, p. 106, tab. 2, fig. 55-62. — Mycelio repente, dichotome ramoso, ramulis in vesiculam globosam, magnam, protoplasmate faretam, hinc inde circa basim hypharum fertilium inflatis; hyphis sporangiferis simplicibus erectis, rigidis, persistentibus, longissimis, 3 cm. altis, in sporangium lacteum desinentibus; sporangiis basi septo lato, convexo a stipite divisis, sphæroideis; sporis gelatinoso-congestis, inæqualibus et irregularibus, sæpe ovoideo-elongatis, 11-16 $\approx$ 6-8, hyalinis; stylosporis sphæroideis, 20-25 μ . diam., spinuligeris, apice filamentorum mycelicorum brevium insertis.

Hab. in stercore murino, Paris Gallia.

6. **Mortierella arachnoides** Therry et Thierry Nouv. esp. de Muc. du genr. Mortier. Rev. Myc. 1882, p. 161. — Hyphis mycelicis cylindricis, repentibus, arachnoideis primum albis, demum pallide brunneis vel aurantiacis, dichotome ramosis, ramis exilibus, longis, septatis, anastomosantibus, persistentibus, indefinitis; hyphis sporangiferis cylindricis, sporangio unico præditis (?).

Hab. in calidariis ad humum, Lyon Gallia. — « Verisimiliter status abnormis *Spicariae arachnoideæ* Sacc. et Therr. Cfr. Syll. Hyph. p. 167 ».

7. **Mortierella polycephala** Coem. Quelq. Hyph. nouv. (Bull. Ac. Belg. 2^e ser., t. XV, 1^{re} part. p. 536). — Mycelio tenui continuo, dichotome ramoso, ramis longis, gracillimis; hyphis sporangiferis erectis, fasciculato-conjunctis, fusiformibus, 250 μ . altis, apice attenuatis, divisis; ramis brevibus, expansis, pyramidatis vel erecto-racemosis; sporangiis deciduis, hyalinis; sporis 4-20 ovatis aut globosis, hyalinis, nucleo magno præditis.

Hab. in Polyporo perenni et in Dædalea in Belgio et Gallia, in fimo ursino, Boston Amer. bor. (FARLOW).

8. * **Mortierella crystallina** Harz Einige neue Hyphomyc. pag. 58, tab. 1, fig. 2. — Mycelio nullo; hyphis erectis, basi inflatis, sursum attenuatis ramosisque; sporangiis in apice hyphæ et 4-7 ramulorum solitarie acrogenis, 15-100 sporas gerentibus; sporis sphaericis, 7-8 μ . diam., hyalinis, episporio crassiusculo.

Hab. in Tramete suaveolente nec non in foliis putridis Quercus et Fagi prope Berlin Germaniæ. — Mycelio deficiente et sporis æqualibus a *Mortierella polycephala* Coem. differt. sed sec. cl. Van Tiegh. Ann. Sc. Nat. 1873, p. 353 non distincta.

0. **Mortierella reticulata** Van Tiegh. et Le Mon. Rech. sur les 757
Mucorinées p. 348, tab. 24, fig. 90-98, Ann. des Sc. Nat. 1873. —
Hyphis sporangiferis erectis, continuis, 150 μ . altis, basi incrassatis,
sursum parum attenuatis, sporangio crasso, sphaeroideo terminatis
et ramosis, ramis brevissimis, horizontalibus, sæpe 2 suboppositis,
sporangio donatis; sporangiis globosis, 2-8, sæpe 4 sporas continen-
tibus; sporis magnis, pulcherrime reticulatis, valde inæqualibus,
episporio distincto præditis, uni-magni-guttatis, 16-24 μ . longis.
Hab. in fimo equino et in reliquiis cerevisiæ loco humido ser-
vatis, socio *Dictyostelio mucoroide*, Paris Galliæ.
0. **Mortierella echinulata** Harz Einige neu. Hyph. Bull. Soc. nat. 758
Moscon. 1871, t. XLIV, p. 145, *Mortierella polycephala* affinis,
a qua differt hyphis subinde e basi furcatis, sporangiis tantum, 4-6
rarius 8 sporas gerentibus; sporis crassioribus (12-15 μ . diam.),
globosis vel subglobosis, episporio minute echinulato.
Hab. gregarie in mycelio Mucorum plurimorum præsertim Mu-
coris stercorei prope Berlin Germaniæ et Wien Austriæ.
1. **Mortierella nigrescens** Van Tiegh. Trois. Mém. sur les Mucor. 759
Ann. des Sc. Nat. 1876, p. 380, tab. 13, fig. 91-104. — Mycelio
arachnoideo, lanoso, albo, dichotome ramoso, demum brunneo, septa-
to; hyphis sporangiferis ex filamentis mycelicis extremis oriundis,
erectis, 1-1½ mm. altis, sursum sensim attenuatis, sporangio glo-
boso terminatis, ramosis, ramis et ramulis basi leniter incrassatis,
ut in *M. Candelabro* dispositis, in sporangium sphaeroideum de-
sinentibus; sporangiis ab hyphis septulo convexo divisus hyphisque
adfixis; sporis minutis cylindraceo-rotundatis vel reniformibus, 6-8
≈ 3-4, inæqualibus, hyalinis.
Hab. in fungis carnosis putrescentibus, Paris Galliæ.
2. **Mortierella minutissima** Van Tiegh. Trois. Mém. sur les Mucor. 760
Ann. des Sc. Nat. p. 385, tab. 13, fig. 89-90. — Minuta, *M. reti-
culata* gracilior; hyphis sporangiferis erectis sursum attenuatis,
0,1 mm. altis, basi appendiculis mycelicis destitutis, sæpe biramosis,
continuis, sporangio sphaeroideo terminatis; ramis obclavatis, sim-
plicibus, sporangium oligosporum gerentibus; sporis globosis, quan-
doque leniter irregularibus, levibus, granulosus vel nucleo magno
repletis, 8-10 μ . diam., hyalinis.
Hab. in Dædalea sub campana vitrea studio servata, Paris
Galliæ.
3. **Mortierella Candelabrum** Van Tiegh. Le Monnier Rech. sur les 761
Mucor. p. 348, tab. 24, fig. 99-102. — Mycelio tenui, dichotome

ramoso, albo; hyphis sporangiferis erectis, basi incrassatis, primum simplicibus dein ramosis, ramis quoque ad basim incrassatis, primo horizontaliter expansis demum erectis, sursum attenuatis, sporangium sphaericum gerentibus; sporis minutis sphaeroideis, episporio tenui glabro, sæpe uniguttulatis, 4-10 μ . diam. hyalinis, stylosporis sphaeroideis, echinatis, 16-20 μ . diam.

Hab. in reliquiis cerevisiæ loco udo servatis, Paris Galliæ. — Var. **minor** Grove New or Not. Fung. pag. II, in Journ. of Bot. p. 129, tab. 256, fig. 2: hyphis sporangiferis, ramosis, 1-5 mm. altis, supra basim longe ascendentibus, subulatis, ramis ut in *M. Candelabro* dispositis; sporis sphaericis, levibus, 10-12 μ . diam., hyalinis. In lignis putrescentibus, Sutton Britanniæ.

14. **Mortierella biramosa** Van Tiegh. Ann. des Sc. Nat. 1875, p. 110, tab. 2, fig. 77-81. — Hyphis sporangiferis erectis, basi incrassatis, sporangio sphaeroideo terminatis, 0,8-1 mm. altis, ramosis, ramis duobus raro quattuor vel quinque patentibus. primum horizontaliter expansis demum erectis; ramulis verticillatis, simplicibus, ex parte inflata hyphæ orientibus, sporangiolo terminatis; sporis valde inæqualibus, sphaeroideis, 6-9 μ . diam., hyalinis; stylosporis globosis muricatis, 9-10 μ . diam.

Hab. in fimo murino, Paris Galliæ. — *M. Candelabro* affinis.

15. **Mortierella Ficiariæ** Therry et Thierry Nouv. espec. de Muc. du 76 gen. *Mortierella* Revue Myc. 1882, p. 160, pl. XXX, fig. 1, a-g. — Mycelio repente, arachnoideo, lanato, albo, indefinito, filamentis irregulariter ramosis, dichotomis, ramis longis, septatis, anastomosantibus, sinuosis; hyphis sporangiferis erectis, in filamentis mycelicis indistincte insertis, simplicibus vel sursum furcatis, 2-7 septatis, basi inflatis coloratisque, ramis sursum 2-5 apiculatis, apiculis sporangio sphaeroideo, cuticula tenui præditis; sporis numerosis ovoideis vel ellipticis, flaveolo-cærulescentibus, gelatinoso-congestis.

Hab. in foliis vivis Ficiariæ ranunculoidis, Lion Galliæ.

16. **Mortierella diffluens** Sor. Ueber die Wirkung des Lichtes auf die 76 Pilze. — Sporangiiis 15-18 sporas gerentibus, rimulosis, in aqua mox diffluentibus; sporis 9-10 μ . diam., episporio crasso, hyalinis.

Hab. ad Mucorem Mucedinem in Rossia.

17. **Mortierella Rostafinskii** Bref. in Sitz. Ges. naturf. Fr. Berl. 1876. 76 — Sporangiiis globosis, columella destitutis, numerosis; mycelio subprofuso; zygosporis 1 mm. latis, membrana crassa instructis.

Hab. in fimo equino in Germania.

HERPOCLADIUM Schroet. Krypt. Fl. Schles. Pilze p. 213 (Etym. ab *herpo* repo et *clados* ramus). — Hyphæ sporangiferæ æquales, arctissime adhærentes, ramosæ. Sporangia apice ramorum lateralium sita, globosa, columellâ destituta. Sporæ ellipticæ, hyalinæ.

1. **Herpocladium circinans** Schroet. Krypt. Fl. Schles. Pilze p. 213. 766
— Hyphis circ. 40 μ . latis, ramis sæpe spiraliter contortis; sporangiis globosis, 200 μ . plerumque diam., albis, tunica levi; columella obsoleta; sporis ellipsoideis, minutissimis, 3,5-4 $\approx$ 2-2,5, hyalinis.

Hab. in fimo leporino nec non ad Muscos truncosque etc. in Germania.

Subfam. 5. Synccephalideæ VAN TIEGH.

Hyphæ mycelicæ tenues, anastomosantes; sporangia cylindræa, simplicia vel ramosa, columellâ destituta; sporæ seriatae.

PIPTOCEPHALIS De Bary et Woron in Bain. Observ. Mucor. p. 91 (Etym. a *pipto* cado et *cephale* caput). — Hyphæ sporangiferæ pluries furcatae. Ramuli ultimi apice rotundati vel acuti, vesiculam inflatam gerentes. Vesicula plerumque tuberculigera, sporangia numerosa cylindræa gerens. Sporæ cylindrææ vel sphæroideæ, subhyalinæ.

Clavis analytica specierum.

- A) Hyphæ sporangiferæ primo repentes, dein erectæ.
 - † Sporæ cylindricæ.
 - P. repens*. Vesicula sporangifera magna, piriformis.
 - P. microcephala*. Vesicula sporangifera minutissima, subtriangularis.
 - †† Sporæ fusiformes.
 - P. fusispora*. Vesicula sporangifera globosa.
 - B) Hyphæ sporangiferæ jam ab initio erectæ, sine rhizoidibus.
 - † Sporæ cylindricæ. Vesicula sporangifera irregulariter tuberculosa.
 - P. arrhiza*. Ramuli ultimi bilobi. Sporæ 4-5 μ . latæ.
 - P. Freseniana*. Ramuli ultimi simplices. Sporæ 2,5-3,5 μ . latæ.
 - P. cylindrospora*. Ramuli ut in *P. Freseniana*. Sporæ 2 μ . latæ.
 - †† Sporæ sphaericæ.
 - P. sphærospora*. Vesicula globosa, sursum tuberculigera. Sporæ 2-3 μ . latæ.

1. **Piptocephalis repens** Van Tiegh. et Le Monn. Rech. sur les Mucorinées p. 364. tab. 25, fig. 107-109. — Mycelio repenti, stolones dichotome ramosos hinc inde hyphas fertiles gerentes emittente; hyphis fertilibus erectis, basi penicillo hypharum mycelicarum ra-

diantium, septatarum cinctis, primo hyalinis dein longitudinaliter brunneo-striatis, septatis, dichotome ramosis, ramis extimis patentibus, apice vesiculoso-inflatis; vesicula piriformi, tuberculigera, caduca; sporangiis cylindraceutis, tuberculis insertis; sporis catenulatis, cylindraceutis, longitudine variis, 3-4 μ . crassis, hyalinis.

Hab. in fimo equino in Gallia (Cornu).

2. **Piptocephalis microcephala** Van Tiegh. Ann. des Sc. Nat. 1875, p. 147, tab. 4, fig. 146-153. — Mycelio repente, albo, arachnoideo, ramoso; hyphis sporangiferis erectis, dichotome ramosis, septatis, ramis extimis brevibus, patulis, vesicula triangulari, minuta 3-4 μ . diam., tuberculigera terminatis; sporangiis cylindraceutis, brevibus, 1-2-sporis, tuberculis insertis; sporis cylindraceutis, utrinque truncatis, 6 $\approx$ 3, hyalinis.

Hab. in fimo leporino parasitice in Pilobolo rorido, Paris Gallie. — Hyphæ fertiles basi septatæ, longitudinaliter brunneo-striatæ.

3. **Piptocephalis fusispora** Van Tiegh. Ann. des Sc. Nat. 1875, p. 146, tab. 4, fig. 137-145. — Mycelio arachnoideo, albo, dichotome ramoso, repente; hyphis fertilibus erectis, 15 μ . diam., ramosis, ramis 4 inferioribus et 3 mediis subverticillatis, extimis 2 minutis, 1-2 μ . diam., apice vesiculoso-inflatis, vesicula globosa, ad basin septata, demum dilabente, 5-7 μ . diam., tubercula minuta gerente; sporangiis cylindraceutis tuberculis insertis, oligosporis; sporis late fusoides vel ovato-acuminatis, 3-4 $\approx$ 2, hyalinis.

Hab. in Helvella crispa putri parasitice in hyphis Mucoris ejusdem. — Hyphæ sporangiferæ demum longitudinaliter brunneo-striatæ. Affinis *P. repenti*.

4. **Piptocephalis arrhiza** Van Tiegh. et Le Monn. Rech. sur le Mucor. p. 366, tab. 25, fig. 110-111. in Ann. des Sc. Nat. 1875. — Mycelio stolones repentes non emittente, hyphis fertilibus erectis, striis roseis longitudinalibus, latiusculis signatis, dichotome ramosis, ramulis extimis brevissimis et altero alteri valde appropinquato, vesiculoso-inflatis; sporangiis cylindraceutis; sporis quam in *P. repente* brevioribus latioribusque, 4-5 μ . crassis.

Hab. in fimo equino, socio *Mucore Mucedine* et *Chytocladio Jonesii*, Paris Gallie. — Affinis *P. Fresenianæ*, a qua differt sporis latioribus. Rami extimi dichotomi ita appropinquati sunt, ut tantum unum apice bilobum simulent.

5. **Piptocephalis Freseniana** De Bar. et Woron. in Bain Observ. sur

les Mucor. p. 91, Schroet. Krypt. Flor. Schles. p. 215. — Mycelio adnato, repente, haustoriis mollibus, stipatis instructo; hyphis fertilibus 6-8-furcatis, primo albis, dein brunneolis et parallele striolatis, apicibus ramorum angulo acuto patentibus, obtuse acutis; vesicula conica, sursum expansa et lacerata; sporangiis numerosis cæspitose vel capitulatim vesicula insertis, sessilibus, cylindræis, plerumque 5-6-sporis, $2,5-3,5 \approx 2,5-3,5$, maturitate pallide brunneis; sporis cylindræis $4-5 \approx 2,5-3,5$; zygosporis globosis, 30 μ . diam., episporio granulato, atro-brunneo.

Hab. ad Mucorem Mucedinem in fimo plurimorum animalium in Gallia et Breslau Germaniæ. — Var. **cruciata** (Van Tiegh.) Schroet. Krypt. Flor. Schles. p. 215, *Piptocephalis cruciata* Van Tiegh. Ann. des Sc. Nat. 1875, p. 149, tab. 4, fig. 154-159: a typo differt vesicula margine profunde laciniata, ut a vertice conspecta cruciatim divisa appareat. Ramuli ultimi profunde dichotomi. Cum specie typica.

6. **Piptocephalis cylindrospora** Bain. Ann. des Sc. Nat. 1883, p. 92, 772 tab. 5, fig. 15-17. — Hyphis fertilibus erectis, dichotome ramosis, ramis patulis, ramulis extimis, apice vesiculoso-inflatis; vesiculis globosis tuberculigeris, sporangia cylindræa, radiantia, oligospora, verrucis inserta, 25 μ . longa gerentibus; sporis cylindræis, utrinque truncatis, $4 \approx 2$, hyalinis.

Hab. in substantiis putrescentibus præcipue (in farina lini) in Gallia. — Totus fungillus demum luteo-brunneo-coloratus.

7. **Piptocephalis sphærospora** Van Tiegh. Nouv. Rech. sur les Mucorinées, p. 150, tab. 4, fig. 160-164. — Hyphis fertilibus erectis, demum brunneis, parce dichotome ramosis, 0,5 mm. altis, ramulis extimis apice vesiculoso inflatis, vesicula basi septata, sursum tuberculigera, sphæroidea, 6 μ . diam., demum caduca. sporangiis cylindræis, tuberculis insertis, radiantibus; sporis sphæroideis, hyalinis, 2-3 μ . diam.

Hab. in stercore felino parasitice in mycelio Mucorum nec non Chaetocladii Jonesii, Paris Galliæ. Inter omnes species minima.

SYNCEPHALIS Van Tiegh. et Le Monnier in Ann. Scienc. Nat. 1873, p. 372, (Etym. a *syn* cum et *cephale* caput). — Mycelium molle, anastomosans. Conidia sæpius numerosa, globosa, in ramulis lateralibus inserta. Hyphæ sporangiferæ mycelio valde crassiores, simplices, subinde apice furcate et in vesiculam tuberculigeram sporangiferam abeuntes. Sporangia simplicia vel 2-pluri-partita. Spo-

ræ seriatae in quoque sporangio membranaque hujus tectæ. Zygo-sporæ parvæ, globosæ, apice duorum ramulorum suspensæ.

Clavis analytica specierum.

A) Hyphæ sporangiferæ rectæ.

† Solitariae.

§ Sporangia omnia simplicia seu indivisa.

* Sporæ bacillares vel cylindraceo-fusoideæ.

S. sphaerica. Sporæ $8-9 \approx 3-4$; hyphæ sporangiferæ basi inflatæ, sursum attenuatæ.

S. pendula. Sporæ $4 \approx 2$; hyphæ sporangiferæ ut in *S. sphaerica*.

S. fusigera. Sporæ $35-44 \approx 8,5$; hyphæ sporangiferæ medio parum inflatæ.

** Sporæ sphæroideæ.

S. ventricosa. Sporæ 3 μ . diam.; hyphæ basi sphæroideo-ventricosæ, apice haud furcatæ.

S. furcata. Sporæ $6 \approx 3$; hyphæ basi sensim incrassatæ, apice furcatæ.

§§ Sporangia omnia ramosa.

* Dichotoma.

a) Spora basalis symmetrica.

S. cordata. Sporangia numerosa; sporæ $8-10 \approx 5-6$.

S. tetrathela. Sporangia tantum 4; sporæ 4 μ . diam.

b) Spora basalis unilaterialis.

S. asymmetrica. Sporæ $5-6 \approx 4$.

** Polytoma.

a) Spora basalis transverse linearis.

S. depressa. Sporæ $5-6 \approx 3$.

b) Spora basalis conica.

S. minima. Hyphæ cylindraceæ, continuæ; sporæ $6 \approx 1-2$.

S. nodosa. Hyphæ primo æquales, dein hinc illinc annulatim nodosæ; sporæ $8-10 \approx 6$.

§§§ Sporangia partim simplicia, partim ramosa, commixta.

S. intermedia. Tantum basi ramosa; sporæ $6-12 \approx 6$.

S. ramosa. Basi et sursum etiam ramosa; sporæ $6-12 \approx 6-8$.

†† Fasciculatæ.

S. fasciculata. Sporæ $6 \approx 4$.

B) Hyphæ sporangiferæ incurvæ.

S. Cornu. Hyphæ sporangiferæ e basi attenuata sursum dilatatæ et cornus ad instar incurvatæ; sporæ $10-12 \approx 4-5$.

S. nigricans. Hyphæ sporangiferæ subæquales, cornus fere ad instar incurvatæ; sporæ $6 \approx 4$.

S. reflexa. Hyphæ sporangiferæ subæquales, lunatim mox curvatæ; sporæ $7-8 \approx 3-4$.

1. *Sincephalis sphærica* Van Tiegh. Nouv. Rech. sur les Mucorinées 77 in Ann. Scionc. Nat. 1875, p. 125, t. III, 105-109. — Hyphis sporangiferis achrois, erectis, circiter 420-720 μ . altis, basi 28 μ . lata inflatis, sursum sensim attenuatis, apice 8 μ . cr., subito in sphæ-

ram perfectam (40 μ . lat.), filamenta simplicia superne radiatim exerentem, dilatatis; filamentis intus sporas seriatas generantibus; sporis cylindricis, 8-9 $\approx$ 3-4, hyalinis.

Hab. in fimo equino, sociis Mucoribus, in Gallia. — A. L. de-
pressa differt forma hyphæ sporangiferæ et absentia ramificationis:

2. **Syncephalis pendula** Van Tiegh. Trois. mém. sur les Mucor. p. 388, 775
tab. 13, fig. 112-113. — Hyphis sporangiferis erectis, basi demum septatis, sursum sensim attenuatis, apice vesiculoso-inflatis; sporangiis cylindraceis, tenuibus, longiusculis, primo erectis, dein pendulis, apice vesiculæ insertis, 20-40-sporis; sporis cylindraceis, utrinque truncatis, catenulatis, minutis, 4 $\approx$ 2, hyalinis.

Hab. in Sphagno udo, parasitica in hyphis Absidiæ repentis, Paris Galliae. — Affinis *S. sphaericæ*. Ab omnibus speciebus longitudine sporangiorum nec non magnitudine sporarum clare distinguitur.

3. **Syncephalis fusigera** Bain. Ann. Sc. Nat. 1883, pag. 98, tab. 6, 776
fig. 18-20. — Mycelio repente, septato; hyphis sporangiferis erectis, medio parum inflatis, 2,5 mm. longis sursum in vesiculam inflatis; sporangiis cylindraceis, papilla insertis, bisporis; sporis fusoides, 35-44 $\approx$ 8,5.

Hab. inter muscos ad stipites Agaricorum, Paris Galliae.

4. **Syncephalis ventricosa** Van Tiegh. Nouv. Rech. sur les Muc. in 777
Ann. Scienc. Nat. 1875, p. 133, t. III, 132-135. — Hyphis sporangiferis erectis, tenuibus, basi crasse ovoideo-v. sphaeroideo-ventricosis, apice vesiculoso-inflatis, vesiculis sursum applanatis; sporangiferis, sporangiis cylindraceis, verrucis insertis, in fasciculum cylindraceo-conicum collectis; sporis minutis, sphaeroideis, catenulatis, 3 μ . diam., hyalinis.

Hab. in mycelio Mucorum in stercore canino evolutorum, Paris Galliae. — Hyphis basi ventricosis ab omnibus speciebus distinguitur.

5. **Syncephalis furcata** Van Tiegh. Trois. mém. sur les Mucor. p. 386, 778
tab. 13, fig. 108-109. — Parva, 250 μ . alta; hyphis sporangiferis erectis, basi sensim incrassatis, apice furcatis; ramis apice vesiculoso-inflatis, vesiculis sursum minute verrucosis; sporangiis brevibus 4-5-sporis, cylindraceis, radiantibus, verrucis insertis, sporis ovoideo-truncatis, 6 $\approx$ 3, hyalinis.

Hab. in fimo equino parasitica in hyphis Mucorum, Paris Galliae. — Hyphis bifurcatis ad Piptocephalim appropinquat. A ceteris *Syncephalibus* vero statim distinguitur.

6. **Syncephalis cordata** Van Tiegh. et Le Monn. Rech. sur les Mucor. p. 374, tab. 25, fig. 112-119, Schroet. Pilze p. 216. — Cæspitulo flavo; hyphis sporangiferis 2-3 mm. altis, basi circ. 40-50 μ . latis, e rhizoidibus dichotomis, uncinatis, stipatis exsurgentibus, sursum attenuatis, apice conico-inflatis, usque ad 66 μ . diam., flavidis; vesicula sursum tuberculigera, monosporangifera, sporangio in ramos duos cylindraceos diviso; basidiosporis ovatis vel cuneatis, subinde cordatis; sporangiis cylindraceis 60-80 $\approx$ 5-6 flavis; sporis 8-10 $\approx$ 5,6, episporio levi, flavescente.

Hab. plerumque in fimo, Paris Galliae et Breslau Germaniae. — Huc spectat, sec. cl. Schroeter, *Syncephalis asymmetrica* Van Tiegh. et Lemonn.

7. **Syncephalis tetrathela** Van Tiegh. Nouv. Rech. sur les Muc. in Ann. Scienc. Nat. 1875. p. 134, t. III. 102-104. — Minima, vix 40-50 μ . alta; hyphis sporangiferis, erectis, cylindraceis, apice vesiculoso-inflatis, vesiculis sursum applanatis, hemisphaericis, 4-tuberculigeris; tuberculis sporangia gerentibus; sporangiis e basi furcatis, cylindraceis, oligosporis; sporis sphæroideis, pallide flavis v. subhyalinis, 4 μ . diam., catenulatis.

Hab. in fimo equino, parasitice in hyphis Mucorum, Paris Galliae.

8. **Syncephalis asymmetrica** Van Tiegh. et Le Monnier Rech. sur les Mucor. p. 375, tab. 25, fig. 120-121. — Flava, dein brunnea; hyphis sporangiferis 600-1000 μ . altis, sursum vesiculoso-inflatis, tuberculis asymmetrice evolutis, bisporangiferis; sporangiis cylindraceis, 3-5-sporis; sporis medio inflatis, ovoideis, utrinque truncatis, 5-6 $\approx$ 4, primo pallide luteis dein brunneis.

Hab. in fimo equino, Paris Galliae et Breslau Germaniae. — An var. minor *S. cordata*, ut cl. Schroeter opinatur?

9. **Syncephalis depressa** Van Tiegh. et Le Monn. Rech. sur les Mucor. p. 375, tab. 25, fig. 122-123. — Hyphis sporangiferis hyalinis, brevibus, $\frac{1}{2}$ mm. diam., apice vesiculoso-inflatis, basi sensim incrassatis; tuberculis conoideis, apice applanatis, sporangiis verrucis tuberculorum insertis; sporis cylindraceis, medio minus latis, utrinque nucleatis, 5-6 $\approx$ 3, hyalinis.

Hab. in fimo equino, Paris Galliae.

10. **Syncephalis minima** Van Tiegh. et Le Monn. Rech. sur les Mucorinées p. 376, tab. 25, fig. 126-128. — Minuta; hyphis sporangiferis erectis, basi mycelio brevi, crassiusculo, repente præditis, continuis, subcylindraceis, sursum plano-dilatatis, 100 μ . longis; sporangiis tuberculis pro ratione magnis, obconoideis, 2-5 inser-

tis, cylindraceis, divergentibus; sporis cylindraceis catenulatis, utrinque truncatis, $6 \approx 1-2$, hyalinis.

Hab. in fimo equino, socio sæpe Mucore Mucedine, Paris Galliae et pr. Bruxelles in Belgio.

11. **Syncephalis nodosa** Van Tiegh. Nouv. Rech. sur les Mucor. in 784
Ann. Scienc. Nat. 1875, p. 131, t. III, 123-131, Bainier Observ.
sur les Muc. in Ann. Sc. Nat. 1883, p. 96, t. VI, 12-17. — Hyphis sporangiferis 120-150 μ . altis, 9-10 μ . latis, prima ætate æquilatis, dein hinc illinc annulato-inflatis, sursum vesiculoso-inflatis: vesicula 22 μ . lata, verruculis parvis orbiculatis instructa, plerumque 10-12 sporangifera; sporangiis 3-5 cylindraceis 25 μ . circ. longis; sporis rugosis, 8-10 ≈ 6 , rufis; conidiis globosis, 6 μ . diam., subtiliter granulosi, in hypharum mycelicarum ramulis laterali-bus insertis, mucronatis; zygosporis globosis, 21 μ . diam., verru-
culosis.

Hab. in stercore equino, elephantino, etc. ad Mucorineas pa-
rasitans, in Gallia, Belgio et Germania.

12. **Syncephalis intermedia** Van Tiegh. Rech. sur les Muc. in Ann. 785
Scienc. Nat. 1875, p. 127, t. III, 110-115. — Hyphis sporangiferis
flavis, subcylindricis basi inflatis, 400-600 μ . altis; apice vesicu-
loso-inflatis; cellulis basilaribus sporangiorum triangularibus: spo-
rangiis cellula basilari insertis, simplicibus vel sursum bifureatis
vel demum ad basim bifureatis, at tum cellula basilari asymme-
trica, cylindraceis, oligosporis; sporis cylindrico-rotundatis, 6-12
 ≈ 6 , brunneis.

Hab. in fimo equino in Gallia.

13. **Syncephalis ramosa** Van Tiegh. Nouv. Rech. sur les Mucor. in 786
Ann. Sc. Nat. 1875, p. 129, t. III, 116-119. — Hyphis sporangi-
feris 500-600 μ . altis, primo flavis, demum rufescentibus, cylin-
dricis, apice vesiculoso-inflatis; sporangiis e tuberculis conoideis,
verrucis insertis orientibus, simplicibus vel e basi furcatis, subinde
ramosis; tuberculis 1-3 sporangia gerentibus; sporis inæqualibus,
extremis majoribus, ovoideo-sphæroideis vel subcylindraceis, 6-
12 $\approx 6-8$.

Hab. in stercore canino, Paris Galliae.

14. **Syncephalis fasciculata** Van Tiegh. Nouv. Rech. sur les Mucor. 787
rinées in Ann. Sc. Nat. 1875, p. 130, t. III, 120-122. — Hyphis
sporangiferis fasciculatis, albidis, 300-400 μ . altis, basi 16-20 μ .
lata, sursum attenuatis, 4-6 μ . latis, in vesiculam sphæroideo-de-
pressam, 28 μ . latam, verruculosam inflatis; sporangiis oligospo-

ris, cylindraceis, cellulis cordiformibus e verrucis orientibus insertis, simplicibus vel furcatis; sporis cylindraceis, utrinque truncatis, $6 \approx 4$, hyalinis.

Hab. locis udis vel in aqua, Paris Galliae.

15. **Syncephalis Cornu** Van Tiegh. et Le Monn Rech. sur les Mucor. p. 376, t. 25, fig. 124-125, Schroet. Krypt. Fl. Schles. p. 217, *Syncephalis curvata* Bain. in Ann. Scienc. Nat. 1883, p. 93, t. VI, f. 1-11. — Hyphis sporangiferis 170-200 μ . altis, rhizoidibus brevibus, hyalinis, subrevolutis, basi 11 μ . latis, sursum 26 μ ., dein sursum constrictis, circ. 9 μ . latis, demum in vesiculam globosam tuberculigeram, 30-33 μ . diam. abeuntibus; sporangiis vesicula suffultis, simpliciter cylindricis, subsexsporis; sporis ellipticis, 10-12 $\approx$ 4-5, episporio crasso, flavido; zygosporis globosis, 24-28 μ . diam., episporio verrucoso flavo-brunneo.

Hab. ad Mucorineas in fimo pr. Paris Galliae et Breslau Germaniae.

16. **Syncephalis nigricans** Van Tiegh. Trois. Mém. sur les Mucor. p. 387, tab. 13, fig. 110-111. — Hyphis sporangiferis erectis, cylindraceis sursum incurvatis apice vesiculoso-inflatis, basi incrassatulis primo hyalinis, dein brunneis, 80 μ . altis; sporangiis verrucis insertis, cylindraceis, radiantibus; sporis ovoideis, $6 \approx 4$, brunneis, catenulatis.

Hab. in fimo equino, parasitice in hyphis Mucorum, Paris Galliae. — Affinis *S. Cornu*.

17. **Syncephalis reflexa** Van Tiegh. Nouv. Recherch. sur les Mucor. in Ann. Sc. Nat. 1875, p. 134, t. III, fig. 96-101, Schroet. Krypt. Flor. Schles. Pilze p. 217. — Hyphis plerumque 100-120 μ . altis, rhizoidiferis, 9-12 μ . crassis, subæqualibus, apice in vesiculam inflatis reflexisque; vesicula globosa, media superiori parte verruculosa, 40-45 μ . lata; sporangiis simplicibus, cylindraceis, 35 μ . circ. longis; sporis elliptico-cylindraceis, 7-8 $\approx$ 3-4, levibus, flavidis; stylosporibus ut in *S. nodosa*.

Hab. in fimo, Paris Galliae et Breslau Germaniae.

SYNCEPHALASTRUM Schroet. Krypt. Flor. Schles. Pilze pag. 217 (Etym. a *syn* cum, *cephale* caput et *astrum*). — Mycelium æquilatum, ramosum, citra substratum expansum. Hyphæ sporangiferae erectae, basi rhizoidibus destitutae, ramosae, ramis capitulato-inflatis. Sporangia cylindracea. Sporae subglobosae, seriatæ, hyalinæ.

1. **Syncephalastrum racemosum** Cohn in Schroet. Krypt. Fl. Schles. 70

Pilze pag. 217. — Cæspitulo albo; hyphis sporangiferis umbellatim ramosis, apicibus globoso-inflatis, ramis usque ad vesiculam haud attenuatis, circ. 13-16 μ . crassis, vesicula 33-35 μ . diam.; sporangiis subremotis, 20-25 $\approx$ 3-4,5; sporis subglobosis, 3-4 μ . diam., hyalinis.

Hab. inter Aspergillum Oryzæ in Oryza et pane, Breslau Germaniæ (E. FRANK).

Fam. 2. **Peronosporaceæ** DE BARY.

Hyphæ sæpe ramosæ, conidia sæpius zoosporiparâ, subinde directo germinantia gerentes; reproductio aut agamica per zoosporas vel per conidia directe germinantia, aut sexualis per oogonia et antheridia.

Clavis analytica generum.

A) Hyphæ conidiophoræ breves, intra matricem evolutæ. Conidia catenulata.

Cystopus. Conidia et oosporæ zoosporas gignentes.

B) Hyphæ conidiophoræ extra matricem per fissuras erumpentes evolutæque. Conidia solitaria.

‡ Hyphæ conidiophoræ parum ramosæ, primo tantum conidia acrogena, demum etiam pleurogena gerentes.

Phytophthora. Conidia zoosporas gignentia.

‡‡ Conidia semper tantum acrogena.

§ Hyphæ conidiophoræ ramulis terminalibus sensim brevioribus obtusisque instructæ. Conidia haud directe germinantia at zoosporas vel protoplasma ex toto evacuantia.

Sclerospora. Oosporæ episporio crasso tectæ. Zoosporæ evolutæ.

Plasmopara. Oosporæ episporio tenui tectæ. Conidia zoosporas vel protoplasma (ante germinationem) ex toto evacuantia.

§§ Hyphæ conidiophoræ pluries dichotomo-ramosæ; ramuli terminales subulato-uncinati. Conidia directe germinantia.

Bremia. Haustoria mycelii haud ramosa. Conidia per papillam apicalem germinantia.

Peronospora. Haustoria mycelii ramosa. Conidia papillâ destituta, lateraliter germinantia.

CYSTOPUS Lév. Sur les Ured. in Ann. Scienc. Nat. 1847, p. 371. (Etyim. a *cystis* vesica et *pus* pes). — Hyphæ conidiophoræ simplices, leves, cylindraceæ vel clavatæ, obtusissimæ, in ramis mycelii fasciculatæ atque in soros pulvinatos copiosissime congregatæ, singulæ apice conidorum seriem moniliformem gerentes. Sori epidermide plantæ nutriticis primo tecti, dein epidermidem dirumpentes et conidia matura dispergentes, candidi vel lutescentes. Co-

nidia aut omnino conformia, hyalina, zoosporas gignentia aut difformia, plurima hyalina zoosporipara, pauca autem, in monili terminalia, membrana crassiore sæpe lutescente tecta, aut germinando tubum simplicem protrudentia aut sterilia. Oospore globosæ, episporio plerumque reticulato vel verrucoso.

1. **Cystopus candidus** (Pers.) Lév. in Ann. Scienc. Nat. Ser. 3, 1847, t. VIII, p. 371, *Uredo candida* Persoon Syn. Fung. 233, *Cæoma candidum* Schlecht. Flor. Ber. II, p. 117, *Uredo Cheiranthi* Pers. Syn. Fung. 234, *Ur. candida* auct. plurim., *Erysibe sphaerica* Wallr. Fl. Crypt. germ., *Cystopus sphaericus* Bonorden in Rabenh. Fungi Eur., *Æcidium candidum* Pers., *Uredo Cruciferarum* De Cand. — Soris erumpentibus albis, variis; conidiis omnibus conformibus, globosis, 10-18 μ . diam., membrana circumcirca æquali, achroa; oosporis subglobosis, 35-40 μ . diam., episporio luteo-fusco, verrucis crassis, irregularibus, obtusis, interdum in cristas flexuosas confluentibus obsito, munitis.

Hab. in foliis, caulibus, pedicellis, floribus et pericarpio Cruciferarum, præcipue Capsellæ Bursæ-Pastoris, Erysimi cheiranthoidis, Echinospermi Lappulæ, Brassicæ Rapæ et B. nigræ. Evacis pygmææ, Sisymbrii Sophiæ, officinalis, Coronopi, Camellinæ sativæ, C. microcarpæ, Cardaminis stylosæ, amaræ et C. Africanæ. Lepidii runcifolii, L. Virginici, Senebieræ pinnatifidæ, Barbareæ strictæ, B. vulgaris, Diplotaxeos, Alyssi calycini, Dentariæ diphyllæ, Iberidis umbellatæ, Turritis glabræ, Nasturtii amphibii, N. palustris, N. silvestris, Arabidis arenosæ, A. Halleri, A. Gerardi, Ste-nophragmatis Thalianæ, Sinapis arvensis, Berteræ incanæ, Cochleariæ Armoraciæ, C. Groelandicæ, Thlaspeos arvensis, Teesdaleæ nudicaulis, Vogeliiæ paniculatæ, Rhaphani Rhaphanistri et R. sativi in Europa, Africa, Asia et America boreali et austr.

2. **Cystopus Tragopogonis** (Pers.) Schroet. Krypt. Flor. Schles. Pilze pag. 234, *Uredo Tragopogi* Persoon 1801. *Cystopus cubicus* De Bary Rech. sur le dev. in Ann. Sc. Nat. 4 sér. t. XX, pag. 132, tab. 1 et 2, *Uredo cubica* Strauss in Ann. Wetteraner Ges. f. Naturk II, p. 86, t. II, f. 3, *U. Tragopogonis* DC. Fl. Franc. II. *Uredo obtusata* Link. *U. candida* var. Persoon, et auct. plur., *Cystopus cubicus* Lév. Ann. Scienc. Nat. Ser. 3. t. VIII. — Soris epiphyllis et hypophyllis, globosis vel oblongis, compressis; coni-

diis difformibus, terminalibus ceteris plerumque majoribus, depresso globosis, sterilibus membrana valde crassa, subtus sæpe umbilicata, achroa, rarius lutescente præditi, ceteris zoosporiparis, breviter cylindricis, membrana hyalina, 20-22 μ . lata, annulo transverso incrassato munita; zoosporis lenticularibus, compressis; oosporis globosis, 45-55 μ . diam., episporio brunneo, verrucis cavis, rotundis vel varie lobatis minute tuberculatis dense obsito, præditi.

Hab. in foliis caulibusque *Tragopogonis pratensis*, *T. orientalis*, *Scorzoneræ humilis*, *S. hispanicæ*, *Centaureæ Jaceæ*, *C. Scabiosæ*, *Pyrethri Parthenii*, *P. lacinii*, *Filaginis germanicæ*, *F. apiculatæ*, *F. arvensis*, *F. minimæ*, *Inulæ salicinæ*, *I. britannicæ*, *Matricariæ nobilis*, *Gnaphalii uliginosi*, *Convolvuli macrorrhizi*, *Ipomææ trichocarpæ*, *Sonchi oleracei* et *Ambrosiæ artemisiæfoliæ*, in tota Europa, America boreali et Alger Africa.

3. ***Cystopus spinulosus*** De Bary in Rabenh. Fung. Europ. n. 479, 794
 Sur le dev. in Ann. Sc. Nat. sér. 4, t. XX, p. 133. — Soris erumpentibus, albis, hypophyllis et epiphyllis; conidiis ut in *C. Tragopogonis* subinde longioribus; oosporis globosis, brunneis, minute tuberculosis, solidis, valde prominentibus sæpe acute spinescentibus ideoque spinuloso-scaberrimis, ceteris *Cystopodis Tragopogonis*.

Hab. in *Cirsio arvensi*, *C. oleraceo*, *C. palustri* et *C. canadensi* in silvaticis prope Conegliano in Italia et Germania. — «An species a *Cystopode Tragopogonis* satis distincta?» Status conidiophorus et oogoniophorus in eodem fungo!!

4. ***Cystopus Portulacæ*** (DC.) Lév. Ann. S. Nat. 1847, p. 371, De Bary 795
 Rech. sur le dev. in Ann. Sc. Nat. 1863 Sér. 4, t. XX, p. 131, pl. III, f. 1-14, *Uredo Portulacæ* DC. Fl. Franc. II, *Erysibe quadrata* Wallr. Fl. Crypt. Germ. — Conidiis difformibus, terminalibus, ceteris plerumque majoribus, 22 μ . diam. membrana crassa flavescenti, basi sæpe umbilicata aut prorsus sterilibus, aut (sec. Tulasne) regulariter trisulcatis et germen tubulosum emittentibus; ceteris conidiis 14-17 μ . diam., zoosporiparis achrois, hyalinis, cylindrico-ovoideis, membrana circumcirca æquali; zoosporis lenticularibus, compressis; oosporis globosis, 45-60 μ . diam., atro fuligineis; episporio plicis tenuibus, parum elevatis, connexis laxè reticulato, præditi.

Hab. in pagina superiore (rarissime in inferiore) foliorum *P o r*-

tulacæ oleracæ et *P. sativæ* in Italia bor. nec non in Belgio, Germania, Gallia, Amer. bor. et Africa.

5. **Cystopus Lepigoni** De Bary in Rabenh. Fungi Eur. n. 483, Sur le dev. Ann. Sc. Nat. 1863, Sér. 4, tab. XX, p. 132, Fuckel Fung. Rhen. pag. 42, *Erysibe sphaerica* var. Wallr. Fl. Crypt. Germ. *Erysibe Arenariæ marinæ* Wallr. in Rabenh. Krypt. Fl. I, p. 13. — Soris conidiferis lutescentibus; conidiis difformibus, terminalibus globosis, sterilibus, membrana crassiuscula, ceteris zooopori-paris, subglobosis vel globoso-cylindricis, membrana hyalina, circumcirca æquali; zoosporis lenticularibus, convexis; oosporis globosis, episporio brunneo, tuberculis minutis, irregularibus valde convexis sæpeque in processus spinuliformes productis dense ob-sito præditis.

Hab. in *Arenaria media*, *A. marina* et *Spergularia rubra* pr. Kreuznack Bohemiæ, in Belgio, Germania et Britannia.

6. **Cystopus Bliti** (Biv.) De Bary in Ann. Scienc. Nat. 1863, Sér. 4, tab. XX, p. 131, *Uredo Bliti* Bivon. Bernhardt Stirp. sicul. III. 11, *Cœoma Amaranthi* Schwein? — Soris conidiophoris copiosis, albis vel lutescentibus; conidiis difformibus, terminalibus subglobosis, ceteris plerumque minoribus, sterilibus membrana crassa subachroa, subtus sæpe umbilicata munitis; ceteris obovoideis vel piriformibus, basi truncatis, apice late rotundatis, zoosporas gignentibus et ex apice aperto emittentibus, membrana hyalina an-nulum transversum incrassatum præbentem munitis; oogonis sphaericis, 65 μ . diam., ochraceis; oosporis sphaericis, 40-55 μ . diam., eximie elevato-areolatis, areolis 6-7 μ . diam., episporio brunneo plicis crebris angustis, parum elevatis, flexuosis, sæpe reticulato-connexis munito præditis.

Hab. in foliis caulibusque *Amaranthi hybridi*, *A. Bliti*, *A. retroflexi*, *Cyathulæ lappulacæ*, *Achnidæ can-nabinæ* et *Atriplicis* in Germania, Italia, Gallia, Belgio, Africa australi, Patagonia et America boreali.

7. **Cystopus Amaranthi** Schwein in B. et Br. North Am. Fungi n. 571. 79 — Hyphis conidiophoris sursum incrassatis; conidiis globosis, concatenatis.

Hab. in foliis *Amaranthi*, *Cyathulæ lappulacæ* in Carol. infer. et Albany Americæ borealis. — «An cum *C. Bliti* identicus?».

8. **Cystopus Capparidis** De Bary Rech. sur le dev. in Ann. Sc. Nat. 1863, Sér. 4, t. XX, p. 130, *Uredo candida* et *Capparidearum*

Rabenh. Krypt. Flor. I, p. 13. — Conidiis conformibus, globosis (in speciminibus siccis *C. candido* omnino similibus).

Hab. in foliis Capparidis rupestris et *C. spinosae* in agro Veneto nec non in Germania. — A *C. candido* non v. vix distinguendus.

9. **Cystopus pulverulentus** Berk. et Curt. Cuban. Fungi n. 602. — Soris ⁸⁰⁰
pulverulentis; conidiis oblongis, 1-8 μ . longis, uno latere gemmatis.

Hab. in foliis Compositarum in insula Cuba.

10. **Cystopus quadratus** Kalch. et Cooke in Grevillea. — Epiphyllus; ⁸⁰¹
soris albis, minimis, convexis; conidiis quadratis, 18-25, conidio ultimo subgloboso.

Hab. in Herpeste verticillari in Africa Austr.

PHYTOPHTHORA De Bary Research. pot. fung. Cfr. Journ. Bot. 1876 (Etym. a *phyton* planta et *phtheiro* vexo). — Mycelium in cellulas matricis, quas enecat, haustoriis sparsis vel nullis instructum. Hyphæ conidiophoræ plerumque parum ramosæ. Conidia primo acrogena dein etiam pleurogena, ovata, apice papillata, zoosporipara. Oosporæ globosæ, episporio subtenui, levi, brunneo tectæ.

1. **Phytophthora infestans** (Mont.) De Bary Research. nat. pot. ⁸⁰²
fung. in Journ. Agric. Soc. Ser. II, Vol. XII, p. I, n. 23, 1876 et in Journ. Bot. 1876, p. 105-126, 149-154; *Peronospora infestans* De Bary sur le dv. in Ann. Scienc. Nat. 1863, sr. 4, tab. XX, pag. 101, *Botrytis infestans* Mont. Mm. de l'Inst. 1845, p. 113, Sylloge p. 302; *B. devastatrix* Lib. sec. Duchartre Rev. Bot. I, 151; *B. fallax* Desm. Crypt. de France edit. 1492; *B. Solani* Harting Mal. des pomm. de terre, Amsterd. 1846 et Ann. Sc. Nat. VI, 1846; *Peronospora trifurcata* Ung. Bot. Zeit. DC. 1847, pag. 314; *P. Fintelmannii* Casp. Verhandl. d. Verein. Bef. d. Gartenb. Preuss. 1852, p. 327, *P. infestans* Casp. 1852 in Rabenh. Herb. Myc. n. 1879, *P. devastatrix* Casp. Monatsb. Acad. Berl. Mai 1855. — Hyphis mycelicis gracilibus, haustoriis semper fere destitutis; hyphis conidiophoris tenuibus, sursum sensim attenuatis, sub apice conidiophoro semel vel pluries vesiculoso-inflatis, superne ramos 1-5 sparsos stipitis primarii apici conformes patientesque gerentibus; ramis aut simplicibus aut rarius ramulo brevimunitis (stipes primarius rarissime omnino simplex occurrit); conidiis ellipsoideis vel ovoideis, 27-30 $\approx$ 15-20, apice papilla prominente munitis, zoosporas circ. 10 gignentibus; oosporis ignotis.

Hab. in Solanis, prcipue *S. tuberoso*, in tota Europa et

America. — Mycelium in tuberibus perennat, omnes partes herbarum invadit totamque plantam destruit. Hyphæ conidiophoræ præsertim e foliorum pagina inferiore emergunt, cæspites latos, albos ibiistentes. Oosporæ ignotæ. An fructificatio *Aristolrogi hydno-spori* Mont.? (Confr. De Bary Rech p. 105).

2. **Phytophthora Cactorum** (C. et L.) Schroet. Krypt. Fl. Schles. p. 236, *Peronospora Cactorum* Cohn et Lebert Beiträge zur Biol. d. Pflanzen I, p. 56, *Peronospora Fagi* Hartig, *P. Sempervivi* Schenk, *Phytophthora omnivora* De Bary. — Hyphis myceliis gracilibus nonnumquam torulosis, ramosis; ramis angulo recto patentibus, haustoriis destitutis; hyphis conidiophoris tenuibus unilateraliter parce ramosis, sub apicibus ramorum conidiferorum non raro vesiculoso inflatis; conidiis, in hyphis, paucis hyalinis, ellipsoideis vel ovatis, 50-60-90 $\approx$ 35-40, apice papilla prominente munitis, zoosporas usque ad 50 gignentibus; oogonis conglomeratis membrana tenui marcescente munitis, singulis oosporam singulam exacte globosam, 24-30 μ . diam., episporio valido luteo-fusco, pellucido, levi præditam foventibus.

Hab. in meatibus intercellularibus parenchymatis variorum Cactorum in Vratislavia aliisque in plantis: ex gr. *Sempervivo*, *Cleome*, *Clarkia*, *Alonsoa*, *Schizantho* etc., in Germania.

SCLEROSPORA Schroet. Krypt. Flor. Schles. Pilze p. 236 (Etym. a *scleros* durus et *spora*). — Hyphæ conidiophoræ erectæ, ramulis paucis instructæ, conidia ovata apice per papillam zoosporas evacuantia. Oosporæ globosæ, episporio crassissimo, pluristrato, brunneo.

1. **Sclerospora graminicola** (Sacc.) Schroet. Krypt. Flor. Schles. p. 236, *Peronospora graminicola* Sacc. in Michelia II, p. 586, *P. Setarice* Pass. *Ustilago Urbani* Magnus. — Hyphis dense gregariis, brevibus, continuis, subhyalinis, 80-120 $\approx$ 15-16. nunc sursum denticulatis tantum, nunc ramulos trifidos exerentibus; conidiis ellipsoideis, hyalinis, granulosiis, 12-20 $\approx$ 10-18.

Hab. in foliis *Setarice* viridis et italicae in Gallia, Italia et Germania et in Amer. bor. — Status oogoniophorus (*Protomyces graminicola* Sacc. M. V. n. 496): oosporis sub epidermide punctulatum tumidis nidulantibus dense gregariis, e globoso-angulosis, 40-42 diam., episporio crasso, intense ochraceo-fulvo, initio hyalinis, pluriguttatis. Dum oosporæ maturæ comprimantur, episporium finditur exitque, velut ab asco, endospora tota hyalina, perfecte sphæ-

rica, diam. 23 μ , ipsa crassiuscule tunicata, intus minute granulosa. Vegetatione, forma coloreque sporarum statuque conidico statim a *Prot. macrosporo* Ung. et *P. pachydermo* Thüm. dignoscitur. In foliis junioribus adhuc convolutis, quæ enecat, *Setariæ verticillatæ*, Selva Treviso Ital. bor., Borussiae etc.

PLASMOPARA Schroet. Krypt. Flor. Schles. Pilze pag. 236 (Etyrn. a *plasma* et *pario*), *Basidiophora* Roze et Cornu, *Gilletia* Sacc. et Penz. *Peronospora zoosporiparæ* et *plasmatomparæ* De Bary. — Mycelium crassum, haustoriis minutis vesiculosus vel ovatis, simplicibus instructum. Hyphæ conidiophoræ erectæ, parum ramosæ. Conidia plerumque papillata. Oosporæ globosæ, episporio tenui, levi, brunneo.

1. **Plasmopara entospora** (Roze et Cornu) Schroet. Krypt. Flor. Schles. 805
Pilze p. 237, *Basidiophora entospora* Roze et Cornu in Compt. rend. Acad. Scienc. 1869, vol. 68, *Gilletia spinuligera* Sacc. et Therry Michelia II, p. 587, *Peronospora simplex* Peck 31 Rep. on the St. Mus. p. 45. — Hyphis hypophyllis expansis in cæspitulos sordide albos, sæpe brunneos, tandem fere conglutinatis, cylindricis, continuis, subhyalinis, 150 $\pm$ 12-15, basi levissime inflatis, acutis fibrillisque parvis mycelicis instructis, apice leniter inflatis rotundatisque; sterigmatibus paucis (8-12) bacillaribus, sursum subincrassatis, 10 $\pm$ 1,7; conidiis ovatis, siccitate coffeiformibus, papillatis. 20-26 μ . diam., nubilosis, dilutissime flavido-hyalinis; microconidiis ovatis, 5-6 $\pm$ 4, hyalinis; zoosporis globulosis, subreniformibus, biciliatis; oogonis sphaericis, oosporam singulam episporio crasso præditam foventibus.

Hab. in pagina inferiore foliorum et in foliis radicalibus hyemalibus *Erigerontis Canadensis* et *Asteris Novæ-Angliæ* in Gallia, Belgio, Italia, Germania, Britannia et Amer. bor.

2. **Plasmopara viticola** (Berk. et Curt.) Berl. et De Ton. *Peronospora* 806
viticola (Berk. et Curt.) De Bary sur le dev. in Ann. Sc. Nat. 1863, ser. 4, t. XX, p. 125. *Botrytis viticola* B. et C. apud Caspary Monats. Berl. Acad. Mai 1855, Berkeley Krypt. Bot. p. 301, *Botrytis cana* Schw. in Herb. Schweinitz, non *B. cana* Link. — Hyphis mycelicis crassis, sæpe constrictis varicosisque haustoriis minutis, sphaericis, hyphis conidiophoris fasciculatim e stomatibus emergentibus, gracilibus, elatis, summo apice parum attenuato brevissime semel bisve dichotomis vel trifurcatis: sub apice ramos plerumque 4-6 (raro 3 vel 7) gerentibus; ramis primariis plerum-

que alternis, distantibus et exacte distichis, omnibus pro stipitis altitudine brevibus; inferioribus plerumque trifurcatis, divisionis iterum bis-trifurcatis vel quandoque bis-dichotomis; ramulis ultimi (quarti) ordinis æque ac stipitis divisionibus apicalibus, brevissime conico-subulatis rectis, acutis; ramis primariis superioribus minoribus, inferioribus, secundariis vel tertiariis conformibus; ramis omnium ordinum angulis rectis patentibus; conidiis ovoideis 17-23 $\approx$ 13-17, apice lato rotundatis vel subtruncatis, papilla destitutis, hyalinis; oogonis membrana tenui hyalina vel lutescente, oosporas subglobosas, 30-38 μ . diam., episporio tenui, fuscescente, diaphano, levi munitas foveis.

Hab. in foliis nec non in racemis *Vitis viniferae*, *V. æstivalis*, et *V. Labrusca* in Italia, Tyrolia, Gallia, Belgio, Carolina australi et Africa bor. — Microconidia globulosa (nec ovoidea) 5-6 μ . diam. (nec 14-15 $\approx$ 10-11) in apicibus ramulorum capitato-congesta longiusque stipitellata, hyalina, nubilosa rarius occurrunt.

3. **Plasmopara pygmæa** (Ung.) Schroet. Krypt. Flor. Schles. Pilze p. 239. *Peronospora pygmæa* Ung. Bot. Zeit. 1847, tab. VI, fig. 8, *Botrytis pygmæa* Unger Exanth. p. 172, *P. macrocarpa* Corda c. V, 52, tab. II, fig. 21, *P. Hepaticæ* Casp. Berl. Acad. Monatsb. Mai 1855. — Minuta griseo-brunnea; cæspitulis albidis; hyphis mycelicis crassis, sæpe constrictis et varicosis, haustoriis minutis, obovatis vel piriformibus; hyphis conidiophoris gracilibus fasciculatis (2-5 et pluribus) singulis sursum latioribus apice aut in ramulos 2-4 simplices, breves, conidiophoros divisos aut breviter bis dichotomis, ceterum omnino simplicibus, aut sub apice diviso ramos 1-4 breves, horizontaliter patente, semel, bis terve dichotomos gerentibus; ramulis ultimis cylindrico-conicis, conidiis delapsis subtruncatis; conidiis ovoideis vel ellipsoideis, 20-26 $\approx$ 15-19, apice latis et obtuse papillatis; oosporis globosis, 45-53 μ . diam., maturis oogonii membranam tenuem pallide luteo-fuscam, pellucidam omnino fere expletibus, episporio tenui, diaphano, pallide luteo-fusco, levi vel subrugoso, endosporio crasso, nitido munitis.

Hab. in foliis *Anemones nemorosæ*, *A. ranunculoidis*, *A. alpinæ*, *Pensylvanicæ*, *Hepaticæ trilobæ*, *Isopiri thalictroidis*, *Aconiti Napelli* in Gallia, Belgio, Germania, Britannia, Italia, Fennia nec non in America boreali.

4. **Plasmopara nivea** (Unger) Schroet. Krypt. Flor. Schles. Pilze p. 237, *Peronospora nivea* De Bary sur le dev. in Ann. Sc. Nat. sér. IV, t. XX. p. 105, *Botrytis nivea* Unger Exanth. pag. 171,

tab. II, 11! *B. macrospora* Ung. Exant. Berk. Ann. Magaz. nat. hist. ser. 2, vol. VII! *Peronospora nivea* Ung. Bot. Zeit. 1847, p. 314 ex parte, *Per. macrospora* Ung. ibid? *P. macrocarpa* Rabenh. Herb. myc. ed. I, n. 1172, *P. Conii* Tul. Compt. rend. 26, Jan. 1854, *P. Umbelliferarum* Casp. Berl. Acad. Monatsb. Mai 1855. — Hyphis mycelicis validis, sæpe torulosis, haustoriis numerosis, vesiculiformibus, obovatis; hyphis conidiophoris fasciculatis, 250–300 $\approx$ 8–9, humilibus, in apicem desinentibus aut simplicem, subulatum aut semel bisve breviter bifurcatum, rarissime trifurcatum, sub apice ramis 1–3–4 munitis, horizontaliter patentibus semel, his terve trifurcatis; ramis primi ordinis plerumque brevissimis, rarius elongatis, ultimis e basi lata subulatis, patentibus, rectis, raro subflexuosis; conidiis subgloboso-ovoideis, tenuiter tunicatis, raro subdexuosis; apice papilla obtusissima vix prominente munitis, 20–25 $\approx$ 15–17, hyalinis, dense granuloso-faretis; oogoniis irregulariter subglobosis, hyalinis vel pallide fusciscentibus, rigidiusculis; oosporis sphæroideis, levibus vel subrugosis, pallide luteo-fuscis, majusculis.

Hab. in foliis vivis Umbelliferarum variarum, præcipue Ego-podii Podagrariæ, Angelicæ silvestris, Anthrisci silvestris, Siilatifolii, Pimpinellæ magnæ, *P. saxifragæ*, Pastinacæ sativæ, Laserpitii latifolii, Heliosciadii leptophylli, Petroselini sativi, Selini curvifolii, Peucedani palustris, Dauci Carotæ, Conii maculati in Italia, Belgio, Gallia, Tyrolia, Germania, Britannia, Lapponia, Neerlandia, Suecia, Fennia, Argentina et Amer. bor.

5. **Plasmopara pusilla** (De Bary) Schroet. Krypt. Flor. Schles. Pilze 809 p. 237, *Peronospora pusilla* De Bary Rech. sur le dev. in Ann. Scienc. Nat. 1863, sér. IV, t. XX, p. 106, Hedw. 1864, n. 9, p. 132, *Botrytis nivea* Unger Exanth. p. 172 ex parte, *Peronospora pygmaea* Fuck. Enum. Fung. Nass. n. 180, Fung. Rhen. n. 26, *P. nivea* Ung. Bot. Zeit. 1847 ex parte. — Hyphis mycelicis validis, sæpe varicosis et torulosis, cæspites densissime niveos formantibus, haustoriis numerosis vesiculiformibus, obovatis; hyphis conidiophoris numerosissimis, plerumque 10–20 in fasciculum coalitis e stomatibus emergentibus, singulis brevibus 70–100 μ . altis, summo apice semel bisve dichotomis, raro trichotomis, sæpius pseudo-trichotomis, ramo primario altero bifurco, altero simplici; ramis omnibus brevissimis, 10–11 μ . longis, erecto-patentibus; secundariis rarissime iterum bifurcatis, ultimis sursum attenuatis, conidiis dela-

psis, truncatis; conidiis ovoideis vel obovoideis, valde inæqualibus, quandoque giganteis, 26-26, rarius 40 μ . longis, apice papillatis; oosporis globosis, 40 μ . diam., episporio flavo-brunneo.

Hab. in foliis vivis *Geranii silvatici* et *G. pratensis*, *G. palustris*, *G. phæi* in Helvetia, Fennia, Rhenogovia, Belgio, Germania, nec non in Silva nigra.

6. **Plasmopara Halstedii** (Farlow) Berl. et De Ton. *Peronospora Halstedii* Farlow Notes on of Ellis's North American fungi p. 72.

— Mycelio haustoriis numerosis, ovatis prædito; hyphis conidiophoris fasciculatis, minute pyramidatis, 300-750 $\approx$ 11-15, 2-4-ies pinnatis; ramis patentibus (?), ramis ultimis in 3-4 divaricatos ramulos corymboso-fastigiatos exeuntibus; conidiis ovatis vel ellipticis, tenui papilla munitis, 19-30 $\approx$ 15-26, hyalinis; oogoniis sphaericis, 30-40 μ . diam., oosporis sphaericis, 23-30 μ . diam., episporio luteo, inconspicue plicato, endosporio 3. μ .

Hab. in foliis *Eupatorii purpurei*, *E. ageratoidis*, *Ambrosiæ artemisiæfoliæ*, *A. trifidæ*, *Bidentis frondosæ*, *Rudbeckiæ laciniatæ*, *Silphii terebenthinacei* *S. integrifolii*, *S. trifoliati*, *S. perfoliati*, *Helianthi strumosi*, *H. occidentalis*, *tuberosi*, *H. doronicoidis*, *Solidaginis Riddellii*, *S. Canadensis* in America bor.

7. **Plasmopara Geranii** (Peck) Berl. et De Ton. *Peronospora Geranii* Peck 28 th. Report. N. Y. Bot. p. 63, *P. nivea* Ung. var. *Geranii* Farlow Bull. Russ. Inst. I, 426; Roc. Am. Acad. XVIII, p. 73. — Mycelio late effuso, haustoriis ovatis; hyphis conidiophoris brevibus et tenuibus, inferne nudis, sub apice paucos breves et horizontales ramos 1-2-ies pinnatos gerentibus; apicibus longe productis, gracilibus, divergentibus; conidiis late ellipsoideis 17-23 $\approx$ 15-18; oosporis, 30-40 μ . diam., episporio luteo-fusco, subrugoso præditis.

Hab. in foliis *Geranii maculati*, *G. Rorbetiani* et *G. caroliniani* in Amer. bor.

8. **Plasmopara obducens** Schroet. Fl. Schles. p. 238, *Peronospora obducens* Schroet. Hedw. XVI, pag. 129, Sept. 1877, Proc. Am. Acad. XVIII, pag. 70. — Mycelio varicoso, haustoriis latiusculis, spheroides; hyphis conidiophoris altis et gracilibus; ramis gracilibus flexuosisque, laxè 2-3 pinnatis, vage divergentibus, angulo acutiusculo insertis; apicibus acutis, mollibus; conidiis parvis, ovatis vel ellipsoideis, 15-20 $\approx$ 12-15, papillatis; oosporis 26-30 μ . diam., episporio luteo, leviusculo, 1-5 μ . crasso.

Hab. in foliis *Impatientis fulvæ*, *I. Nolitangeris*, *I. pallidæ* in Europa et Amer. bor.

9. **Plasmopara Epilobii** (Rabenh.) Schroet. Krypt. Flor. Schles. Pilze 813 p. 238, *Peronospora Epilobii* Rabenh. Fungi Europæi n. 1747. — Cespitulis albis, mollibus, plerumque maculiformibus. subinde hinc illinc expansis; hyphis conidiophoris erectis, 300–500 μ . altis, in apicem simplicem vel furcatum abeuntibus, 3–5 ramis lateralibus instructis; ramis patentibus, subhorizontalibus 3–5 furcatis; ramo terminali obtuso; conidiis globosis vel breviter ellipticis, 13–15 = 11–13, apice papillatis; oosporis ignotis.

Hab. in foliis *Epilobii parviflori* et *palustris* in Germania.

10. **Plasmopara densa** (Rabenh.) Schroet. Krypt. Flor. Schles. Pilze 814 pag. 239, *Peronospora densa* Rabenh. Herb. Myc. I, n. 1572. — Mycelio haustoriis vesiculiformibus instructo; cespitulis primo candidis, dein sordide flavescentibus; hyphis conidiophoris 200 circ. μ . altis, apice vel sursum in 2–3 ramos terminales divisus, in tertia superiori parte 1–3 ramos horizontales, 1–3 ramulis secundariis præditos gerentibus; conidiis ovatis vel subglobosis, 13–15 = 11–15, minute obtuseque apice papillatis; oosporis globosis, episporio tenui, flavido.

Hab. in foliis *Alectorolophi alpini*, *A. majoris*, *A. minoris*, *Bartschiæ alpinæ*, *Euphrasiæ pratensis* et *Odonitis* in Germania, Anglia, Neerlandia et Lapponia.

11. **Plasmopara ribicola** Schroet. Krypt. Flor. Schles. Pilze p. 238, 815 *Peronospora ribicola* Schr. in Jahresb. d. Schles. Gesellsch. f. 1883, p. 179. — Cespitulis tenuibus, albis, maculiformibus; hyphis conidiophoris rigido-erectis, 200–400 μ . altis, 3–5 ramis patentibus præditis, in apicem acutum plerumque abeuntibus; ramis vero 3–5 ramulos laterales gerentibus; conidiis breviter ellipticis, 15–20 = 11–13, papilla tenui instructis; oosporis ignotis.

Hab. in foliis *Ribis rubri* in Silesia Germaniæ.

BREMIA Regel in Botan. Zeitung 1843, pag. 665 (Etym. a cl. Bremer). — Mycelium haustoriis vesiculiformibus vel clavatis simplicibus instructum. Hyphæ conidiophoræ pluries dichotomo-ramosæ. Rami umbellati, ultimi apice in vesiculam tympaniformem vel turbinatam subglobosamve superne processus 2–8 conicos, breves, subulatos conidiophoros gerentem abeuntes. Conidia sphaerici-

dea, apice depresso papillata. Oosporæ globosæ. minutæ, episporio subrugoso, luteo-fusco.

1. **Bremia Lactucæ** Regel Bot. Zeit. 1843, St. 39, tab. III, *Peronospora gangliiformis* (Berk.) De Bary Rech. sur le dv. in Ann. des scienc. nat. 1863, 4 sr. XX, p. 108, *Botrytis ganglioniformis* Berk. Journ. Hort. Soc. Lond. 1, p. 51, tab. 4, *Peronospora ganglioniformis* Tul. Compt. rend. XXXVIII, 26 m. Jun. 1854, *Botrytis parasitica* var. *Lactucæ* Berk. Brit. Fung. n. 331, *B. Lactucæ* Ung. Bot. Zeit. 1847, p. 316, *B. geminata* Ung. l. c. p. 316, t. VI, f. 9, *B. sonchicola* Schlecht. Bot. Zeit. 1852, 620, *Actinobotrys Tulasnei* Hoffm. Bot. Zeit. 1856, 154, *Peronospora nva* Ung. pro parte Bot. Zeit. 1847, p. 313. — Hyphis mycelicis validis, nonnunquam torulosis; haustoriis vesiculiformibus obovatis vel clavatis; hyphis conidiophoris 2-6-ies dichotomis, quandoque trichotomis; stipite et ramis primariis gracilibus superne dilatatis vel inflatis, dichotomis ultimis apice inflatis in vesiculam tympaniformem vel turbinatam vel subglobosam e margine et facie superiore processus 2-8 conico-subulatos vesiculæ diametro plerumque breviores, conidia singula ferentes emittentem; conidiis minutis, subsphæroideis, 16-22 $\simeq$ 16-20 apice papillam latam depressamque gerentibus; oogonis conglomeratis; oosporis minutis sphæroideis 26-34 μ . diam., pellucidis, subrugosis, luteo-fuscis.

Hab. in foliis vivis Helichrysi chrysanthi, Senecionis vulgaris, Jacobææ hybridæ, Cirsii lanceolati, C. oleracei, C. cani, C. arvensis, Centauræ Jacææ, C. Cyani, Lampsanæ communis, Leontodontis autumnalis, L. hispidi, Tragopogonis pratensis, Hypochoeris glabræ, H. radicatæ, Mulgedii alpini, M. leucophæi, Lactucæ Scariolæ, L. sativæ, L. altissimæ, L. Canadensis, L. sagittatæ, L. crispæ, Nabali albi, Sonchi oleracei, Sonchi asperi, S. arvensis, S. fallacis, S. tingitani, Crepidis biennis, C. virentis, C. tectorum, C. paludosæ, C. grandifloræ, Hieracii Pilosellæ, H. stoloniflori, H. pratensis, H. murorum, H. vulgati, H. borealis, H. umbellati per totam Europam et Americam borealem.

PERONOSPORA Corda Icon. I, p. 20. (Etym. a *perone* apex v. fibula et *spora*). — Mycelium plerumque haustoriis filiformibus ramosisque instructum. Hyphæ conidiophoræ solitariæ vel fasciculatæ, e stomatibus plantarum erumpentes, cylindrææ, pluries dichotomo-ra-

mosae. Ramuli terminales plerumque acuto-incurvi vel uncinato-subulati. Conidia ovata v. elliptica, papillâ apice destituta, lateraliter germinantia.

Calothecae De Bary. — Oosporae globosae, episporio verrucoso vel reticulato-plicato tectae. Mycelium plerumque haustoria filiformia, ramosa tubosque teretes praebet.

Peronospora calotheca Da Bary sur le d  v. des Champ. par. p. 111, ⁸¹⁷
n. 9, *P. Galii* Fuck. Fungi rhen. n. 28, *P. Sherardiae* Fuck. ibid.
— Hyphis conidiophoris gracilibus, 7-9-ies dichotomis; ramis primariis oblique erectis, ceteris omnibus patentissimis, squarrosis, gracilibus, ultimis angustissimis, p  nultimis multo brevioribus, rectis vel subarcuatis; conidiis ellipsoideis, 24-30 $\approx$ 15-17, utrinque rotundato-obtusis, dilutissime violaceis; oosporis globosis, episporio valido, badio, cristis tenuibus, connexis minute reticulato.

Hab. in foliis Galii Aparines, *G. borealis*, *G. Molluginis*, *G. palustris*, *G. veri*, *G. Schultesii* et *G. silvatici*, *Asperulae odoratae* et *Sherardiae arvensis* in Italia, Gallia, Britannia, Belgio et Germania, inque America boreali.

Peronospora Myosotidis De Bary Rechl. sur le d  v. in Ann. Sc. ⁸¹⁸
Nat. 1863, s  r. 4, t. XX, p. 112, Rabenh. Fung. Eur. n. 572. —
Hyphis conidiophoris gracilibus, elatis, plerumque binis e stomate egredientibus, regulariter 6-9-ies dichotomis, ramis omnibus squarroso-patentibus, ultimis angustissimis; conidiis ovoideis, utrinque obtusissimis, parvulis, 20-23 $\approx$ 13-18, membrana tenui vix violascente; oosporis sphaeroideis, 24-30 μ . diam., episporio valido, late luteo-fusco, cristis crassis acutiusculis, elevatis regulariter grosse et late reticulato munitis.

Hab. in foliis Myosotidis intermediae, *M. vernae*, *M. versicoloris*, *M. arvensis*, *M. hispidae*, *M. sparsiflorae*, *Omphalodis scorpioidis*, *Symphyti officinalis*, *S. tuberosi*, *Lithospermi arvensis* in Italia, Germania, Belgio, Gallia, Anglia, Helvetia, Lapponia et in America boreali.

Peronospora Viciae (Berk.) De Bary Rechl. sur le d  v. in Ann. Sc. ⁸¹⁹
Nat. 1863, 4 s  r. t. XX, p. 112, Hedw. 1864, n. 9, p. 135, *Botrytis Viciae* Berk. Journ. Hort. Soc. I, 31, *Peronospora effusa* var. *intermedia* Caspary in Rabenh. Herb. Myc. ed. II, n. 490. —
Hyphis conidiophoris dense caespitosis, rectis, aequaliter, rarius inaequaliter, 6-7-8-ies dichotomis; ramis ordinum superiorum squarroso-rigidis, ultimis breviter subulatis acutis, rectis; conidiis ellipsoi-

deis, 24-26 $\approx$ 16-20, apice obtusissimo, basi obtusa vel acutiuscula, membrana dilute sordideque violacea; oosporis episporio pallide luteo-fusco, cristis tenuibus, acutis, connexis regulariter laxe et grosse reticulato munitis.

Hab. in foliis *Viciæ sativæ*, *V. sepium*, *V. hirsutæ*, *V. tetraspermæ*, *V. pisiformis*, *V. Craccæ*, *V. tenuifoliæ*, *V. villosæ*, *V. angustifoliæ*, *V. Fabæ*, *V. americanæ*, *Pisi sativi*, *Lathyri pratensis*, *Orobi nigri*, *O. verni*, *O. tuberosi* in Italia, Britannia, Germania, Belgio, Gallia, Fennia et America boreali. — f. **Orobi** Sacc. Status oogonicus: *Protomyces reticulatus* Sacc. Mich. I, p. 13 et Fungi Ital. tab. 102: dense gregarius, plagulas foliorum arescentes occupans pustulasque punctiformes vix elevatas fuscidulas formans; sporangiiis in quaque foliorum cellula singulis, sphaericis, 25 μ . diam. eximie asperato-reticulatis, lutescenti-fuscidulis, monosporis; sporis sphaeroideis, tunica crassiuscula, 18-20 μ . diam., sæpe 1-2 guttatis ex hyalino dilutissime fumosis. In foliis *Orobi verni* amphigenus, rarissime, Conegliano Italiae borealis (SPEGAZZINI).

4. **Peronospora Alsinearum** Casp. in Berl. Acad. d. Wissensch. 1855, De Bary in Hedwigia 1861, n. 9, p. 135, *P. Scleranthi* Rab. in Herb. Myc. I, p. 1471 b, *P. conferta* Ung. Bot. Zeit. 1847, p. 314 pro parte, *P. Lepigoni* Fuck. et *P. tomentosa* Fuck. Fung. Rhen. — Hyphis conidiophoris validis æqualiter, raro inæqualiter 4-5-8-ies dichotomis; ramis patentibus, ultimis subulatis, elongatis, plerumque arcuatis; conidiis ellipsoideis utrinque obtusissimis; cuticula plus minus sordide violacea; oosporis episporio læte fusco, cristis validis, crassis, numerosis connexis subregulariter reticulato.

Hab. in *Cerastio vulgato*, *C. glomerato*, *C. triviali*, semidecandro, *C. arvensi*, *Stellaria media*, *Sclerantho annuo*, *Lepigono rubro* et *Alsine media* in Italia, Belgio, Gallia, Germania et in agro Mustialense Fennia. — *Protomyces Stellaris* Fuck. (En. Nass. p. 1, n. 2, fig. 1) ad oosporas huius speciei trahendus. Specimina in *Stellaria*, *Cerastiis*, *Spergula crescentia*, sæpe oosporas ferunt, in ceteris plantis tantum conidia observantur. — Forma *Stellaris* et *Arenaris* conidia majora, 22-30 μ . longa, offert; forma *Cerastiorum* conidia plerumque minora 15-18 μ . longa et hyphas conidiophoras magis divisas gracilioresque. In *Cerastiis* occurrunt tamen formæ intermediae. «In *Prot. Stellaris* Fuck. (l. c.) sporæ sunt orbiculatæ.

sordide fuscae, episporio lato, hyalino et, ut videtur e diagnosi, certe non reticulatæ et episporio fusco præditæ.

Peronospora Chloræ De Bary in Rabenh. F. Eur. n. 1590, Schroet. ⁸²¹
Krypt. Flor. Schles. Pilze p. 242. *Peronospora Erythrææ* Kühn.,
P. Chloræ f. *Erythrææ* Rab. Fung. Eur. n. 1664. — Cæspitulis
albidis vel pallide violaceis; hyphis conidiophoris 2-8-ies dichotomis
parce ramosis; conidiis ellipticis vel ovatis 17-20 $\approx$ 12-14;
oosporis globosis 26-30 μ . diam., episporio pallide brunneo, subtiliter
lineato-reticulato.

Hab. in foliis, caulibus pedunculisque *Erythrææ* *Centaurium*.
E. ramosissimæ, *Chloræ* *perfoliatæ* in Germania
et Italia boreali.

Peronospora Dianthi De Bary in Hedw. 1864, p. 136, Schroet. ⁸²²
Krypt. Fl. Schles. p. 243. — Cæspitulis valde expansis, pallide
sordideque violascentibus; hyphis conidiophoris 4-6-ies dichotomis,
ramis remotis, ultimis subulatis subincurvis; conidiis late ellipticis,
22-25 $\approx$ 15-18, pallide violaceis; oosporis 38-40 μ . diam., e
castaneo brunneis, episporio plus minus obtuse tuberculoso vel
verrucoso.

Hab. in foliis *Silenes Armeriæ*, *S. anglicæ*, *S. inflatæ*,
Melandryi noctiflori et *Agrostemmatidis Githaginis*
Germania, Italia, Helvetia et Austria.

Peronospora Arenariæ (Berk.) Tulasne Compt. rend. Acad. des ⁸²³
Scienc. tab. XXXVIII, *Botrytis Arenariæ* Berk. Journ. Hort.
Soc. Lond. I, p. 31, tab. 4. — Cæspitulis latiusculis, albis; hyphis
conidiophoris (sæpe solitarie e stomatibus emergentibus) gracilibus
6-7-ies æqualiter, rarius inæqualiter dichotomis; ramis patentissimis,
ultimis tenuibus, acutis, subulatis, rectiusculis; conidiis late
ellipsoideis, utrinque obtusissimis, 20-22 $\approx$ 13-15, vix violascentibus;
oosporis globosis, parvis, episporio læte fusco, extus verrucis crassis
hemisphæricis vel cylindraceis obsito.

Hab. in pagina inferiore foliorum *Arenariæ serpyllifolia*,
A. trinervia, *A. rubræ* in Germania, Britannia, Belgio
et Gallia.

Peronospora Holostei Casp. in Rabenh. Herb. Myc. ed. 2, n. 774. ⁸²⁴
P. conferta Casp. Berlin Monatsber. Mai 1855, Fuck. Fung. rhen.
n. 17. — Hyphis conidiophoris fasciculatis, dense cæspitosis, æqualiter
aut inæqualiter 6-8-ies dichotomis; ramis patentibus, ultimis
late divergentibus subulatis, acutis, rectis vel curvatis; conidiis late
ellipsoideis, utrinque obtusissimis, 22-25 $\approx$ 17-20, membrana dilu-

tissime violascente; oosporis globosis, episporio obscure luteo-fusco, tuberculis, spinulis cristulisque sæpe connexis densissime obsito ideoque spinuloso-scaberrimo præditis.

Hab. in foliis, caulibus, floribus *Holostei umbellati* in Germania.

9. **Peronospora Asperuginis** Schroet. Krypt. Flor. Schles. Pilze n. 243. — Cæspitulis sordide violascentibus, expansis; hyphis conidiophoris 6-8-ies dichotomis; ramis late patentibus, ultimis subulato-uncinatis; conidiis ovatis, 22-26 $\approx$ 16-20; oosporis globosis, episporio pallide brunneo, verrucis obtusis, subdistantibus obsito.

Hab. in *Asperugine procumbente* in Germania.

10. **Peronospora Arthuri** Farlow Enum. of t. Peron. of t. Un. St. 82 in Bot. Gaz. vol. VIII, Oct. and Nov. 1883, p. 315. — Hyphis conidiophoris brevibus et rigidis, pluries dichotomis; apicibus brevibus rigidisque; conidiis late ellipsoideis, obtusis, 22-26 $\approx$ 19, pallide violaceis; oosporis magnis, obscure brunneis, 34-42 μ . diam., episporio breviter obtuseque papillato munitis.

Hab. in foliis *Cenotheræ biennis* in America boreali.

11. **Peronospora Fritzii** Schroet. Ueber Pilze Mad. und Teneriffa 82 pag. 1. — Maculas latas efformans; oosporis globosis, 44-50 μ . diam., sine episporio 30-35 μ . diam.; episporio crasso, labyrinthiformi-plicato, flavo-brunneo, 6-8 μ . crasso; antheridiis 20 $\approx$ 13; conidiis ovatis 22 $\approx$ 15.

Hab. in caulibus *Convolvuli althæoidis* in insula Madeira.

12. **Peronospora Anagallidis** Schroet. in *Hedwigia* 1874, p. 45. — Cæspitulis albido-cœrulescentibus; hyphis conidiophoris 6-7-ies dichotomis; ramis ultimis subulato-uncinatis; conidiis breviter ellipticis, 22 $\approx$ 16, albidis, dein brunneolis; oosporis castaneis, episporio irregulariter plicato, substellato-angulatis, 25-30 μ . diam.

Hab. in pagina inferiori foliorum *Anagallidis cœruleæ*. in agris pr. Rastatt Germaniæ.

13. **Peronospora Oxybaphi** Ell. et Kellerm. New Kansas Fungi in 82 Journ. of Mycol. vol. I, n. 1, p. 2. — Hyphis conidiophoris inferne simplicibus, sursum fere 3-ies dichotome-ramosis; ramis ultimis validis leviter curvatis; conidiis ellipticis, 20-26 $\approx$ 12-15, pallide violaceo-brunneis; oosporis sphaericis 35-40 μ . diam., brunneolis, episporio aspero munitis.

Hab. in foliis *Oxybaphi nycetaginei* in New Kansas Americæ borealis.

b) *Leiothecæ* Schroet. (Parasiticæ et effusæ De Bary). — Oospore subglobosæ, episporio plerumque sublevi, subinde plicatulo tectæ. Mycelium sæpius ut in sect. *Calothecæ*.

1. Parasiticæ.

14. **Peronospora parasitica** (Pers.) De Bary Rech. sur le dèv. in Ann. Scienc. Nat. 1863. Sér. 4, t. XX, p. 110, *Botrytis parasitica* Pers. Obs. I, p. 96, t. 5, f. 6, Corda Icon. V, p. 52, t. II. f. 18, *B. ramulosa* Link Spec. I, p. 53, *Mucor Botrytis* et *M. Erysimi* (?) Sowerby Engl. Fung. tab. 359 et 400, *Botrytis agaricina* Johnst. (sec. Casp.), *B. nivea* Mart. Fl. Erl. *Peronospora conferta* Ung. Bot. Zeit. 1847, *P. parasitica* Tul. Compt. rend. 26 Janv. 1854, *P. Dentariæ* Rabenh. Fung. Eur. 86, *P. ochroleuca* Ces. Rab. Herb. Myc. ed. 2, n. 175. — Hyphis mycelicis crassis, ramosissimis, haustoriis numerosis, ramosis; ramis clavatis, obtusis, crassis, curvatis, cellulas plantæ hospitæ sæpe explentibus; hyphis conidiophoris crassis, mollibus, flexilibus, æqualiter vel inæqualiter 5-8-ies dichotomis, rarius trichotomis vel ramos sparsos 1-2 sub apice dichotomo gerentibus; ramis semper repetite bifurcatis; ramis secundi et tertii ordinis primariis et stipiti multo angustioribus, subulatis, arcuatis; conidiis late ellipsoideis, 20-22 $\approx$ 16-20, apice obtusissimis, candidis; oogonis angulato-globosis, membrana crassissima e stratis pluribus composita, nitida hyalina vel flavescente præditis; oosporis globosis 26-43 μ . diam., levibus vel subrugosis, flavescentibus vel fusciscentibus.

Hab. in foliis et inflorescentiis, sæpius socio *Cystopode candido*, Cruciferarum plurimarum, e. gr. Capsellæ Burse Pastoris, Nasturtii silvestris, N. palustris, Barbareæ vulgaris, Turritis glabræ, Arabis Gerardi, A. Thalianæ, Cardamines parvifloræ, C. amaræ, C. pratensis, C. hirsutæ rhomboidis, Dentariæ glandulosæ, D. bulbiferæ, D. heptaphyllæ, D. laciniatæ, Hesperidis matronalis, Sisymbrii Alliarie, S. officinalis, S. Sophiæ, Erysimi cheiranthoidis, Cheiranthi Cheiri, Matthioliæ incanæ, M. annuæ, Brassicæ Napi, B. oleraceæ, B. sativæ, Sinapis albæ, S. arvensis, Alyssi calycini, Berteroæ incanæ, Erophilæ (Drabæ) vernæ, Camelinæ microcarpæ, C. dentatæ, C. sativæ, C. foetidæ, Thlaspidis arvensis, Tesdaleæ nudicaulis, Lepidii Drabæ, Virginici, affinis, campestris, ruderalis, Nesliæ paniculatæ, Diplotaxeos tenuifoliæ, Bunia-

dis orientalis, Rhaphani sativi et Rhaphanistri per totam Europam, Americam et pr. Minussinsk Sibiriae asiaticae. — «An huc spectat *Peronospora crispula* Fuck.?»

15. **Peronospora crispula** Fuck. F. Rh. 22, Symb. Myc. pag. 67. — ⁸³¹
Caespitibus laxis, dein in maculis exaridis; hyphis erectis, dichotomo-ramosis; ramis crispulis, curvatis, ramulis ultimis inaequalibus curvatis; conidiis globosis.

Hab. in pagina inferiore foliorum Resedae luteolae in Mühlthal prope Nassau Germaniae.

16. **Peronospora Claytoniae** Farlow Enum. of the Peron. of the Un. St. ⁸³²
in Bot. Gazette vol. VIII, Oct. and. Nov. 1883, p. 314. — Hyphis conidiophoris altis, inferne nudis, sursum pluries dichotomis; ramis brevibus, subulatis, late patentibus; conidiis late obovatis, 22-24 $\approx$ 15-20, violaceis; oosporis magnis, 38-45 μ . diam., brunneis, episporio plus minus rugoso praeditis.

Hab. in foliis Claytoniae Virginicae, Kentucky Amer. bor.

17. **Peronospora leptoclada** Sacc. Mich. II, p. 530. — Hypophylla, ⁸³³
effusa, tenella, sordide alba; hyphis conidiophoris fertilibus assurgentibus, filiformibus, 300-350 $\approx$ 18, continuis, sursum quinquiessexies dichotomo-ramosis, ramulis ultimis et poenultimis incurvis, angustissimis; conidiis ellipsoideis, 25-28 $\approx$ 20-22, granulosis, hyalinis; oogonis in parenchymate folii nidulantibus, globoso-angulosis, 45-55 μ . diam., membrana crassissima, 10-15 μ . cr., melleis, oospora pallidiore, globosa, 25-28 μ . diam., episporio 2,5-3 μ . cr., intus granuloso-guttulata.

Hab. in pag. inf. foliorum languidorum Helianthemii guttati in colle Calaone Euganeorum in Italia boreali.

18. **Peronospora Corydalis** De Bary Hedwigia 1864, n. 9, p. 134, ⁸³⁴
Schroet. Krypt. Fl. Schles. p. 244. — Caespitulis sordide albis vel dilute violaceis, late expansis; hyphis mycelicis teretibus, raro varicosis; haustoriis raris, filiformibus, ramosis, curvatis; hyphis conidiophoris hyalinis, laxe 5-6-ies dichotomis; ramis gracilibus, flexuosis, ultimis elongatis, acutis, curvatis; conidiis late obovoideis, 20-24 $\approx$ 16-20 apice obtusissimo, membrana sordida diluteque violacea; oogoniis subglobosis, membrana rigida, crassiuscula e duobus stratis distinctis composita, plerumque dilute fuscescente munitis; oosporis magnis exacte globosis, 27-40 μ . diam., episporio tenui, sublevi, dilute fusco-pellucido.

Hab. in foliis caulibusque Corydalis solidae, C. caevae et C. intermediae in Germania, in Neerlandia et in Amer. bor.

2. Effusæ.

19. **Peronospora Ficariæ** Tul. Compt. rend. 26 Janv. 1854, *P. gri-* 835
sea Rabenh. Herb. Myc. n. 322, *P. nivea* (ex parte) Unger Bot.
 Zeit. — Cæspitulis sordide albis vel dilute violaceis, late expau-
 sis; hyphis conidiophoris humilibus, 5-7-ies æqualiter vel inæqua-
 liter dichotomis; ramis ultimis vel pœnultimis arcuatim deflexis
 vel inflexis, ultimis plerumque longe subulatis; conidiis late elli-
 psoideis, sordide et dilute violaceis, 20-26 $\approx$ 15-20; oosporis palli-
 de fusco-lutescentibus, episporio crassiusculo levi donatis, 22-32
 μ . diam.; oogoniis subglobosis, fulvis, 35 μ . diam., sublevibus.
Hab. ad folia viva Ranunculi Ficariæ, R. bulbosi R.
 lanuginosi, R. repentis, R. acris, R. Flammulæ, R. au-
 ricomi, R. polyanthemi in Gallia, Germania, Fennia, Belgio,
 Italia, Bosnia et Lapponia nec non in America boreali. — Totam
 plerumque plantam occupat et ubique (radice floribusque exceptis)
 fructificat. — «An huc *Peronospora Myosuri* Fuckel?»
20. **Peronospora arborescens** (Berk.) De Bary in Rech. sur le dèv. 836
 Ann. Sc. Nat. 1863, sér. 4, t. XX, p. 119, *Botrytis arborescens*
 Berk. Jour. Hort. Soc. I, pag. 31, t. 4, f. 24. *Peronospora Pa-*
paveris Tul. Compt. rend. l. c., *P. grisea* $\S$. *minor* Caspary in
 Rabenh. Herb. Myc. ed. 2, n. 323, Fuckel fung. Rhen. n. 4 et 13.
 — Hyphis conidiophoris gracilibus, erectis, superne 7-10-ies di-
 chotomis; ramis plus minus flexuosis, squarrosis, patentibus, sen-
 sim attenuatis, ultimis tenuissimis, breviter subulatis, plus minus
 arcuatis; conidiis subglobosis, 15-22 $\approx$ 13-18, vix violaceis; oospo-
 ris episporio brunneo, substriato munitis.
Hab. in pagina inferiore foliorum Papaveris somniferi,
 P. Rhœadis, P. Argemonis et P. dubii in Italia, Gallia, An-
 glia, Belgio et Germania.
21. **Peronospora affinis** Rossm. in Rab. Herb. Myc. ed. II, p. 489, De 837
 Bary in Ann. Sc. Nat. ser. IV, p. 4. — Hyphis conidiophoris validis,
 regulariter 5-7-ies dichotomis; ramis patentibus, ultimis brevibus,
 subulatis, rectis vel deorsum curvatis; conidiis ovoideis, 22-26 $\approx$
 15-18 obtusis; zoosporangiis obovoideis, apice obtusissimis, basi
 acutiusculis, cuticula pallide et sordide violacea; oosporarum epi-
 sporio luteo-fusco.
Hab. in foliis Fumariæ officinalis haud frequens in Ita-
 lia, Fennia, Germania, Britannia et Gallia.
22. **Peronospora Violæ** De Bary Rech. sur le dèv. in Ann. Sc. Nat. 838

1863, Sér. 4, tom. XX, p. 125, Hedw. 1864, n. 9, p. 140, *Peronospora effusa* var. *Violæ* Rabenh. Fung. Eur. n. 1368. — Cæspitulis pallide violaceis, crassiusculis; hyphis fasciculatis, brevibus, 2-7-ies dichotomis; ramis ultimis breviter subulatis, deflexis; conidiis ellipticis, breviter apiculatis, 20-22 $\approx$ 15-18, violaceis.

Hab. in foliis vivis *Violæ tricoloris* et *V. Rivinianæ* in Britannia, Germania nec non in America boreali. — *Per. effusæ* var. *majori* valde affinis.

23. **Peronospora obovata** Bonorden in Rabenh. Fung. Eur. n. 289, 839 Fuckel Fung. Rhen. n. 19. — Cæspitulis laxis; hyphis conidiophoris æqualiter, raro inæqualiter 5-7-ies dichotomis; ramis patentibus, ultimis brevibus, subulatis, rectis vel subcurvatis, late divergentibus; conidiis anguste obovoideis vel clavatis, utrinque obtusissimis, 24-30 $\approx$ 15-18, membrana dilute violacea; oosporis parvis, irregulariter angulatis, episporio pallide fusco, irregulariter plicato præditis.

Hab. in foliis *Spergulæ arvensis*, *S. pentandræ* et *S. rubræ* in Fennia et Germania. — «An hue *P. Lepigoni* Fuck. ducenda?»

24. **Peronospora conglomerata** Fuck. Fung. Rhen. n. 25 et Symb. 840 Myc. p. 68. — Cæspitibus effusis, e cæspitulis glomeratis compositis, dein fuscis; hyphis erectis, 5-ies dichotomis, ramo ultimo longo, curvato, subultimo brevi, horizontaliter patentibus; conidiis globosis, lutescentibus, 21-23 μ . diam.

Hab. in pagina inferiore foliorum *Geranii pusilli* et *G. mollis* in Germania, Belgio. — «An hue *Peronospora Erodii* Fuck. spectat?»

25. **Peronospora Trifoliorum** De Bary Rech. sur le Dêv. in Ann. Sc. 841 Nat. 1863, Sér. 4, t. XX, p. 117, Hedw. 1864, n. 9, p. 137, *P. grisea* var. *Caspary* in Rabenh. Herb. Myc. ed. II, n. 775 Fung. Eur. n. 375, Fuck. Fung. Rhen. n. 9. — Hyphis conidiophoris late cæspitosis, æqualiter vel inæqualiter 6-7-ies dichotomis (raro trichotomis, ramis primariis 4-5-ies dichotomis); ramis ultimis subulatis, acutis, leviter curvatis; conidiis ellipsoideis, obtusissimis 19-26 $\approx$ 15-19 sordide et dilute violaceis; oosporis sphaeroideis, 25-34 μ . diam., episporio brunneo-fusco, levi munitis.

Hab. in foliis *Ononidis spinosæ*, *O. procumbentis*, *Medicaginis sativæ*, *M. lupulinæ*, *Meliloti officinalis*, *M. albi*, *Trifolii pratensis*, *T. medii*, *T. alpestris*, *T. arvensis*, *T. striati*, *T. repentis*, *T. spadicei*, *T. agrarii*,

Loti corniculati, *L. uliginosi*, *Coronillæ varicæ*, *Astragali Canadensis*, et *Orobi tuberosi* in Italia, Britannia, Gallia, Belgio, Germania et America boreali. — Duas cl. Saccardo formas distinguit: α . *Ononideæ* in *Ononidis*; β . *Medicaginis* in *Medicagine*.

26. **Peronospora Potentillæ** De Bary Rech. sur le dv. in Ann. Sc. ⁸⁴²
Nat. 1863, sr. 4, t. XX, pag. 124. — Hyphis conidiophoris gracilibus, dense cspitosis, 5-6-ies dichotomis; ramis modice elongatis, flexuosis, ultimis longe subulatis, arcuatis; conidiis ellipsoideis, 20-26 $\approx$ 15-19, obtusissimis, dilutissime violaceis; oosporis sphaeroideis, 22-24 μ . diam., luteis, levibus.

Hab. in foliis *Potentillæ aureæ*, *P. argenteæ*, *P. norvegicæ*, *P. supinæ*, *P. grandifloræ*, *P. Fragariastris* nec non *Alchemillæ vulgaris*, *Sanguisorbæ officinalis* et *Agrimoniæ Eupatorii* in Germania Gallia Belgio et America boreali.

27. **Peronospora Herniaricæ** De Bary sur le dv. in Ann. Scienc. Nat. ⁸⁴³
1863, 4 sr. t. XX, p. 120. — Hyphis conidiophoris dense fasciculatis (cspites densissimos in foliorum pagina inferiore formantibus) 5-7-ies dichotomis; ramulis ultimis valde divergentibus, brevibus, rigidis, subulatis; conidiis late ellipsoideis, majusculis obtusissimis, dilute violaceis, oosporis plerumque irregulariter angulatis, quandoque globosis et verrucis crassis, obtusis, irregularibus obsitis, læte fuscis.

Hab. in foliis et caulibus *Herniaricæ hirsutæ* et *H. glabræ* in Germania.

28. **Peronospora Chrysosplenii** Fuck. Fung. Rhen. n. 1509 et 1902, ⁸⁴⁴
Symb. Myc. pag. 69. — Cspitibus laxis, tenuibus albis; hyphis conidiophoris erectis, dichotomo-ramosis, ramis primariis conniventibus, ultimis subqualibus, rectis, obtusangulo-divaricatis, obtusis; conidiis ovalibus, 20-22-15-18, magnis; oosporis globosis, levissimis, 28-48 μ . diam., dilute fuscis.

Hab. in pagina inferiore foliorum *Chrysosplenii alternifolii* et *Saxifragæ granulatæ* in Germania.

29. **Peronospora Valerianellæ** Fuck. Symb. Myc. p. 69. — Cspitulis ⁸⁴⁵
floccosis, laxis, albidis; hyphis conidiophoris erectis, 7-9-10 dichotomo-ramosis; ramis ultimis subqualibus, rectis, rectangulariter patentibus; conidiis obovatis, 17-20 $\approx$ 15-17; oosporis episporio lutescenti, diaphano prditis.

Hab. in foliis *Valerianellæ carinataæ*, *V. olitoricæ*, *V.*

dentatæ et V. rimosæ in Germania, nec non in foliis vivis *Phyllactidis salicariæfoliæ* in uliginosis Bocha del Riachuelo Argentinæ. — Obs. Species in America rarissima semel tantum inventua, iterum inquirenda (SPERGAZZINI).

30. **Peronospora violacea** Berk. Outl. of Brit. Fungol. pag. 349. — 84

Cæspitibus minutissimis, sparsis, mycelio haustoriis sacciformibus instructo, hyphis conidiophoris brevissimis, 5-7-ies dichotomis ramis primariis paucis, stricte erectis, ramulis ultimis brevibus, erectis; conidiis ellipsoideis vel ovatis, violaceis, 30-39 $\approx$ 17-19; oosporis globosis, 22-24 μ . diam., episporio irregulariter plicato, brunneo 5-8 μ . lato.

Hab. in petalis *Scabiosæ arvensis* in Anglia et Germania. — Exsistit *Botrytis violacea* Leveill. (Ann. Scienc. Nat. 1846. p. 298) quæ verisimiliter est mera forma *Peronosporæ violacæ* Berkeley et cujus diagnosis ita sonat: *B. violacea*: hyphis erectis continuis dichotome ramosis; conidiis ovatis, glabris, violaceis. Ad flores *Pyrethri arvensis* et ad folia viva *Lathyrj palustris* in Gallia.

31. **Peronospora leptosperma** De Bary Sur le dèv. in Ann. des Sc. 84

Nat. 1863, 4 sér. XX, p. 121 et Hedw. 1864, n. 9, pag. 139. — Cæspitulis albis; mycelio haustoriis minutis, vesiculosus instructo; hyphis conidiophoris achrois, singulis vel 2-3-nis e stomatibus emergentibus, superne dichotomis aut trichotomis, ramis repetite dichotomis aut trifarcatis, omnibus, præter ultimos, sursum crassioribus, ultimis e basi lata in apicem subulatum, rectum curvatumve contractis; conidiis plerumque magnis, variis ellipsoideis, clavatis, ovoideo-cylindricis, sæpe elongato-cylindricis, 30-50 $\approx$ 16-26, rectis vel curvatis, utrinque obtusissimis, candidis; oosporis sphaeroideis 38-45 μ . diam., irregulariter angulatis, pallide fuscis, episporio plicato.

Hab. in foliis vivis, caulibus, involucris Compositarum Anthemidearum, frequens in *Triplenrospermo inodoro*, *Anthemide arvensi*, *A. Cotula*, *Matricaria Chamomilla*, *Tanaceto vulgari*, *Arthemisia bienni* nec non in *Lasirospermo radiato* in Germania, Fennia et America boreali.

32. **Peronospora Radii** De Bary in Hedw. 1864. p. 138. — Mycelii 84

hyphis gracilibus; haustoriis parvis vesiculiformibus, obovoideis vel globosis; stipitibus solitariis, membrana sordide ac dilute violascente, e basi bulbiformi cylindricis, superne 5-8-ies dichotomis; ramis oblique erectis fastigiatis, ultimis brevissimis, rectis, rigidis.

conicis, acutiusculis vel subtruncatis; conidiis 25-30 μ . longis, ellipsoideis vel ovoideis, basi acutiusculis, apice obtuso vel acutiusculo, membrana valida, sordide violacea; oosporis maiusculis, irregulariter angulatis, episporio crasso, læte fusco.

Hab. in floribus radialibus *Tripleurospermi inodori*, *Matricariæ Chamomillæ*, *Chrysanthemi Leucanthemi*, *Anthemidis arvensis*, prope Mustiala, in Belgio et Germania. — «An ad *Peronosporam leptospermam* referenda?»

33. **Peronospora Phyteumatis** Fuckel Fung. Rhen n. 1604. — Cæspitibus effusis, griseo-violaceis; hyphis conidiophoris erectis, dichotomo-ramosis; ramis primariis fasciculatis, curvatis, ramis ultimis rectangulariter patentibus, rectis; conidiis ovato-globosis, 22-24 $\approx$ 16-18; oosporis episporio plicato pallide-brunneo præditis. 849

Hab. in pagina inferiore foliorum *Phyteumatis nigri* et *Ph. spicati* in Germania.

34. **Peronospora Antirrhini** Schroet. in Hedwigia 1874, p. 177, Krypt. Flor. Schles. Pilze p. 248. — Cæspitulis violaceis; hyphis conidiophoris violaceo-brunneis, irregulariter ramosis, ramulis ultimis uncinato-incurvis acutis, horizontaliter patentibus; conidiis ovatis, 20-26 $\approx$ 14-16, violaceo-brunneis; oogonis globosis, episporio crasso, obscure brunneo violascente; oosporis subglobosis, 28-32 μ . d., episporio pallide brunneo, 4-8 μ . crasso, levi, crispato. 850

Hab. in foliis *Antirrhini Orontii* in Germania.

35. **Peronospora Linariæ** Fuck. F. Rh. 1903, Symb. Myc. 70. — Cæspitibus laxis, candidis dein violascentibus; hyphis erectis, dichotomo-ramosis, ramis ultimis longis, curvatis; conidiis obovatis subglobosisve, ad basim acuminatis 26-33 $\approx$ 15-20; oosporis magnis, globosis, 18 μ . diam., episporio obscuriori, fusco (rarius 30-34 μ . diam.). 851

Hab. in pagina inferiore foliorum *Linariæ minoris*, *L. canadensis*, *L. vulgaris*, *Antirrhini Orontii* et *Digitalis ambiguae* in Germania et America boreali. — «An huc *Peronospora Antirrhini* Schroet. ducenda?»

36. **Peronospora grisea** (Ung.) De Bary Rech. sur le dev. in Ann. Sc. Nat. 1863, 4^e Sér. XX, t. 13, f. 12, p. 119, *Botrytis grisea* Ung. Bot. Zeit. 1847, p. 315. — Hyphis fasciculatis, validis griseo-violaceis, 5-7-ies regulariter dichotomis; ramis sensim attenuatis, primariis oblique erectis, ceteris patentibus, flexuosis, ultimis plerumque inæqualibus, leviter arcuatis: conidiis ellipsoideis vel ovoideis, 22-30 $\approx$ 15-22, obtusissimis, dilute et sordide viola- 852

ceis; oosporis magnis, 30-38 μ . diam., læte brunneis, episporio crasso, levi.

Hab. in pagina inferiore foliorum *Veronicæ serpyllifoliæ*, *V. scutellatæ*, *V. arvensis*, *V. vernæ*, *V. triphyllæ*, *V. Beccabungæ*, *V. hederifoliæ*, et *V. Anagallidis* in Italia, Gallia, Germania, Anglia, Fennia, Belgio, Neerlandia et Bosnia in America boreali. — «Cæspitibus densis, intricatis, griseo-violascentibus, paginam inferiorem foliorum occupantibus, dignoscenda».

37. ***Peronospora Lamii*** (Al. Braun.) De Bary in Rabenh. Herb. Myc. 85
edit. II, n. 325, Fuck. Fung. Rhen. n. 36. — Hyphis conidiophoris brevibus, 5-7-ies (plerumque 6-ies) dichotomis cæspites densos griseo-violaceos formantibus; ramis sensim attenuatis, patentibus, plus minus arcuatis, ultimis plerumque elongatis, subulatis, acutis; conidiis conspicue pedicellatis, globoso-ovoideis, 17-22 $\approx$ 15-20, dilute et sordide violascentibus; oosporis parvis, fuscis.

Hab. in foliis *Lamii rubri*, *L. maculati*, *L. albi*, *L. purpurei*, *L. amplexicauli*, *Salviæ pratensis*, *Stachydis palustris* in Italia, Germania, Fennia, Britannia, Gallia. — «An huc *Peronospora Calaminthæ* Fuck. ducenda?»

38. ***Peronospora effusa*** (Grev.) Rabenh. Herb. Myc. 1880, *Botrytis* 85
effusa Grev. Fl. Edin. p. 468, *Botrytis farinosa* Fr. Syst. Myc.? *Botrytis epiphylla* Pers. Myc. cur. I, p. 56? *Peronospora Chenopodii* Schlecht. Bot. Zeit. 1852, p. 619, *P. Chenopodii* Casp. Bot. Zeit. 1854, p. 565. — Hyphis conidiophoris fasciculatis, e stomatibus egredientibus, brevibus, crassis, superne 2-5 6-ies raro 7-ies dichotomis; ramis ultimis crassis, breviter subulatis, arcuatim deflexis; conidiis ellipsoideis, 22-30 $\approx$ 16-23, conspicue pedicellatis, sordide et dilute violaceis; oogoniis magnitudine variis; oosporis sphaeroideis, 26-35 μ . diam., episporio læte fusco irregulariter sulcato præditis.

Hab. in foliis *Chenopodii albi*, *C. muralis*, *C. glauci*, *C. polyspermi*, *C. hybridi*, *Spinaciæ oleraceæ*, *Bliti Boni-Henrici*, *Atriplicis patulæ*, *A. nitentis*, *A. hastatæ*, *A. roseæ*, *Polygoni Convolvuli* in Belgio, Gallia, Germania, Fennia, Anglia, Lapponia, Italia, Austria et Amer. bor. — Nonnullæ adsunt varietates: α . *minor* ramis multo angustioribus, gracilioribus, erecto-patentibus, ultimis subulatis, subsquarrosis, rectis vel vix curvatis non deflexis; zoosporangiis globoso-ovoideis, pedicello vix conspicuo. In *Atriplice* in Fennia et Lapponia rossica (Karsten). — β . *Violæ* in *Viola tricolore* var. ar-

vensi. — γ . *Polygoni* Thüm. Fung. austr. n. 942 et 836: a typo colore fere albido et caespitibus tenuibus distincta. In *Polygono* (*P. effusa* var. *Aviculariae* et *P. effusa* var. *Polygoni Convolvuli* identicæ videntur).

39. **Peronospora Euphorbiæ** Fuck. Symb. Myc. p. 71. — Caespitibus 855
laxis, albidis; hyphis conidiophoris sæpe solitariis, erectis, crispulo-ramosis, basi 6-7 μ . latis, superne plerumque 6-7-ies dichotomis, ramis elongatis, gracilibus, valde flexuosis, ramis ultimis brevissimis, rectis, inæqualibus, rectangulariter patentibus, subulato-arcuatis; conidiis parvulis, subglobosis, 13-17 $\approx$ 12-15, membrana achroa; oosporis pallide violaceis, sphaeroideis, 23-33 μ . diam.; episporio crasso, brunneo vel flavescente munitis.

Hab. in pagina inferiore foliorum *Euphorbiæ* platyphylæ, *E. falcatae*, *E. maculatæ* et *E. strictæ* in Germania et America boreali.

40. **Peronospora Urticæ** (Lib.) De Bary Rech. sur le dév. in Ann. 856
Sc. Nat. 1863, sér. 4, t. XX, 116, *Botrytis Urticæ* Libert in scrp. apud. Berk. Journ. Hort. Soc. Lond. I, p. 31, Berk. et Broome Notices on Brit. Fungi in Ann. Mag. Nat. hist. ser. 2, vol. VII, p. 100, *Peronospora Urticæ* Cooke Brit. Fung. II, pag. 595. — Hyphis conidiophoris humilibus, caespites pallide violaceos densosque formantibus, laxè 4-6-ies dichotomis; ramis flexuosis, ultimis subulatis, arcuatis sæpe deflexis; conidiis magnis, 22-26 $\approx$ 17-20, late ovoideis vel subglobosis, distincte pedicellatis, apice obtusissimis, membrana dilute violascente; oosporis mediæ magnitudinis, episporio fusco præditis.

Hab. in pagina inferiore foliorum *Urticæ* urentis et dioicæ in Gallia, Belgio, Anglia et Germania nec non in California Americæ borealis.

41. **Peronospora Schleideni** Ung. Bot. Zeit. 1847, p. 315, *Botrytis pa-* 857
rasitica? Schleiden Grundzüge II, p. 38, cum ic., *Peronospora destructor* Caspary, Berkeley Outl. p. 349, *P. Alliorum* Fuck. Symb. Myc. p. 71, *Botrytis destructor* Berk. Ann. N. H. n. 239, t. 13, f. 23. — Hyphis conidiophoris robustis, 280-350 μ . longis, basi 15 μ . latis non septatis aut 4-6-ies dichotomis aut sub apice bis terve dichotomis ramos 2-5 sparsos vel suboppositos gerentibus; ramis primariis inferioribus majoribus, iterum sub apice bis terve dichotomis ramulos secundarios 2-3 gerentibus; superioribus minoribus, et sicut secundariis, æqualiter vel inæqualiter semel bis quaterve bifurcatis raro simplicibus; ramulis ultimi et penultimi ordinis cras-

siusculis, valde arcuatis, ultimis conico-subulatis, acutiusculis aut subtruncatis; conidiis permagnis, 44-52 $\approx$ 22-26, obovoideis vel subpiriformibus, apice obtusis vel acutis, basi attenuata acutiuscula, membrana sordide violacea; oosporis ellipticis vel globosis, episporio tenui, levi tectis.

Hab. in Allio Cepa et A. fistuloso in Gallia, Germania, Belgio, Anglia, et in America boreali.

42. **Peronospora Vincæ** Schroet. in Hedwigia 1874, p. 177. — Cæspitulis albis, laxis, expansis; hyphis conidiophoris 500 μ . circiter altis, hyalinis, basi bulbiformi-dilatatis, 17 μ . latis, 6-7-ies dichotomis; ramis primariis erectis, demum jacentibus, terminalibus acutis, subinde uncinato-incurvis; conidiis ellipsoideis, 24-28 $\approx$ 16-18, hyalinis; oosporis 24-28 μ . diam., episporio sublevi, plicato, palide flavo.

Hab. in foliis Vincæ minoris in Gallia.

43. **Peronospora Dipsaci** Tul. De Bary Peron. in Hedw. 1864, n. 9, p. 137. — Hyphis conidiophoris gracilibus, 6-7-ies plerumque dichotomis (raro trichotomis ramis repetite dichotomis); ramis priorum ordinum flexuosis, ultimis rectis, subulatis, acutis, rigidis, squaroso-patentissimis; conidiis ellipsoideis, utrinque obtusissimis, sordide violaceis; oosporis (sec. Tulasne) iis *P. Ficariæ* similibus.

Hab. in foliis Dipsaci silvestris in Italia, Germania, Gallia, Austria.

44. **Peronospora candida** Fuckel Fl. rh. p. 38. — Cæspitibus densis, candidis; hyphis gracilibus, validis erectis, 6-9-10-ies dichotome ramosis; ramis ultimis brevibus, erecto-patulis; conidiis ovatis vel ellipsoideis, obtusissimis, minutis; oosporis læte fuscis, nitentibus.

Hab. in foliis Primularum et Anagallidis cœruleæ in Belgio et prope Oestrich Rhenogoviæ.

C) Ad *Lejothecas* aliis characteribus relatæ.

45. **Peronospora Calaminthæ** Fuck. Fl. Rhen. 1603. — Cæspitibus densis, griseis; hyphis erectis, dichotomo-ramosis; ramis primariis paucis, ultimis inequalibus, rectangulariter patentibus, rectis; conidiis globosis.

Hab. in pagina inferiore foliorum Calaminthæ Acini in Rhenogovia Germaniæ. — Sec. cl. Schroeter ad *Peronosporam Lamii* ducenda.

16. **Peronospora Erodii** Fuck. Fl. Rhen. 2102, Symb. Myc. pag. 68. 862
 — Cæspitibus densis, sordidis; hyphis erectis, crassis, dichotomo-
 ramosis; ramis fasciculatis, curvatis, ramis ultimis subultimisque
 brevibus, subcurvatis; conidiis globulosis vel ovoideis, $30 \approx 28$ vel
 $35 \approx 20$, granulosis, sordide lutescentibus.

Hab. in pagina inferiore foliorum *Erodii cicutarii* in Ita-
 lia et prope (Estrich Rhenogoviæ. — «An ad *Peronosporam con-*
glomeratam Fuck. ducenda?»

17. **Peronospora Myosuri** Fuck. Symb. Myc. p. 67 (*P. Myosuri* f. 863
Eranthidis hyemalis Pass. Myc. Univ. n. 1015). — Cæspitibus
 laxis, sordidis; hyphis erectis; ramis primariis subrectis, dicto-
 tomo-ramosis; ramis ultimis curvatis, subultimis brevioribus, re-
 ctis; conidiis ellipticis vel ellipsoideis, dilute flavescentibus.

Hab. in foliis vivis *Myosuri* minimi et *Eranthidis hye-*
malis in Italia et Rhenogovia Germaniæ. — «An ad *Perono-*
sporam Ficariæ referenda?»

D) Species quoad sectiones, oosporis ignotis, incertæ ulteriusve inquirendæ.

18. **Peronospora Senecionis** Fuck. Symb. Myc. p. 69. — Cæspitibus 864
 laxis, sordidis; hyphis erectis; ramis primariis paucis brevibusque,
 dichotomo-ramosis, conniventibus, ramis ultimis subultimisque lon-
 gis, curvatis; conidiis subglobosis, hyalinis.

Hab. in pagina inferiore foliorum *Senecionis cordati* in
 Rhenogovia Germaniæ.

19. **Peronospora tribulina** Pass. Myc. univ. n. 1316. — Cæspitibus 865
 densis, effusis, candidis; hyphis conidiophoris erectis, apice parce
 ramosis; ramis primariis alternis, subpatentibus, breviusculis, ulti-
 mis subulatis arcuatis; conidiis subglobosis, hyalinis.

Hab. in foliis vivi *Tribuli* terrestris in horto Parmensi
 in Italia.

20. **Peronospora Lophanthi** Farlow Enum. of t. Peron. of t. Un. 866
 St. in Bot. Gazette vol. VIII (Oct. and Nov. 1883) p. 333. — Hy-
 phis conidiophoris gracillimis, longis, inferne nudis, sursum re-
 petite dichotomis; ramis flexuosis; apicibus flexuosis, furcatis, al-
 tera divisione plerumque multo longiore; conidiis globosis vel ova-
 to-obtusis, $19-22 \approx 15-20$, violaceis.

Hab. in foliis *Lophanthi scrophulariæfolii* in Ameri-
 ca boreali.

21. **Peronospora interstitialis** B. et Br. Ann. N. H. n. 1455. — Cæ- 867
 spitulis hypophyllis, flavescentibus, interstitia venarum, raro spa-

tium amplum occupantibus; hyphis brevissimis, flexuosis; conidiis terminalibus, ovatis, sæpe oblique insertis, $15-17,5 \approx 6-7$.

Hab. in foliis *Primulæ* veris. — A *P. obliqua* distincta.

52. **Peronospora Fragariæ** Roze et Cornu Florist. Bemerk. p. 242. s

— Hyphis conidiophoris gracilibus, 1-3-cæspitosis, 4-6-ies dichotomis, 1 mm. altis, ramis ultimis subulatis, arcuatis; conidiis ovoideis, subglobosis, apice obtusis, $20-40 \approx 17-36$; oosporis ignotis.

Hab. in pagina inferiori foliorum *Fragariæ* vespæ et *Fragariastris* in Gallia.

53. **Peronospora Androsaces** Niessl in Rabenh. F. Eur. n. 1875. — s

Hypophylla, alba, expansa; hyphis conidiophoris erectis, superne dichotome ramosis; ramis terminalibus furcatis, curvatis, acutis; conidiis ovatis, $16-19 \approx 13-15$, dilutissime violaceis.

Hab. in foliis *Androsaces* elongatæ pr. Brünn Moraviæ.

54. **Peronospora australis** Speg. Fungi Argentini Pugillus IV, p. 36. s

— Maculis amphigenis, magnitudinæ ludentibus, primo parvulis, dein sæpe totum folium occupantibus, pallescentibus vel fusco-pellucidescentibus, angulosis; hyphis mycelii crassis, subtorulosis; haustoriis subsphæroideis vel subclavatis, numerosis, sæpe totam cellulam plantæ hospitalis implentibus; hyphis fertilibus hinc inde erumpentibus vel e stomatibus exsurgentibus, rectis, cylindraceis, longiuseculis, $250-500 \approx 14-15$, hinc inde glomerulatis, usque ad verticem continuis, inferne sæpe incrassatulis sed mox breviter ac abrupte coarctato-attenuatis, apice subverticillatim 5-12 ramosis; ramis 3-6-ies dichotomis, gradatim attenuatis ac abbreviatis; ramulis ultimis apice incrassatulis, 3-5 sterigmata, $3,5 \approx 1,5-2$, hyalina, subampulliformia, intense angulo recto divergentia, sæpe 2-3 denticulato-lobata gerentibus; conidiis obovato-sphæroideis, sursum obtuse rotundatis, inferne rotundato-acutatis sæpeque apiculatis, $15 \approx 12-10$, hyalinis.

Hab. in foliis *Cyclantheræ* *Hystrieis* in dumetis uliginosis prope la Recoleta Argentina.

55. **Peronospora sicyicola** Trelease in litt. Farlow Enum. of t. Peron. s

of t. Un. St. in Bot. Gazette vol. VIII (Oct. and Nov. 1883), p. 331. — Hyphis conidiophoris gracilibus altis flexuosisque, 3-4-ies pinatis; ramis horizontalibus, alternis vel sæpe oppositis; apicibus in plurimas, sæpe 3 spinas breves divis; conidiis ovoideis, $13-17 \approx 11-15$, candidis; oosporis ignotis.

Hab. in foliis *Sicyi* angulati in Amer. bor. — Sec. Trelease est hæc species ad *Peronosporam australem* Speg. ducenda.

56. **Peronospora cubensis** Berk. et Curt. Cuban Fungi n. 616. — 872
 Cæspitulis candidis; hyphis conidiophoris sursum furcatis; ramulis ultimis rectis nec uncinatis; conidiis metulaeformibus vel oblongis, obtusis, 25 μ . longis.

Hab. in foliis Cucurbitacearum in ins. Cuba. — An eadem ac *Peronospora australis* Speg.?

57. **Peronospora rufibasis** Berk. et Br. Ann. N. H. n. 1456. — Ma- 873
 culis epiphyllis, lucentibus, brunneis, pallidis in altera pagina; hyphis linearibus; conidiis obovatis vel oblongis, inæqualibus, oblique insertis, brevissime pedicellatis.

Hab. in foliis Myricæ Gales in Britannia.

58. **Peronospora illinoensis** Farlow Enum. of t. Peron. of t. Un. St. 874
 in Bot. Gazette vol. VIII, (Oct. and Nov. 1883) p. 332. — Hyphis conidiophoris gracilibus, sparsis, laxè sursum 2-3-ies pinnatis; ramis secundariis plerumque horizontalibus; apicibus acutis, brevibus, erectis, fasciculatis (?); conidiis globosis vel ovato-obtusis, 17-20 $\approx$ 15-18, albis.

Hab. in foliis Parietaræ pensylvanicæ in Amer. bor. 875

59. **Peronospora pulveracea** Fuckel Symb. myc. p. 67. — Cæspitibus densissime effusis, æqualiter pulveraceis, griseis; hyphis conidiophoris plerumque solitariis vel binis, gracilibus, 4-6-ies dichotomis; ramis valde flexuosis, brevibus vel elongatis flaccidisque, ultimis subulatis, arcuatis, sæpe inæqualibus; erecto-patentibus; conidiis magnis, obovoideis vel interdum subpiriformibus, sordide ovoideis.

Hab. in Helleboro foetido in Rhenogovia Germaniæ et in Helleboro odoro prope Serajevo Bosniæ.

60. **Peronospora Cyparissiae** De Bary Sur le dèv. des Champ. par. 876
 in Ann. Scienc. Nat. 1863, 4 sér. XX, pag. 124. — Hyphis conidiophoris brevibus (ramis sæpe brevioribus) 5-7-ies dichotomis; ramis patentibus, rectis, rigidis; ramis pænultimis primariis paullulo tantum angustioribus, ultimis longe conico-subulatis, acutis, rigidis, rectis vel subarcuatis; conidiis parvis, 17-24 $\approx$ 13-16, ellipsoideis obtusissimis, membrana dilute violascente.

Hab. in foliis Euphorbiæ Cyparissiae prope Belluno Italiæ borealis et in Germania. — A. P. *Euphorbiæ* Fuck., cui ulterius comparanda notis indicatis differt.

61. **Peronospora Hyoscyami** De Bary Sur le dèv. des Champ. paras. 877
 in Ann. des Sc. Nat. 1863, 4 sér. t. XX, p. 123 *P. effusa* var. *Hyoscyami* Rabenh. Fungi Europ. n. 291. — Hyphis conidiopho-

ris crassis, altis, 5-7-8-ies dichotomis; ramis patentibus, attenuatis rectis vel leniter curvatis, ultimis angulo obtusissimo divergentibus, brevibus, conico-subulatis, rectis, acutis; conidiis parvis, ellipsoideis, obtusissimis, membrana dilute violacea, 13-24 $\approx$ 13-18.

Hab. in foliis *Hyoscyami nigri* in Germania et Britannia.

62. **Peronospora Rumicis** Corda Ic. Fung. I, p. 20, t. 5, f. 273, De Bary Rech. sur le d  v. in Ann. Scienc. Nat. 1863, s  r. 4, t. XX, p. 123, *P. effusa* var. *Fuekel*. Fung. Rhen. n. 14. — C  spitulis cinereo-violaceis; hyphis conidiophoris dense c  spitosis, singulis tenuibus, humilibus aut in  qualiter quater dichotomis aut sub apice 3-6-ies dichotomis ramos 1-3-sparsos vel suboppositos ipsosque repetitive dichotomos gerentibus; ramis sensim attenuatis, primariis erecto-patentibus, ultimis patentissimis, brevibus, conico-subulatis, rigidis, rectis et acutis; conidiis magnis, 26-33 $\approx$ 16-20, ellipsoideis, obtusissimis, membrana sordide violacea.

Hab. in foliis paniculis caulibusque *Rumicis Acetosellae*, *P. arifolii*, *R. Acetosae*, *Polygoni avicularis* et *P. Convolvuli* in Italia, Germania, Fennia et Lapponia.

63. **Peronospora alta** Fuekel Fung. rheu. 39, Symb. myc. p. 71, De Bary in Hedw. 1864, n. 9, pag. 139, *P. effusa* var. *Plantaginis* Farlow Bull. Buss. Inst. I, p. 428. — Hyphis conidiophoris plerumque solitariis, in macula decolorata, griseis, rarius binis vel ternis e stomate emersis itaque laxe c  spitosis, elatis; gracilibus 6-8-ies dichotomis; ramis patentibus, sensim attenuatis, plus minus flexuosis; ramis penultimi ordinis vix, non semper, bifurcatis in ramulos duos, tenues, acutiusculos, inter se valde in  quales: altero e basi arcuata porrecto vel sigmoideo, longiore, altero multo brevior, arcuatim retroflexo; conidiis magnis, 25-36 $\approx$ 16-20, late ellipsoideis, obtusissimis, membrana sordide violascente.

Hab. in *Plantagine* majore et *P. lanceolata* e foliorum pagina inferiore pr  cipue emergens in Italia, Gallia, Fennia, Belgio, Germania et Albany in America boreali.

64. **Peronospora Schachtii** Fuck. Symb. Myc. p. 71. — C  spitibus densissimis, griseis; hyphis erectis 6-8-ies dichotomis; ramis primariis 2-5, brevibus, ramis ultimis plerumque in  qualibus, brevibus, rectis, obtusangulo-divaricatis, obtusis; conidiis ovatis, pallide umbrinis, 20-24 $\approx$ 15-18.

Hab. in pagina inferiore foliorum *Bet   vulgaris* in Germania. — A *Peronospora effusa* vix distincta.

65. **Peronospora sordida** Berk. Ann. Mag. Nat. hist. 3 s  r. vol. VII, s

p. 449. — Hyphis conidiophoris latis, cæspites pallidos, irregulares ad paginam inferiorem foliorum formantibus; ramis fertilibus sursum dichotomis, apicibus furcatis inæqualibus; conidiis obovodeis, apiculatis, 20-25 $\approx$ 16-18, dilute violaceis.

Hab. in foliis Scrophulariæ aquaticæ, S. nodosæ et S. altaicæ nec non Verbasci Blattariæ, V. Thapsi V. thapsiformis et Digitalis purpureæ in Italia, Belgio, Gallia, Neerlandia, Germania et Britannia, etiam in America boreali.

66. **Peronospora Knautiæ** Fuck. in Cornu Enum. Peronosp. Franc. ⁸⁸²
in Bull. Soc. Bot. France 1878, Schroet. Krypt. Fl. Schles. Pilze pag. 251. — Cæspitulis maculiformibus, minutis, tenuibus, sordide albis; hyphis conidiophoris 6-9-ies dichotomis; ramis ultimis subulatis, subincurvis; conidiis ellipticis, 22-26 $\approx$ 17-20, violaceis.

Hab. in foliis Knautiæ arvensis et Scabiosæ Columbariæ in Gallia et Germania.

67. **Peronospora Scleranthi** Rabenh. in Klotzsch Herb. Myc. n. 1471, ⁸⁸³
Schroet. Krypt. Flor. Schles. Pilze p. 251. — Cæspitulis albidis, late expansis; hyphis conidiophoris 5-8-ies dichotomis; ramis ultimis uncinato-incurvis; conidiis ellipticis, 20-25 $\approx$ 15-18.

Hab. in Sclerantho annuo in Germania.

68. **Peronospora sparsa** Berk. Gard. Chron. 1862, p. 308. — Cæspi- ⁸⁸⁴
tulis albis; hyphis conidiophoris sparsis, subtorulosis, usque ad 9-ies dichotomis; ramis ultimis vix uncinatis, dichotomis, pallide griseis; conidiis subellipticis, apice obtusis.

Hab. in foliis ejusdam Rosæ in Britannia, Germania et in America boreali.

69. **Peronospora Rubi** Rabenh. F. Europæi n. 2676, Schroet. Krypt. ⁸⁸⁵
Flor. Schles. Pilze p. 251. — Cæspitulis laxis, pallide griseis, griseo-brunneis, irregulariter maculiformibus; hyphis conidiophoris erectis, 5-6 μ . crassis, in tertia superiori parte 4-6-ies dichotomis; ramis acute patentibus, ultimis subulatis; conidiis ovatis, 20-22 $\approx$ 11-13, subhyalinis.

Hab. in pagina inferiore foliorum Rubi cæsii et Rubi fruticosi in Germania.

70. **Peronospora Bulbocapni** Reich. Pilzfl. Niederöstr. Afl. p. 48. — ⁸⁸⁶
Hyphis conidiophoris hyalinis, supra quinquies dichotomis, 0,2-0,25 mm. altis, et 7-8 μ . latis, ramis erecto-patientibus, ultimis flexuosis, longe acuminatis; conidiis subglobosis, hyalinis, protoplasmate granuloso faretis, 26-30 μ . longis; oosporis 56-66 μ . latis, membrana rigida inæqualiter incrassata sæpe angulato-producta, fusca

præditis; haustoriis rarissimis, secundum observationem singularem brevissime filiformibus.

Hab. in foliis caulibusque *Corydalis* cavæ in monte Hermanns Kogl pr. Vindobonam Austriae. — «An differt a *P. Corydalis*?»

71. **Peronospora parvula** Schneid. in schedulis Herbarii de Thüm.

Hab. ad Isopyri fumaroidis Lin. folia viva in campis arenosis pr. Minussinsk.

Fam. 3. Saprolegniaceæ DE BARY.

Hyphæ zoosporangia gerentes; zoosporangia terminalia vel seriata; zoosporæ plerumque biciliatæ; oogonia mono-polyspora.

Clavis analytica generum.

A) Zoosporangia in filamentis terminalia, rarissime (*Monoblepharis*) seriata.

† Antherozoidia nulla; zoosporæ biciliatæ, rarius uniciliatæ (*Saprolegnieæ*).

§ Filamenta hinc illinc plus minus regulariter constricta.

Leptomitis. Zoosporæ intra zoosporangium efformatæ.

Rhipidium. Zoosporæ extra zoosporangium efformatæ.

§§ Filamenta haud constricta, continua.

* Zoosporæ semper membranâ destitutæ.

Saprolegnia. In zoosporangium evolutæ; oogonia plerumque polyspora, rarius monospora.

Pythium. Extra zoosporangium evolutæ; oogonia monospora.

** Zoosporæ intra zoosporangium membrana tectæ, extra denudatæ vel e contra.

a) Zoosporæ primo membrana tectæ, ante exitum e zoosporangio denudatæ.

Dictyuchus. Oogonia haud perforata, uni-poly-spora.

? *Diplanis*. Oogonia perforata, polyspora.

b) Zoosporæ extra zoosporangium membrana tectæ, intra nude.

Achlya. Zoosporæ nullo ordine in zoosporangio dispositæ; oogonia polyspora.

Aphanomyces. Zoosporæ uniseriatæ in zoosporangio cylindræco-elongato; oogonia uni-bi-spora.

†† Antherozoidia præsentia ex antheridii protoplasmate oriunda; zoosporæ semper uniciliatæ (*Monoblepharideæ*).

Monoblepharis. Oogonia uni-poly-spora.

B) Filamentum totum in unum vel plura sporangia seriata evolutum (*Encylistæ*).

† Protoplasma zoosporangii in zoosporas demum mutatum.

§ Protoplasma intra zoosporangium in massas plures, parvas divisum.

Achlyogeton. Massæ e zoosporangio exeuntes, dein membrana sumpta, in zoosporas mutatæ. In Algis et Anguillulis.

? *Rhizomyxa*. Zoosporæ intra zoosporangium efformatæ. In radicibus plantarum terrestrium.

§§ Protoplasma intra zoosporangium subcontinuum, extra mox in zoosporas mutatum.

Eugenidium. Conjugatio inter duo filamenta in cellula ipsa matricali; zoosporæ semper nude.

Myzocytium. Conjugatio inter cellulas unius filamenti; zoosporæ semper nude.

†† Protoplasma in zoosporas laud mutatum, totum e zoosporangio emissum.

Encylistes. Protoplasma zoosporangii in algam nutricem alienam versatum.

Saccopodium. Genus dubiæ sedis; zoosporæ ciliis destitutæ.

LEPTOMITUS Ag. Syst. p. 48 (Ety. *leptos* tenuis et *mitos* filamentum). — Filamenta hinc inde constricta, parce ramosa. Zoosporangia plurima vel tantum unum in filamentis terminalia. Zoosporæ intra zoosporangium efformatæ, ante germinationem laud denudatæ. — Genus *Saprolegniæ* peraffine at constrictionibus filamentorum præsertim distinctum. Plurimæ species dubiæ.

1. **Leptomitæ lacteus** Ag. Syst. p. 50, *Saprolegnia lactea* Pringsh. 888 Jahrb. II, t. XXIII, f. 10 et t. XXV, f. 1-6. — Fasciculato-flutuans, mucosus, sordide albidus; filamentis usque ad 5 cm. longis, 7-11 μ . latis, hinc inde constrictis, dichotomo-ramosis, flaccidis; zoosporangiis ex apice filamenti orientibus vel axillaribus; zoosporis ovatis, 2 μ . longis, ciliis binis 12 μ . longis instructis.

Hab. in fossis fluentibus rivulisque totius Europæ.

2. **Leptomitæ brachynema** Hildebr. in Pringsh. Jahrbuch Bd. VI. 889 p. 261, t. XVI, f. 12-23 Lindst. Sapro. p. 38. — Filamentis brevibus parce ramosis; oosporis sphericis, irregularibus, albis, episorio crasso, oogonii cuticulæ omnino adhærente; antheridiis fere indistinctis, filamentis antheridiophoris illis oogoniferis similibus; zoosporangiis globosis, plerumque sex zoosporas continentibus, terminalibus, solitariis vel sympodice aggregatis.

Hab. in caulibus lignisque sub aqua paludosa in Germania et Belgio.

Species dubiæ a Kützingio ad Algas relatæ.

3. **Leptomitæ? saccharicola** Kütz. Species p. 154. — Filamentis ramosis 15-25 μ . latis, ramis tenuioribus, in stratum mucosum, lubricum implicatis; constrictionibus? distantibus; sporangiis lateralibus, sessilibus, solitariis vel aggregatis.

Hab. in syrupo Papaveris Rhœadis officinarum.

4. **Leptomitrus? aureo-stannicus** Kütz. Species p. 154. — Filamentis ramosis, 32 μ . latis, in stratum olivaceum complicatis; ramis maxime attenuatis, basi constrictis, moniliformibus (articulis subglobosis) apice continuis.

Hab. in solutione aureo-stannica.

5. **Leptomitrus? violaceus** Kütz. Species p. 154. — Filamentis tenuibus, ramosis, 32-35 μ . latis in stratum cinereo-cœruleum arachnoideum complicatis; ramis attenuatis, articulis ægre conspicuis; sporangiis lateralibus, plerumque aggregatis vel moniliformibus.

Hab. in solutione aureo-stannica.

6. **Leptomitrus phosphoratus** Kütz. Species p. 154. — Filamentis ramosis, 28-37 μ . latis; ramis subdistantibus elongatis et abbreviatis, hinc divaricatis illinc patentibus, articulis elongatis, interstitiis hyalinis.

Hab. in acido phosphorico ex ossibus parato.

7. **Leptomitrus ammoniatus** Kütz. Species p. 154. — Filamentis ramosissimis, basi 30 μ . latis; ramis flagelliformibus, alternis, erecto-patentibus, apice sæpe furcellatis, 18-22 μ . latis; articulis? inæqualibus, diametro sesqui-triplove longioribus.

Hab. in liquore Ammonii succinici.

8. **Leptomitrus Naphæ** Kütz. Species p. 154. — Filamentis ramosissimis, basi 35 μ . latis, arachnoideo-intricatis, achromaticis ramis attenuatis; articulis? elongatis, pellucidis, globulos (sporangia?) longitudinaliter seriatis continentibus.

Hab. in aqua florum Aurantii.

9. **Leptomitrus Valerianæ** Kütz. Species p. 154. — Filamentis ramosissimis, globulis numerosis intermixtis, 28 μ . latis, dense intricatis, ramis patentissimis; articulis primariis obsoletis, ramorum oblongis, plerumque subventricosis, interdum præcipue inferioribus ellipticis vel globosis.

Hab. in aqua destillata radicis Valerianæ.

10. **Leptomitrus elæophilus** Kütz. Species p. 154. — Filamentis vage et divaricatum ramosis, 22-45 μ . latis, stratum sordide fascescens, floccosum, lubricum efformantibus, achromaticis, ramis patentibus subsecundis; articulis elongatis, tubulosis, intus globuliferis, globulis (sporangii?) seriatis.

Hab. in præcipitato mucoso oleo pressi Amygdalorum et Papaveris seminum.

11. **Leptomitrus tuberosus** Kütz. Species p. 154. — Floccosus, candidus; filamentis ramosissimis, squarrosis, 28-55 μ . latis, inæquali-

ter flexuosis, rigidis, hyalinis, ramis basi constrictis; articulis ægre conspicuis, in zoosporangia intumescensibus.

Hab. ad Rivulariam minutam in aqua ætherea diu assertatam.

12. **Leptomitæ Lanugo** Ag. Syst. p. 49. — Filamentis arachnoideis, sparse laxèque ramosis, ramis brevibus, articulis diametro duplo longioribus, univenosis.

Hab. parasitice in *Ceramio rubro*. — «An potius *Beggiatoa*?».

13. **Leptomitæ minutissimus** (Dillw.) Ag. Syst. p. 49, *Conferva minutissima* Dillw. n. 117. — Filamentis subramosis, minutissimis, hyalinis; ramis sparsis, furcatis, obtusiusculis, geniculis obsoletis, articulis variis.

Hab. ad algas confervaceas marinas.

14. **Leptomitæ incompositus** Ag. in Flora 1827, p. 631. — Filamentis fasciculatis simplicibus divergentibus, continuis, hyalinis.

Hab. ad confervas majores, Carlsbad.

15. **Leptomitæ vitreus** (Roth) Ag. Syst. p. 48, *Conferva vitrea* Roth Cat. III, p. 227. — Filamentis æqualibus, dichotomis, fasciculatis, flaccidis, hyalinis; ramis alternis remotiusculis; articulis cylindricis, longissimis.

Hab. parasitice in *Phicodri sinnosa* in Germania.

16. **Leptomitæ Ceratophylli** (Bory) Ag. Syst. p. 48, *Conferva Ceratophylli* Bory. — Filamentis simplicibus, erectis, adnatis, canis, fragilibus; articulis diametro sesquilongioribus, interstitiis hyalinis.

Hab. in stagnis ad *Ceratophyllum*, etiam in *Thermis Abano* Italiæ borealis.

17. **Leptomitæ? brevis** (Desv.) Ag. Syst. p. 48, *Conferva brevis* Desv. — Filamentis simplicibus adnatis, erectis, minutissimis, strictis, subhyalinis, leniter viridulis; articulis diametro quadruplo longioribus.

Hab. ad plantas aquaticas in Gallia. — An *Edogonium* statu sterili?

18. **Leptomitæ divergens** (Roth) Ag. Syst. p. 48 non Kütz. *Conferva divergens* Roth Cat. III, p. 180. — Filamentis brevissimis, continuis, ramosis, æqualibus, hyalinis, laxis, tenuissimis; ramis flexuosis, diffusis, alternis divergentibus.

Hab. in *Confervis* parasitice.

19. **Leptomitæ nanus** (Dillw.) Ag. Syst. p. 48, *Conferva nana* Dillw. tab. 30. — Filamentis cæspitosis, minutissimis; ramis ramulisque paucis, subalternis, patentibus, acuminatis; articulis diametro brevioribus vel subæqualibus, cylindricis.

Hab. ad *Vaucheriam cæspitosam* destructam (DILLWIN) ¹⁾.

RHIPIDIUM Cornu in Bull. Soc. Bot. France tom. XVIII, p. 58 (1871) (Etym. a *rhapis* flabellum). — Oogonia unispora. Oosporæ hyalinae plerumque stellatæ. Zoosporæ extra zoosporangium maturantia. — Filamenta hyalina, unicellularia, hinc illinc constricta. Rami flabellatim dispositi.

1. **Rhipidium elongatum** Cornu in Bull. Soc. Bot. France tom. XVIII, p. 58 (1871) Lindst. Sapol. p. 38. — Filamentis elongatis, hinc inde crebre constrictis; articulis clavatis quandoque usque ad 1 mm. longis, ramulo laterali spiraliter incurvato sub antheridio; oospora episporio undulato instructa.

Hab. in aquis lentis in Gallia.

2. **Rhipidium interruptum** Cornu in Bull. Soc. Bot. France tom. XVIII, p. 58 (1871), Lindst. Sapol. p. 38. — Filamentis hinc inde crebre constrictis; antheridiis basi oogonii insertis; oosporis stellatis.

Hab. in aquis lentis Galliæ.

3. **Rhipidium continuum** Cornu in Bull. Soc. Bot. France tom. XVIII, p. 58 (1871). — Filamentis tantum basi constrictis; antheridiis basi oogonii insertis; oosporis stellatis.

Hab. in aquis lente fluentibus in Gallia. — *R. interrupto* affinis.

4. **Rhipidium spinosum** Cornu in Bull. Soc. Bot. France tom. XVIII, p. 58 (1871), Lindst. Sapol. p. 38. — Sporangiiis prominentiis longis, sursum vel deorsum instructis.

Hab. in aqua lente fluenti in Gallia. — Species oosporis ignotis.

SAPROLEGNIA Nees ab. Esemb. (Etym. a *sapros* mucidus et *legne* fimbria). — Filamenta æquilata, ramosa. Zoosporangia clavata. Filamenta post exitum zoosporarum rursus crescentia et zoosporangio vacuo perforato in alterum inflata. Oogonia polyspora, raro monospora. Antheridia parva, ovata vel clavata. ad apicem ramulorum tenuiorum evoluta.

A) Species monoicæ.

1. Oogonia polyspora.

1. **Saprolegnia monoica** Pringsh. Jahrb. I, p. 292, t. XIX et XX, Lindst. Sapol. p. 44. — Oogoniis perforatis apicalibus vel late-

¹⁾ Species a Biasoletto in «Alg. microsc.» descriptæ et depictæ sistunt plerumque mycelia Hyphomycetum.

ralibus; oosporis globosis 20 μ . diam. hyalinis; antheridiis ex apice ramulorum lateralium formatis.

Hab. in muscis, araneis, larvis sub aqua putrescentibus in Germania, Belgio, Gallia.

2. **Saprolegnia androgyna** Archer in Micr. Journ. 1867, p. 121, t. VI, 912
f. 1, Lindst. Sapol. pag. 44. — Crassior, firmula; oogoniis do-
liiformibus vel ellipticis, plerumque seriato-terminalibus, subinde
intercalaribus; ramulis antheridiophoris ex oogonio exsurgentibus
apiceque antheridia gerentibus; oosporis plerumque numerosis in
quoque oogonio, globosis, circ. 30 μ . diam.

Hab. in Anglia, Belgio et Germania.

2. Oogonia 1-2. rarius 3-spora.

3. **Saprolegnia asterophora** De Bary Jahrb. Bd. II, p. 189. t. XX, 913
f. 25-27, Lindst. Sapol. p. 45. — Oogoniis stellatis, 1-3, raro
duas oosporas globosas continentibus; antheridiis vermiformibus,
ramos oogonii recurvantibus.

Hab. in muscis putridis in aqua in Belgio atque Germania.

4. **Saprolegnia de-Baryi** Walz. Bot. Zeit. 1870, p. 537, t. IX, p. 1-11, 914
Lindst. Sapol. p. 45. — Sporangiiis sphæroideis, collo brevi dona-
tis apice filamentorum insertis; zoosporis nucleatis, cilio unico,
illis 4-5 longiore instructis; oogoniis sphæroideis 16,8-21 μ . diam.,
apice filamentorum insertis; oospora unica, globosa 4,2-
6,3 μ . diam.; antheridiis oblongis 4,2-6,3 μ . diam., vel piriformi-
bus oogonium amplectentibus.

Hab. in *Spirogyra densa* pr. Kiew Rossicæ.

B) Species dioicæ.

5. **Saprolegnia divisa** Pringsh. Jahrb. II, pag. 206, t. XXII, f. 1-9, 915
Lindst. Sapol. p. 47. — Antheridiis apice filamentorum numero-
se aggregatis, sine ramis antheridiferis; oogoniis sphæroideis per-
foratis; oosporis numerosis.

Hab. in aqualibus in Germania. — Ad *Saprolegnium feracem*
hanc speciem ducit cl. Schroeter. Cfr. Flor. Krypt. Schles. p. 256.

6. **Saprolegnia ferax** (Gruth.) Nees Kütz. Phyc. Gener. p. 157. n. 2, 916
Conserva ferax Gruth. in Nov. Acta 1821, *Leptomitrus clava-
tus* et *ferax* Ag. Alg. Syst. pag. 49, *Achlya prolifera* Pringsh.
Jahrb. Band II, *Saprolegnia dioica* Schroet., *S. Thureli* De Bary.
— Oogoniis perforatis; oosporis numerosis, globosis 30 μ . diam.,

ramis lateralibus nullis; antheridiis ovatis, apice filamenti proprii insertis.

Hab. in muscis, piscibus, salamandris mortuis in aqua ubique. — Statum aërophilum imperfectum sistit *Empusa muscae* Cohn.

C) Species quoad sectiones incertae vel inquirendae.

7. **Saprolegnia mixta** De Bary in Bot. Zeit. 1883, p. 56. — Oogoniis quandoque ramulis lateralibus et antheridiis praeditis; ramulis lateralibus diclinis, raro androgynis.

Hab. in in Germania.

8. **Saprolegnia torulosa** De Bary Bot. Zeit. 1883, p. 56. — Oogoniis catenulatis, perforatis, terminalibus, amplis, clavatis, recurvis; antheridiis oogonio suppositis; oosporis sphaeroideis, in quoque sporangio numero variis.

Hab. in in Germania.

9. **Saprolegnia spiralis** Cornu Mon. d. Sapro. p. 10, t. VI, f. 10-12, 919 — Filamentis oogoniophoris saepe spiraliter incurvatis; oogoniis perforatis, in filamento quandoque lateraliter insertis; oosporis saepe solitariis, brunneis.

Hab. in pane aqua diu servato in Belgio et Gallia.

10. **Saprolegnia Schachtii** Frank. Krankh. Pflanz. — Filamentis ramosis, 4,5-10 μ . latis, hyalinis; oogoniis globosis, 40 μ . diam., membrana crassa, perforata. 920

Hab. in *Pellia epiphylla* in Germania.

11. **Saprolegnia monilifera** De Bary Bot. Zeit. 1883, p. 56. — Antheridiis atque ramulis lateralibus nullis. 921

Hab. in in Germania.

12. **Saprolegnia hypogyna** Pringsh. De Bary in Bot. Zeit. 1883, p. 56. 922 — Oogoniis quandoque antheridiis praeditis; ramulis lateralibus semper exsistentibus sed uno semper interposito

Hab. in in Germania.

13. **Saprolegnia? Libertiae** (Bory) Kütz. Species p. 160, *Conserva Libertiae* Bory, *Leptomitus Libertiae* Ag. Syst. p. 49. — Filamentis hyalinis, tubulosis, flaccidis, simplicibus, in caespitem violaceum aggregatis. 923

Hab. ad Fontinalem in Arduennis (M. A. LIBERT).

- PYTHIUM** Pringsh. Jahrb. Bd. I, p. 288 (Etym. a *pytho* putrefacio). — Mycelium simplex vel ramosum. Zoosporangia ex protoplasma-te efformata, dein cuticula delicatissima praedita. Zoosporae cuticu-

lam erumpentes et tunc liberatæ, semper denudatæ. Oogonia monospora. Oospora quandoque hyalina, demum cristata.

1. **Pythium De-Baryanum** Hesse Pyth. De Baryanum p. 34, Schroet. 924
Krypt. Schles. p. 232, *Pythium Equiseti* Sadeb. in Sitz. d. Bot. Ver. der Prov. Brandeb. 1874, p. 166. *Lucidium pythioides* Lohde Ueber ein. paras. Pilze p. 203, *Pythium verans* De Bary in Bot. Zeit. 1881, p. 537, t. V, f. 3-7. — Mycelio ramoso; ramis lateralibus filiformibus reflexisque, subhorizontaliter patentibus; zoosporangiis globosis vel late ellipticis, terminalibus subinde intercalaribus, breviter papillatis; oogoniis globosis, membrana laud perforata; oosporis sphaeroideis, 25-35 μ . diam., exosporio crasso, levi, endosporio tenui.

Hab. in seminibus *Camelinæ sativæ*, *Trifolii repentis*, *Spergulae arvensis*, *Panici miliacei*, *Zea Maydis* etc., nec non in *Equisetis* et prothallis *Filicum* et charta uda in Germania.

2. **Pythium monospermum** Pringsh. Jahrb. Bd. I, pag. 228, t. XXI, 925
f. 2-16, Lindstedt Synopsis Saprolog. p. 49. — Filamentis longis 110 μ . circ., inferne latis, gracilibus, ramosis, zoosporangiis elongatis circ. 150 μ . latis; oogoniis perforatis, monosporis; antheridiis apice cellularum ramorum lateralium insertis, oogonium tangentibus et brevi appendicula perforantibus

Hab. in farinæ larvis emortuis sub aqua putrescentibus prope Berlin Germanicæ et in Belgio.

3. **Pythium proliferum** De Bary Pringsh. Jahrb. Bd. II, p. 182, t. XXI, 926
f. 28-37, Lindstedt. Syn. Saprolog. p. 49, Schroet. Krypt. Flor. Schles. Pilze p. 232. — Zoosporangiis elongatis sæpe limoniiformibus, papillatis; zoosporis per papillam zoosporangio exeuntibus, eruptione cuticulæ; oosporis globosis, episporio levi.

Hab. in insectis putrescentibus nec non in fragmentis plantarum emortuis sub aqua servatis in Germania et Belgio. — Reproductio hujus speciei sive filamentis intra sporangium senescens, vacuum crescentibus, sive ramulis lateralibus.

4. **Pythium Cystosiphon** Lindstedt Syn. Saprolog. p. 50, *Cystosiphon* 927
pythioides Roze et Cornu in Ann. Scienc. Nat. ser. V, tom. XI, p. 72, t. III, f. 1-22. — Mycelio entophyto, septis nullis vel raris, cellulas matricis perforante; zoosporangiis globosis vel oblongis, in cellulis extrinsecis matricis positis, filamentis cuticulam zoosporarum perforantibus; zoosporis oblongis vel subreniformibus, utrinque uniciliatis; oogoniis sphaeroideis, levibus, terminali-

bus vel intercalaribus, monosporis; oosporis episporio crasso, reticulato præditis; antheridiis unicellularibus, apice filamentorum mycelii insertis, oogonium perforantibus appendicula brevi.

Hab. parasitice in frondibus vivis Wolfiæ Michellii in Germania, Gallia et Belgio.

5. **Pythium entophytum** Pringsh. Jahrb. I, pag. 289, t. XXI, fig. 1, Lindst. Synopsis Sapol. p. 51. — Cellulis vesiculososis, entophytis, abbreviatis, simplicibus (non ramosis ut videtur) varie curvatis, postremo erumpentibus; zoosporangiis distincte globosis; zoosporis uniciliatis, antheridiis subglobosis, antherozoidia bacillaria continentibus (?).

Hab. intra Spirogyram quandam in Germania.

6. **Pythium megalacanthum** De Bary, Schroet. Krypt. Flor. Schles. Pilze p. 232. — Zoosporangiis sphaeroideis, ellipticis vel piriformibus, papillis plurimis longis, apice vel lateribus instructis; zoosporis majusculis, maturis 18-20 μ . diam.; oogoniis globosis, apicalibus vel intercalaribus, prominentiis conicis, subspiniiformibus præditis, sine aculeis 36-40 μ . latis, aculeis vero 6-9 μ . longis; oosporis sphaeroideis 27 μ . diam., episporio levi.

Hab. in fragmentis plantarum emortuis sub aqua nec non in caulibus putrescentibus Veronicae hederifoliae in Germania.

7. **Pythium gracile** Schenk. Algal. Mittheil. pag. 27, t. I, fig. 1-26, Lindst. Synop. Sapol. pag. 52, *P. reptans* De Bary in Pringsh. Jahrb. Bd. II, p. 186, t. XXI, f. 38-41 et 42-45. — Filamentis ramosissimis; sporangiis et zoosporis *Pythii monospermi* sed oogoniis non perforatis.

Hab. in parte interiore Nitellæ, Spirogyræ, Bangiæ atro-purpureæ et Cladophoræ nec non in insectis in Germania, Agro Tridentino et Belgio.

8. **Pythium imperfectum** Cornu Monogr. Sapol. p. 13. — Sporangiis sphaericis; plasmate per apicem tubi longissimi exeunte; vesicula plerumque erupta; sporangiis apice filamentorum gracilium insertis.

Hab. in in Gallia.

9. **Pythium utriforme** Cornu Monogr. Sapol. p. 13. — Zoosporangiis irregularibus, utriformibus, reniformibus, elongatis, quandoque interpositis; plasmate apice tubi longissimi exeunte; vesicula saepe rupta.

Hab. in in Gallia.

10. **Pythium circumdans** Lohde Ueber ein. parasit. Pilze in Tageblatt

der 47 Versamml. deutsch. Naturforsch. und Aerzte 1874, p. 204.

— Zoosporangiis globoso-sphæroideis, 4–8 zoosporas gignentibus.

Hab. ad margines prothalli Filicum in Germania.

11. **Pythium Chlorococci** Lohde Ueber ein. paras. Pilze in Tageblatt 934

der 47, Versamml. deutsch. Naturf. und Aerzte 1874, p. 204. —

Zoosporangiis irregulariter globosis; zoosporis minutis, nitentibus, refringentibus.

Hab. in cellulis Chlorococci, quas onecat, in Germania.

Species ejus diagnosis nobis nondum innouit.

12. **Pythium fimbriatum** De la Rue in Bull. Soc. imp. Natur. de Mo- 935

scou 1869, I, p. 469. Non descriptum. *Pythium polysporum* So-

rok. in Mykol. Untersuch.?

DICTYUCHUS Leitg. in Pringsh. Jahrbüch. VII, p. 371 em. Lindst.

Syn. Sapro. p. 56 (Etym. *dictyon* rete et *echo* contineo). — Zoo-

sporæ ante exitum e zoosporangio denudatæ, membranulam pro-

priam in illo relinquentes ita ut zoosporangium reticulatum appa-

reat. Zoosporæ dimorphæ. Oogenia 1-polyspora, haud perforata.

1. **Dictyuchus monosporus** Leitgeb Jahrb. VII, pag. 357, t. XXII, 936

f. 1–12 et t. XXIII, f. 1–8, Lindst. Sapro. p. 58. — Dioicus; fila-

mentis solitariis, quandoque cæspitulosis; oogoniis monosporis, non

perforatis, 25 μ . diam.; antheridiis vermiformibus; filamentis anthe-

ridiophoris hyphis oogoniferis similibus, ramosis, filamenta oogo-

nifera amplexantibus; oosporis hyalinis, maturitate uni-magni-

guttatis.

Hab. in bulbo Hyacinthi sub aqua putrescente prope Graz

Austriæ et in Gallia.

2. **Dictyuchus polysporus** Lindstedt Sapro. p. 58, t. III, f. 1–3 et 937

t. IV, f. 1–7. — Monoicus; oogoniis forma variis, polysporis levi-

bus non perforatis; antheridiis apice ramulorum ex oogonio orto-

rum insertis oogonium amplexantibus; oosporis 25–27 μ . diam.

Hab. in fragmentis ligneis sub aqua in calidario Horti Botanici

Berlin Germaniæ. — An huc *Pythium polysporum* Sorok.?

3. **Dictyuchus Magnusii** Lindstedt Sapro. p. 58, t. I, f. 1–8 et t. II, 938

f. 1–8. — Dioicus; sporangiis numerosis; oogoniis monosporis,

aggregatis, levibus, 30–35 μ . diam., non perforatis; ramulis anthe-

ridiophoris apice unum raro duo antheridia nodosa, oogonium am-

plexantia gerentibus; oogoniis 30–35 μ . diam., unam tantum oospo-

ram continentibus.

Hab. in fructibus præcipue *Trapæ natantis* sub aqua, Leipzig et Berlin Germaniæ.

DIPLANES Leitgeb in Pringsh. Jahrb. VII, p. 374 (Etym. *dis* bis et *planes* vagans). — Zoosporangium tenue, a filamento perforatum. Filamentum inde apice rursus zoosporangiferum. Zoospore intra sporangium efformatæ, deinde extra sporangium moventes, denudatæque, tandem rursus moventes; oogonia polyspora. Sec. Cornu hoc genus a *Saprolegnia* haud satis distinctum est.

1. **Diplanes saprolegnioides** Leitgeb in Pringsh. Jahrbüch. Bd. VII, p. 374, t. XXIV, f. 1-12, *Achlya intermedia* Bail. Krank. Insect. durch Pilze t. II, f. 29. — Parum ramosa; oogoniis perforatis, apice ramulorum, 37 μ . crass. insertis, polysporis; antheridiis ramulis lateralibus ex oogonio orientibus præditis; zoosporis vestitis ovoideis, trifoveolatis, denudatis vero fabæformibus, unifoveolatis.

Hab. in insectis variis sub aqua in Germania et Gallia.

ACHLYA Nees Nov. Act. Leop. XI, 2, p. 514 (Etym. ab *achlys* nebula). — Habitus *Saprolegniæ*. Zoosporangia zoosporas numerosas nullo ordine dispositas continentia. Zoospore extra zoosporangium denudatæ, zoosporas novas gignentis. Oogonia polyspora.

A) Species dioicæ.

1. **Achlya prolifera** Nees, De Bary Botan. Zeit. 1852, t. VII, f. 1-28, *Saprolegnia capitulifera* A. Br. Vey. p. 201. — Filamentis ramosis, 25-75 μ . latis, ramis lateralibus nullis; oogoniis perforatis; oosporis brunneis; filamentis sub zoosporangio apicali, zoosporangiis lateralibus præditis; antheridiis

Hab. in insectis putrescentibus, in foliis *Nymphææ albae* et *Nupharis lutei* et in silvis prope Freiburg et Berlin Germaniæ.

2. **Achlya dioica** Pringsh. Jahrb. II, p. 206, t. XXIII, f. 1-9, Lindst. Sapol. p. 60. — Filamentis sub zoosporangio terminali zoosporangia lateraliter gerentibus; oogoniis perforatis, polysporis.

Hab. in insectis aliisque quisquiliis organicis, Berlin Germaniæ (PRINGSHEIM). — An ab *Achlya prolifera* satis distincta?

3. **Achlya cornuta** Archer in Quart. Journ. Micr. Science 1867, p. 121, t. VI, f. 2-6, Lindst. Sapol. p. 60. — Zoosporangiis nondum visis; oogoniis, filamentis corneis donatis, oosporis numerosis raro

una; antheridiis ad apicem filamentorum propriorum evolutis; oogoniis praecipue terminalibus, saepe apice ramorum lateralium sub oogonio apicali insertis; oogonio apicali oogonia minora gerente.

Hab. in Britannia, Belgio.

B) Species monoicae.

. **Achlya racemosa** Hildebrand in Pringsh. Jahrbüch. Bd. VI, Lindst. ⁹⁴³
Saprol. p. 61. — Filamentis partim ramosis zoosporangiferis, partim simplicibus aut subramosis oogoniophoris; zoosporis fabaeformibus; oogoniis haud perforatis, membrana intus undulata.

Hab. ad fragmenta lignea prope Bonn Germaniae. — Var. **lignicola** (Hildebr.) Cornu in Lamb. Flor. Myc. Belg. II, pag. 119, *Achlya lignicola* Hildebr. in Pringsh. Jahrbüch. VI, p. 255, t. XVI, f. 1-6: a typo sec. Cornu fere indistincta. In fragmentis ligneis in aqua stagnante in Germania et Belgio. — Var. **stelligera** Cornu loc. cit.: oogoniis parce echinulatis. In Belgio et Gallia. — Var. **spinosa** (De Bary) Cornu loc. cit. *Achlya spinosa* De Bary in Bot. Zeit. 1882, p. 167: oogoniis echinulis validis instructis. Cum varietate praecedenti.

. **Achlya polyandra** Hildebrand in Pringsh. Jahrbüch. VI, p. 258, ⁹⁴⁴
t. XVI, f. 7-11 et t. V, f. 1-5, Lindst. Saprol. p. 62. — Oogoniis oblongis haud perforatis; oosporis brunneis; antheridiis lobatis numerosissimis, oogonium undique celantibus; stipitibus oogoniorum forma variis; zoosporangiis apicalibus, longissimis, solitariis numquam filamento latoribus.

Hab. in muscis, pane et aqua udis in Germania.

. **Achlya leucosperma** Cornu Monogr. Saprol. pag. 24. — Oogoniis ⁹⁴⁵
biperforatis; in ramulis brevibus e ramo primario nascentibus, generatis; oosporis albis; antheridiis cylindricis, in seriem ad ramorum lateralium apicem dispositis.

Hab. in in Gallia et Belgio.

. **Achlya recurva** Cornu in Lamb. Flor. Myc. Belg. pag. 120. — ⁹⁴⁶
Oogoniis ramo laterali filamentum recurvatum insertis; antheridiis digitatis.

Hab. in in Gallia et Belgio.

. **Achlya contorta** Cornu Monogr. Saprol. t. I, f. 9-15. — Oogoniis ⁹⁴⁷
sphaericis, levibus, paucas oosporas, plerumque 8, gerentibus; filamentis oogoniferis plus minusve spiraliter contortis; antheridiis ut in *Achlya leucosperma*.

Hab. in in Gallia et Belgio.

9. **Achlya Braunii** Reinsch, in Jahrb. 1877, XI, 2, pag. 297, t. XIV, f. 1-6. — Filamentis 10 mm. et ultra longis; oogoniis ellipsoideis, 10-40-sporis, perforatis.

Hab. in in Germania.

APHANOMYCES De Bary in Pringsh. Jahrb. II, p. 170 (Etym. *aphanes* latens et *myces* fungus). — Zoosporangia longissima, gracilia, cylindracea. Zoosporæ uniseriatæ. Oogonia sæpe 1, raro 2 oosporas continentia. Antheridia ad apicem ramulorum vermiformium, oogonium amplectentium inserta.

A) Filamenta libera, intra algas haud parasitica.

1. **Aphanomyces stellatus** De Bary in Pringsh. Jahrbüch. II, p. 170, t. XIX, f. 1-13 Lindst. Sapol. p. 63. — Mycelio repente; hyphis fertilibus erectis; oogoniis magnis, obtusis, demum stellatis; oosporis solitariis, rarius binis, in singulis oogoniis; conidiis in catenulas dispositis, substantiam internam aut per filamenta germinantia aut per zoosporas emittentibus.

Hab. ad insecta putrescentia sub aqua in Germania, Belgio. — Oogonia (cum radiis) 26-32 μ . diam., radii 4-5 μ . longi; oosporæ 15-18 μ . diam.

2. **Aphanomyces levis** De Bary in Pringsh. Jahrbüch. II, pag. 199, t. XX, f. 17-18, Lindst. Sapol. p. 63. — Oogoniis globosis, levibus; oosporis gutta oleosa, unica centrali præditis; antheridiis contentum per foramen oogonii in hoc infundentibus.

Hab. ad insecta putrescentia inter algas et sphagna in silva Hercinia (De Bary) et in aquariis Breslau (Schroeter) Germaniæ et in Belgio. — Oogonia 26-31 μ . diam.

3. **Aphanomyces scaber** De Bary Jahrbüch. II, p. 178, t. XX, f. 14-16, Lindst. Sapol. p. 63. — Oogoniis globosis 24 μ . diam. cuticula asperula in parvulos mucrones lacinulata præditis; oosporis maturis magnam guttam oleosam globosamque continentibus.

Hab. ad insecta putrescentia, sociis Pythiis in aqua plantas continente in Germania et Belgio. — Oogonia 15-23 μ . diam.

B) Filamenta intra algas parasitica.

1. **Aphanomyces phycophilus** De Bary in Pringsh. Jahrbüch. II, p. 179, t. XX, f. 19-24, Lindst. Sapr. pag. 64. — Filamentis entophytis. 9-12, rarius 16 μ . latis; oogoniis apice brevioribus, parum stellatis; oosporis globosis, contento uniformi, granuloso.

Hab. in *Spirogyra lubrica* Kütz et *S. nitida* Kütz aliisque algis in Germania et pr. Boitsfort Belgii. — *Oogonia* 40-50 μ . diam.

MONOBLEPHARIS Cornu Bull. Soc. Bot. de France 1871 (Etym. a *monos* unus et *blepharis* cilium). — Zoosporæ regulariter uniciliatæ, appendicibus lateralibus nullis. Antherozoa zoosporis similia; oogonia late pertusa unam tatum gonosphæram continentia.

1. **Monoblepharis sphærica** Cornu Monogr. Saprolegn. p. 82, pl. II, 953
1-6. — Hyphis ramosis, apice oogonium monosporum sphæricum solitarium, rarissime geminatum basi septatum gerentibus; antheridio unico, oogonio supposito; antherozoidiis ovoideis, longe unicaudatis; oosporis sphæroideis, hyalinis, 16-27 μ . diam., primo luteolis, demum brunneo-rufis, episporio tenui.

Hab. in in Gallia.

2. **Monoblepharis polymorpha** Cornu Monogr. Saprolegn. p. 83, pl. II, 954
7-32. — Oogoniis forma variis, solitariis vel usque ad 12 aggregatis, antheridiis præditis; oosporis sphæroideis, hyalinis, 16-27 μ . diam., dein pallide luteis, demum brunneo-rufis.

Hab. in Sologne Galliæ. — A *M. sphærica* fabrica atque magnitudine nec non colore oosporarum vix distincta sed oosporarum genesi fere e genere removenda.

3. **Monoblepharis prolifera** Cornu Rem. sur quelq. Sapol. nouv. in 955
Bull. Soc. Bot. Fr. 1877, pag. 226. — Zoosporangiis proliferis ut in Pythio prolifero; oosporis ovatis albis.

Hab. in in Gallia. — Forte huc spectat *Saprolegnia siliquæformis*. Coniugatio nondum cognita.

ACHLYOGETON Schenk in Bot. Zeit. 1859, p. 398 (Etym. *achlys* nebula et *geiton* proximum). — Filamenta in zoosporangia dividenda vel tantum sporangium efformantia. Zoosporarum genesis est ut in *Achlya*; zoosporæ circa perforationem sporangii sese denudantes. — Genus *Achlyæ* et *Aphanomyces* affine.

1. **Achlyogeton enlophytum** Schenk in Bot. Zeit. 1859, p. 398, t. XIII, 956
A, f. 1-8, Lindst. Sapol. p. 66. — Filamentis simplicibus, 45-60 μ . latis, primum 7-9 rarius usque ad 15-septatis, demum in articulos secedentibus, sporangia efformantibus; zoosporis demum in capitulum congestis et denudatis uniciliatisque.

Hab. in cellulis Cladophoræ et Anguillulæ in Belgio et Germania et Kazan Rossicæ.

2. **Achlyogeton solatium** Cornu in Bull. Soc. Bot. France (1870), p. 297. — Filamentis plus minusve ramosis; sporangiis ex filamentis hinc inde septatis efformatis, appendiculâ septa cellulae hospitalis perforante instructis; zoosporis demum in capitulum collectis ut in *Achlya*, inde denudatis, tandem libere natantibus; oogoniis irregularibus, polysporis; antheridiis ignotis.

Hab. in cellulis *Ædagonii obsidionalis* in aquario *Alisma*-tem natantem continente, Paris Gallia.

3. **Achlyogeton rostratum** Sorok. Not. sur les Veg. par. des Anguill. in Ann. Scienc. Nat. 1876, p. 62, t. III, f. 6-28. — Zoosporangiis 7-9 $\approx$ 5-6.

Hab. intra Anguillulam, Kasan Rossia. — «An revera *Catenaria Anguillulae*?».

RHIZOMYXA Borzi Nuov. Ficom. p. 6 (Etym. a *rhiza* radix et *myxa* mucilago). — Plasmodium difforme, cavitatem cellulae dein ex toto occupans, subinde globosum, 10-30 nucleos lenticulares continens, cuticula tenui cinctum, appendiculam conicam brevem, per quam zoosporae exeunt, gerens vel ex toto in zoosporangium mutatum vel in sporas immobiles hibernantes numerosas solutum. Zoosporae, apice appendiculæ perforantis soluto, exeuntes, sphaeroideæ, uniflagellatae, antice rostro brevissimo hyalino instructæ. Sporae immobiles e partitione plasmatis ortæ sphaeroideæ, nudæ, sæpius in soros collectæ parce zoosporiparæ oogonia globosa, monospora. Antheridia clavata, basi elata appendicula brevi in oogonia penetrantia. Oosporae globosæ, episporio crassiusculo, levi tectæ.

1. **Rhizomyxa hypogæa** Borzi Nuovo Ficom. p. 6, f. I et II. — Characteres iidem ac generis; zoosporis 4-24, rarius ultra in quoque zoosporangio, 5-6 μ . latis, flagello 10-15 μ . longo instructis; sporis perdurantibus, globulosis, 8 μ . circ. diam.; soris sporarum opacis, sphaeroideis vel oblongis, 20-60 μ . latis, oogoniis 25-40 μ . diam., antheridiis æquilongis; oosporis sphaeroideis, 15-20 μ . diam.

Hab. in radicibus plantarum diversarum, quas sæpius enecat. pr. Messina Sicilia.

LAGENIDIUM Schenk Algol. Mittheil. p. 12 (Etym. a *lagena*). — Mycelium ramosum; zoosporangia globulosa. Zoosporae semper nude biciliatae; oogonia et antheridia in individuis diversis plerumque evoluta, ventricosa. Oosporae globosæ. Antheridia tenuia, sacciformia, ramulo oogonium penetrantia.

1. **Lagenidium Rabenhorstii** Zopf Zur Kenntn. der Phycomyc. p. 115, ⁹⁶⁰
t. I, et II. — Mycelio inequali, lateraliter ramuloso; zoosporangiis cylindraceis vel irregularibus, usque ad 10 in quaque cellula: zoosporis fabæformibus, 5 μ . longis, biciliatis, 4-20 in quoque zoosporangio; antheridiis cylindraceis, ramulo laterali oogonium amplectentibus; oogoniis ventricosis; oosporis globosis 15-20 μ . diam., episporio crasso, hyalino tectis, grosse 1-guttulatis.

Hab. in cellulis vegetativis algarum pr. *Spirogyræ*, *Mougeotiae*, *Mesocarpi* in Germania. — Plerumque dioicus, rarius monoicus.

2. **Lagenidium tophytum** (Pringsh.) Zopf Zur Kenntn. der Phycomyc. ⁹⁶¹
p. 154, t. II, f. 10-18 et t. III, *Myzocytiūm entophyllum* Pringsh. in Lamb. Flor. Myc. Belg. p. 125, f. 1-5. — Oogoniis sphaericis, appendicula irregulari instructis; zoosporangiis cylindricis, ramosis.

Hab. in zygosporis *Zygnemacearum* in Germania et Gallia.

3. **Lagenidium enecans** Zopf Zur Kenntn. der Phycomyc. pag. 154. ⁹⁶²
— Hyphis mycelicis crassis, elongatis, ramulis lateralibus longis vel brevibus instructis; evolutione sporangiorum ut in *Lagenidio Rabenhorstii*.

Hab. intra Diatomaceas majores e. g. *Stauroneis Phœnicænteron*, *Cocconema lanceolatum*, *Pinnularia* in Germania.

MYZOCYTIUM Schenk Algol. Mittheil. p. 12 (Etym. a *myzeo* sugo et *cytos* cavitas). — Mycelium simplex. Zoosporæ semper nudæ. Oogonia intercalaria. Antheridia haud ramulis lateralibus instructa, in eodem individuo. Oosporæ demum cristatæ. A genere *Lagenidio* mycelio simplici nec non præsentia antheridii et oogonii in eodem individuo distinctum.

1. **Myzocytiūm proliferum** Schenk in Schroet. Krypt. Flor. Schles. ⁹⁶³
p. 227, Zopf Phycomyc. pag. 159, t. III, f. 6-34. *Pythium proliferum* Schenk, non De Bary. — Mycelio toruloso, cellulae matricis breviori; zoosporangiis moniliformibus, pendulis, 20 μ . latis, globosis vel ellipticis; zoosporis ovatis vel fabæformibus, 5 μ . circ. longis; antheridiis et oogoniis cateniformibus; antheridiis plerumque angustioribus longioribusque; oosporis globosis, 15-20 μ . diam., episporio crasso, diaphano tectis, hyalinis.

Hab. in cellulis vegetativis *Zygnemacearum* in Germania. — Var. **vermicola** Zopf loc. cit. t. III, f. 35-37: in anguillulis, Berlin Germaniæ.

2. **Myzocyttium globosum** Schenk. Algol. Mittheil. p. 12, t. 1, f. 43-46, 9
Pythium globosum Walz. — Oogoniis et sporangiis ovoideis; antheridiis subovoideis, inter oogonia in filamentis moniliformibus sitis.

Hab. in cellulis *Cladophoræ*, *Spirogyræ*, *Mougeotiæ*, *Zygnematis*, *Mesocarpi*, *Closterii* in Germania, Gallia et Russia. — Sec. Lindstedt est generis *Lagenidii* species (*Lagenidium globosum* Lindst.).

3. **Myzocyttium lineare** Cornu in Lamb. Fl. Myc. Belg. pag. 125. — Oogoniis linearibus, tumidis, irregularibus; zoosporangiis linearibus, simplicibus vel ramosis, seriatis.

Hab. in in Gallia (et Belgio?).

ANCYLISTES Pftz. Monat. Berl. Akad. 1872 (Etym. *ancylos* aduncus). — Filamentum septis in cellulas seriatas divisum. Contentum cellularum mox in cellulam algæ alienæ infusum. Oosporæ haud evolutæ. Oogonia conjugatione duarum cellularum inflatarum efformata. Genus incertæ sedis.

1. **Ancylistes Closterii** Pftz. Monat. Berl. Akad. 1872. — Filamentis 8 μ . crassis.

Hab. intra cellulas vivas *Closterii* Germaniæ.

SACCOPODIUM Sorok. in Hedw. 1877, p. 88, cum icone (Etym. *sacus* et *pus* pes). — Mycelium ramosum, eseptatum. Sporangia apice filamenti erecti congesta, globosa, apice papillâ pertusa. Zoosporæ minutæ ellipsoideæ, cilio carentes.

1. **Saccopodium gracile** Sorok. in Hedwigia 1877, pag. 88 cum ic. 26 fig. 1-3. — Mycelio intra cellulam matricis effuso, ramoso, eseptato, peduncula erecta extus emittens; zoosporangiis subglobosis, apicem versus attenuato-papillatis in capitulum apice filamenti congestis, demum apertis; zoosporis minutis, ellipsoideis, ciliis destitutis.

Hab. in speciebus *Cladophoræ* vel *Spirogyræ* pr. Kasan Rossicæ.

Fam. 4. **Entomophthoraceæ** NOWAKOW.

Hyphæ conidia gerentes, plerumque extra matricem erumpentes; simplices vel ramosæ; zygosporæ copulatione contigua in eadem hypha vel scaliformi inter duas hyphas distinctas efformatæ.

Clavis analytica generum.

A) Zoophila.

† Conidia tantum vel conidia et sporæ perdurantes cognitæ.

Empusa. Mycelium tantum intra animalis corpus evolutum, plerumque mox in fragmenta distractum; hyphæ conidiophoræ simplices.

Entomophthora. Mycelium primum intra animalis vivi corpus evolutum, dein animali emortuo hyphas extra emittens; hyphæ conidiophoræ ramosæ.

†† Sporæ perdurantes tantum notæ.

Tarichium. Mycelium intra animalis corpus evolutum, primum subsimplex fere vesiculosum, dein pluries dichotomum.

B) Phytophila vel saprophytica.

Conidiobolus. Mycelium fungicolum, rarius saprophyticum valde evolutum; hyphæ conidiophoræ apice parum incrassatæ; zygosporæ per copulationem duarum cellularum in diversis hyphis efformatæ.

Basidiobolus. Mycelium saprophyticum, valde ramosum; hyphæ conidiophoræ superne in clavum crassam conidiophoram dilatatæ; zygosporæ per copulationem duarum cellularum in eadem hypha efformatæ.

? *Completozia*. Mycelium intra Filicum prothallum evolutum, vesiculososo-subincurvatum, extus ramulos apice conidiophoros gerens; sporæ perdurantes in mycelii contento efformatæ.

EMPUSA Cohn in Hedwigia 1855, pag. 57 (Etym. *Empusa* nomen mythologicum). — Mycelium intra corpus insectorum viventium evolutum, haud extra corpus eorum erumpens; hyphæ conidiophoræ, insecto emortuo, erumpentes, albidæ, simplices. — Cum genus homonymum antierius Lindleyi Orchidearum haud acceptandum sit, hoc firmum manet (Cfr. Benth. et Hook. Plant. III, p. 495). Exstat vero homonymum in Orthopteris (*Empusa* Illig.).

1. ***Empusa Muscæ*** (Fr.) Cohn in Nov. Act. Acad. XXV, pars I, p. 317, 968. *Myiophyton Cohnii* Lebert in Denkschr. Schweiz. Ges. für Naturw. XV, Bd. 1857, p. 26, *Entomophthora Muscæ* (Cohn) Winter Die Pilze p. 76, *Sporendonema Muscæ* Fres. — Hyphis conidiophoris primo brevibus, ellipticis, dein sacculiformibus, 9-11 μ . crassis, insecto emortuo erumpentibus, albidis, apice clavatis, 20-28 μ . latis, hyalinis; conidiis subglobosis vel breviter ovatis, 20-33 = 16-23, hyalinis, guttulatis, levibus; sporis perdurantibus latere vel apice mycelii evolutis, globosis, 30-50 μ . diam., episporio crasso tectis, hyalinis.

Hab. in *Musca domestica* et formis proximis in Germania, Austria, Helvetia, Italia et Nederlandia. — Status imperfectus *Saprolegnie feracis* Kütz.

2. ***Empusa Culicis*** (Braun.) Winter Die Pilze p. 77, *Entom. Culicis* 969

A. Braun Algar. unic. gen. nov. et min. cogn. p. 105. — Hyphis conidiophoris 3,5-6,5 μ . latis, sursum 12 μ . latis, glauco-virescentibus; conidiis 9-12 $\approx$ 8-9, campaniformibus.

Hab. in Culice pipiente per totam æstatem in Germania. — *Empusæ Muscæ* peraffinis at minor.

3. **Empusa Grylli** Fresen. in Bot. Zeitg. 1856, p. 883, Schroet. Krypt. Fl. Schles. Pilze p. 222. — Hyphis conidiophoris 3-5-cellularibus, sursum granulato-brunneis, 10-20 μ . latis, columella præditis; conidiis ovatis vel piriformibus, 33-43 $\approx$ 25-37, brunneolis; sporis perdurantibus in ramulos mycelicos breves intra matricem evolutis, globosis, 34-40 μ . diam., episporio levi, brunneo tectis.

Hab. in Locustis et Culicibus in Germania. — Hue spectat. sec. cl. Nowakowski, *Entomophthora conglomerata* Sorok.

4. **Empusa Aulicæ** Reichardt in litt. (cfr. Bail. über Pilzepizootien, in 97 Schriften d. natur. Ges. zu Danzig. N. F. II, Bd. 2, Heft. 1869, p. 3), *Entomophthora Aulicæ* (Reich.) Wint. Die Pilze p. 78. — Hyphis conidiophoris, post animalis mortem, erumpentibus, cæspitulum laxum 1 mm. altum efformantibus; conidiis ovatis, apice obtuse papillatis, 27-38 $\approx$ 20-27.

Hab. in larvis et chrysalidibus Euprepie Aulicæ, E. villicæ, et Tracheæ piniperdæ in Germania.

5. **Empusa Jassi** (Cohn) Wint. Die Pilze p. 79, *Entomophthora Jassi* 97 Cohn in Jahres. d. Schles. Ges. f. vaterl. Cult. 1877, p. 116. — Mycelium intra corpus insecti evolutum, dein extus subvelutinum; conidiis globosis, 20 μ . diam.

Hab. in Jasso sexnotato pr. Breslau Germaniæ.

6. **Empusa Fresenii** Nowakow. in Schroet. Krypt. Fl. Schles. Pilze 97 p. 222. — Hyphis conidiophoris demum erumpentibus, cæspitulum subtilissimum, album efformantibus; conidiis ovatis, parvis, 20 $\approx$ 17.

Hab. in Aphide Craccæ ad Viciam sativam in Germania et Polonia.

ENTOMOPHTHORA Fresenius in Botan. Zeitg. 1856, p. 883 em. Bref. et Nowak. (Ety. ab *entomon* insectum et *phtheiro* eruo). — Mycelium intra insecta evolutum, late expansum, ramosum, animali emortuo extus hyphas conidiophoras ramosas emittens; conidia forma varia, hyalina vel brunneola; sporæ perdurantes globosæ, intra matricem evolutæ, leves, plerumque brunneæ e copulatione scalliformi productæ.

1. **Entomophthora sphærosperma** Fresen. in Berl. Bot. Zeitung. 1856, 97

pag. 883, *Empusa* seu *Entomophthora radicans* Brefeld in Bot. Zeitg. 1870, p. 185, *Entom. radicans* Brefeld Ueber Entom. und ihre Verwandt. in Sitzung. der Ges. naturf. Freund. zu Berl. 20, März 1877, p. 3 des Sep. Abdr. — Hyphis conidiophoris dendritice ramosis, diverse incurvatis, hyalinis; mycelio 10–66 μ . crasso, extra insectum cæspitulum album expansum efformantibus; conidiis elliptico-oblongis, apicibus rotundatis, 17–20 $\approx$ 5, hyalinis; sporis perdurantibus globosis, 20–27 μ . diam., episporio crasso, levi, brunneo tectis.

Hab. in larvis Pieridis Brassicæ et (sec. Schneider) Limnophili vitripennis in Germania.

2. **Entomophthora Aphidis** Hoffm. in Fresen. Ueber die Pilzgatt. Entomophth. in Abhandl. der Senk. naturf. Gesells. II Bd., p. 208, tab. IX, fig. 59–67. — Hyphis conidiophoris parce septulatis, hyalinis, sursum claviformi-incrassatis, 12 μ . circ. latis; conidiis ellipticis, fusiformibus, sæpe asymmetricis vel incurvis, subinde minute apiculatis, 26–30 $\approx$ 10–16, hyalinis; sporis perdurantibus in ramorum mycelii apice evolutis, globosis, 33–43 μ . diam., primo brunneolis, dein hyalinis, episporio crasso levi, duplici tectis.

Hab. in Aphidibus ad Cornum sanguineam viventibus in Germania. — An huc spectat *Entomophthora Planchoniana* Cornu?

3. **Entomophthora Tipulæ** Fresen. in Abhandl. der Senkenberg. naturf. Ges. II, B. p. 206, tab. IX, fig. 46–50, Winter Die Pilze p. 77. — Hyphis conidiophoris subseptulatis, brunneo-virentibus, intus hinc illinc vacuis, 10–11,7 μ . latis; conidiis ovatis, 33–40 μ . longis, brunneo-viridulis.

Hab. in Tipulis in Germaniæ.

4. **Entomophthora Tenthredinis** Fresen. in Abhandl. der Senkenb. nat. Ges. II, B. p. 205, tab. IX, fig. 51–58, Winter Die Pilze p. 77. — Hyphis conidiophoris usque ad 6-cellularibus sæpius sursum clavato-incrassatis vel subinde inflato-vacuis, plerumque contortis, 20 μ . circ. latis, brunneo-coloratis; conidiis globosis vel breviter ovatis, 47–62 μ . longis.

Hab. in larvis Tenthredinis ad Alnum viventibus in Germania.

5. **Entomophthora muscivora** Schroet. Krypt. Fl. Schles. Pilze p. 223, *Entomophthora Calliphoræ* Giard. in Bull. scient. départ. Nord. Ser. 2, Ann. II, n. 11? — Mycelio ex hyphis ramosis, 24 μ . latis efformato; hyphis conidiophoris ramosis extra matricem filamenta expansa, flavo-albida efformantibus; basidiis 13 μ . latis; conidiis ovatis, obtuse papillatis, plerumque 20–24 $\approx$ 11–13; sporis perdu-

rantibus latere hypharum mycelii evolutis, globosis 24-30 μ . diam., episporio crasso, castaneo-brunneo, levi tectis.

Hab. in muscis majoribus, *Calliphora vomitoria* in silvis Galliæ et Germaniæ.

6. **Entomophthora rimosa** Sorok. in Schroet. Krypt. Fl. Schles. Pilze p. 222. — Hyphis ramosis, 8-11 μ . latis, extra matricem filamenta sparsa efformantibus, conidiophoris sursum ramosis, cystidiis destitutis usque ad 15 μ . latis; conidiis ovatis vel piriformibus, papillulatis, 20-25 $\approx$ 14-17.

Hab. in speciebus Culicis in Rossia et Cheiromonatis prope Breslau Germaniæ. — Sec. Nowakowski est ad *Empusam Culicis* A. Br. ducenda.

7. **Entomophthora curvispora** Nowak. Entomophth. in Bot. Zeit. 1877, p. 217. — Cæspitulis albidis, mollibus; conidiis basi incrassatis, subannulatis; zygosporis e copulatione scaliformi efformatis, globosis, levibus, guttulatis.

Hab. in *Simulia latipede*, Warschau Poloniæ. — *Entomophthoræ sphaerospermæ* affinis.

8. **Entomophthora ovispora** Nowak. in Bot. Zeit. 1877, p. 219. — Habitus *Entomophthoræ curvisporæ*; conidiis ovatis, minusculis.

Hab. in *Lonchæa vaginali* prope Warschau Poloniæ. — Ab *Entomophthora curvispora* tantum conidiorum forma minoreque magnitudine differt.

Species nobis tantum nomine nota.

9. **Entomophthora conica** Nowak. Ueber die Entomophth.

Hab. in Polonia.

TARICHIMUM Cohn Beitr. zur Biol. der Pflanzen I, p. 84 (Etym. a *taricheia* imbalsamatio). — Mycelium intra insectorum viventium corpus evolutum, prima ætate sacculum breve, simplex vel subsimplex aut cellulam vesiculosam sistens, dein pluries ramosum. Conidia ignota. Sporæ perdurantes apice ramorum mycelii efformatæ, globosæ, episporio brunneo, crasso tectæ. — Genus vacillans ad *Entomophthoram* vergens.

1. **Tarichium megaspermum** (Cohn) Wint. Die Pilze p. 78, *Entomophthora megasperma* Cohn Beiträge zur Biolog., I Bd. p. 84, tab. IV et V. — Mycelio primo sacciformi, 5-25 μ . lato, hyalino vel subnigrescente, haud vel parce septulato, ramulis unicellularibus instructo; sporis perdurantibus solitariis vel 2-3 aggregatis.

globosis vel piriformibus 36-55 μ . diam. aut 100 $\approx$ 30, episporio atro-brunneo tectis.

Hab. in larvis in Agrostide segetum viventibus, quas enecat, nigrificat et indurat mumiae ad instar, in Germania. — Morbum «*Moscardina nigra*» dictum causat.

CONIDIOBOLUS Brefeld in Schroet. Krypt. Fl. Schles. Pilze p. 224 (Etym. a *conidium* et *bolos* jactus). — Fungicola, rarius saprophyticus; mycelium late expansum, valide ramosum, primo continuum, dein septulatum sæpeque in fragmenta eruptum; hyphæ conidiophoræ erectæ, apice subincrassatæ, simplices; conidia eruptione membranæ inter basidia, conidia et arcum columellæ ejecta, hyalina, guttulatæ; sporæ perdurantes (zygosporæ) e copulatione scaliformi cellularum hypharum efformatæ.

1. **Conidiobolus utriculosus** Bref. in Schroet. Krypt. Fl. Schles. Pilze 984 p. 224. — Mycelio ramoso, septulato, fragmentario; hyphis conidiophoris erectis, valide heliotropicis, subcylindricis, simplicibus, sursum circ. 30 μ . latis; conidiis piriformibus, deorsum obtuse minuteque papillatis, 50 $\approx$ 35, levibus, crassis, hyalinis, uniguttulatis; sporis perdurantibus globosis, 60-100 μ . diam., episporio crasso, levi, subhyalino vel flavo tectis.

Hab. in Hirneola Auricula-Judæ in Germania.

BASIDIOBOLUS Eidam ein. Gatt. Entom. et Schroet. Krypt. Flor. Schles. Pilze p. 224 (Etym. a *basidium* et *bolos* jactus). — Mycelium saprophyticum, late expansum, crassum, ramosum, mox septulatum. Hyphæ conidiophoræ simplices, erectæ, sursum in clavam latam (basidium), apice conidia gerentem inflatæ. Conidia subglobosa, hyalinula. Sporæ perdurantes (zygosporæ) e copulatione cellularum proximarum in eadem hypha efformatæ.

1. **Basidiobolus Ranarum** Eidam in Schroet. Krypt. Fl. Schles. Pilze 985 p. 225. — Hyphis conidiophoris filiformibus, circ. 15 μ . latis, valde heliotropicis, simplicibus; basidio elliptico, 60 $\approx$ 40; conidiis globosis vel breviter ovatis, plasmate homogæneo, haud guttulatis, 48 $\approx$ 46, hyalinis; sporis perdurantibus globosis vel ellipticis, 23-43 μ . diam., episporio undulato, crasso, pluristrato, flavo-brunneo vel hyalino.

Hab. in excrementis Ranae esculentæ et Ranae oxyphe in Germania.

2. **Basidiobolus Lacertæ** Eidam in Schroet. Krypt. Fl. Schles. Pilze 986

p. 225. — Basidio minus inflato; conidiis 15-36 = 13-33; sporis perdurantibus subellipticis, subinde globosis, 31-40 μ . diam., episporio flavo tectis.

Hab. in excrementis Lacertæ agilis pr. Breslau Germaniæ.

COMPLETORIA Lohde in Tagblatt Naturf. Bresl. 1874 (Etym. *compleo*). — Mycelium intra Filicum prothallium evolutum, sacciformi-subincurvatum, extus ramulos apice conidiophoros gerens. Conidia subglobosa, hyalinula. Sporæ perdurantes in mycelii contento efformatæ, globosæ, guttulatæ, episporio levi, crassiusculo tectæ. — Genus ad *Pythium* quoque vergens.

1. **Completoria complens** Lohde loc. cit. Leitg. Compl. complens cum tab. L. — Mycelio cellulas matriciales brunneas efficiente; sporis perdurantibus globosis, 18-25 μ . diam., plasmate granuloso, faretis, guttulis, episporio tribus stratis constituto tectis, e brunneo pallescentibus intusque hyalinulis; conidiis globosis, circ. 15 μ . diam.

Hab. in cellulis prothalli Filicum præcipue Aspidii falcati in Germania.

Fam. 5. Chytridiaceæ DE BARY et WORON.

Hyphæ nullæ vel obsoletæ et tunc sporangia amycelica nuda: reproductio agamica zoosporica; zoosporæ partitione simultanea efformatæ, e zoosporangio erupto exsistentes et cellulæ perdurantes crasse tunicatæ in zoosporangium denique abeuntes; cellulæ perdurantes nunc e sporangio singulo vegetativo crasse tunicato efformatæ, nunc ex copulatione duarum cellularum, contento alterius in alteram (in zygosporam mutatam) ineunte. — Fungi sive aërophili in plantis entoparasitici, sive hydrophilis in algis, fungis et infusoris entoparasitici.

Clavis analytica generum ¹⁾

A) In plantis Phanerogamis parasiticæ.

Synchytrium. In cellulis epidermicis plantarum phanerogamarum parasiticæ, in sporas perdurantes, hibernantes abeuntes.

B) In cellulis Algarum vel Fungorum vel animalium emortuorum, plerumque sub aqua.

α . Protoplasma coloratum; cellulæ utriculares, haustoriis adherentes; in plantis vel insectis emortuis crescentes, bi-vel trifurcæ, sporangium apice ramorum gerentes.

Zygochytrium. Protoplasma luteo-aureum; zygospora plerumque ex copulatione ramorum orta.

1) Clavis hæc analytica non omnia genera in *Sylloge* hæc descripta continet, nam generum nonnullorum, etsi biologicè plene cognitorum, diagnoses tam breves et notiones taxonomicas tam paucas possidemus ut ea in clavi inserere non nequimus.

Tetrachytrium. Protoplasma griseo-caerulescens; zygosporae 4 in quoque sporangio, ante germinationem per paria conjunctae.

β. Protoplasma hyalinum.

† Utriculus elongatus unicellularis, mycelialis, in plures ramos, apice attenuatos divisus; cellulae ab eo oriundae in sporangia vel sporas persistentes mutatae; zygosporae copula carentes.

Nadochytrium. Mycelium sparsim vel apice ramorum sporangia gerens; sporangia vero per ostiolum cylindraceum vel per operculum aperta.

Chizidium. Mycelium tantum cellulas inferiores radiceiformes, sporangiorum vel cellularum perdurantium formans.

†† Sporangia ad basim processibus radiceiformibus simplicibus, indivisis praedita, vel iis carentia.

* Cellulae nudaе plasmodium simulantes, utriculos *Saprolegniacearum* occupantes, dein membranâ se induentes, partim ut sporaе perdurantes; zygosporae plerumque elongatae et leniter curvae.

Θ Sporangia protoplasmate matricis immersa.

Opiliopsis. Sporangia in ostiolum cylindraceum abeuntia.

ΘΘ Sporangii membrana parte interiori cellulae matricis adhaerens et cum ea organum unicuique formans.

Rozella. Sporangia simplicia.

Coronina. Membrana fungilli parasitici sorum sporangiorum late circum ambiens.

*** Plerumque ad Algas vel Infusoria viventes.

α. Zoosporae saepe rotundae vel ovoidae. Individua alia copulatione contenta.

Polyphagus. In *Euglene* parasiticae; individua nonnulla majora nec non minora clavata ramo pedunculiformi se conjungentia, et protoplasma minorum, copulatione in illud majorum transiens; zygospora protoplasmatum fusiope orta et per zoosporas post temporis spatium, ut sporaе perdurantes, germinans.

β. Individua omnia copulatione destituta.

∞ Individua ut cellulae nudaе, amoeboidea, in cellulis *Lemnae* mobilia nidulantia, in zoosporangia zoosporas gignentia et extus in collum abeuntia se mutantia.

Cessia. Zoosporae per paria copulantes inque sporas persistentes, rursus zygosporis in cellulam matricis penetrantes, germinantes.

∞ ∞ Individua non ut cellulae nudaе viventia, in sporangium vel in sporam persistentem mox se mutantia; zoosporae copulatione carentes; sporaе persistentes zoosporis germinantes.

× Sporangia operculata.

Hytridium. Ad cellulas Algarum viventes. utriculo radiceiformi, in interiore cellularum sito praedita.

×× Sporangia non operculata et saepe radice aciculari ornata.

Ω Sporangia ostiolo cylindraceo carentia.

Hyctidium. Sporangia extus inserta.

ΩΩ Sporangia ostiolo tubiformi apice gerentia.

Pherostylidium. Sporangium extra cellulam matricis.

Hyptidium. Sporangium intra cellulam matricis, ostiolo cylindraceo prominente praeditum.

SYNCHYTRIMUM De Bary et Wor. Ber. nat. Ges. Freib. III, H. 11, S. 22, Schr. Krypt. Fl. Schl. Pilze p. 184 (Etym. *syn* cum et *chytrium* ollula). — Plasmodium rotundatum ex zoosporis in cellulam matricis penetratis formatum, dein membrana crassa circumdatum et demum vel in cellulam sporangia continentem vel in sporangium perdurans mutatum. Sori sporangiorum deia membrana communi cincti. Zoosporangia exosporio crasso fragili et endosporio distincto hyalino, separabili prædita, zoosporas formantia vel germinantia et tum cellulam, in qua zoosporangia formantur, efficiuntia. — In cellulis plerumque epidermicis plantarum viventium evolventes.

Subg. 1. Pycnochytrium De Bary.

Sporæ perdurantes præsentis; sori æstivi nulli.

a) *Leucochytrium* Schroet.

Protoplasma hyalinum.

1. **Synchytrium Anemones** (D. C.) Wor. in Bot. Zeit. Jahrb. XXVI, 95 *Dothidea Anemones* D. C. Fl. Fr. VI, p. 143, *Chytridium Anemones* De Bary et Wor. in Ber. Nat. Ges. zu Freiburg B. III, t. II, p. 22, *Septoria Anemones* Fr. Summ. Veg. Scand. p. 426, *Sphueria Anemones* Rab. Handb. I, p. 189, n. 1705. — Cellulis perdurantibus sparsis vel aggregatis, sæpe præcipue in nervis, subconfluentibus, tuberculiformibus, siccitate depressis, purpurascensibus, rufis, demum nigricantibus, vulgo maculis violaceis insidentibus, 250-300 μ . diam.; sporis sphæroideis vel ellipsoideis, 80-120 μ . longis, episporio brunneo minute aspero.

Hab. in foliis petiolis, pedunculis petalisque *Anemones nemorosæ*, *silvestris* et *Virginicæ* in tota Europa et America boreali.

2. **Synchytrium Mercurialis** (Lib.) Fuck. Symb. Myc. p. 74, *Sphaer- 98* *ronema Mercurialis* Libert. Exsicc. n. 264. — Tuberculis præcipue in foliorum nervis confluentibus, hemisphæricis, viridibus, vertice depressis, niveo papillatis; soris oblongis griseis, plerumque binis; zoosporis globosis uninucleatis, hyalinis; sporis echinulatis, 30-37 μ . diam.

Hab. in foliis et pedunculis *Mercurialis perennis* et (*E. notheræ* biennis in Germania et in Arduennis.

3. **Synchytrium globosum** Schroeter Die Pfl. Par. Synch. et Krypt. Fl. Schl. Pilze p. 185. — Sporangii perdurantibus globosis, ple-

rumque in cellula matricis solitariis, usque 170 μ . diam., subinde numerosis et tum 70-80 μ . diam.; episporio pallide brunneo-lutescenti, protoplasmate hyalino; gallis verruciformibus, solitariis vel crustaceo-confluentibus.

Hab. in plantis variarum familiarum h. e. Violacearum, Rosacearum, Compositarum, Rubiacearum etc. in Germania.

4. ***Synchytrium viride*** Schneider in Herb. Schroet. Krypt. Fl. Schles. 990 Pilze p. 185. — Sporangii perdurantibus globosis, 180 μ . diam.; episporio brunneo, nitido, levi, protoplasmate hyalino, cellulis matricis protoplasmate viridi faretis; gallis tuberculiformibus, plerumque in crustas effusas confluentibus.

Hab. in caulibus *Lathyri nigri* in Germania.

5. ***Synchytrium anomalum*** Schroeter Beit. zur Biologie I, part. I, 991 p. 40, t. I, f. 5-7, Farlow The Synch. of the Un. St. in Bot. Gazette vol. XIII, p. 241. — Maculis minutis, pallide luteis demum fuscis; tuberculis hemisphaericis compressis; cellulis perdurantibus ellipticis, circiter 120-200 $\approx$ 90-120, episporio brunneo-fusco, levi.

Hab. in foliis et pedunculis *Adoxæ Moschatellinæ* in Germania. Decorah, Iowa Amer. bor.

6. ***Synchytrium punctatum*** Schroet. Krypt. Fl. Schles. Pilze p. 186. 992 — Sporangii perdurantibus plerumque ellipsoideis, solitariis vel parce numerosis, raro 10 in cellula matricis nidulantibus et tum plerumque globosis, majoribus usque 150 $\approx$ 100, minoribus vero 35-70 $\approx$ 25-60; episporio brunneo, subtiliter punctato vel verrucoso; protoplasmate hyalino; gallis tantum in extensione cellularum matricis formatis.

Hab. in foliis *Gageæ pratensis*, Breslau Silesiæ.

7. ***Synchytrium pluriannulatum*** (Curtis) Farlow The Synch. of the 993 Un. St. in Bot. Gazette vol. X, 3, p. 243, *Uredo pluriannulata* Curt. in Herb. *Uromyces pluriannulatus* B. et C. Grevillea III, p. 57. — Maculis luteo-fuscis; tuberculis plerumque pulvinatis vel discoideis, e pluribus seriebus cellularum in massam unicam aggregatarum formatis; cellulis perdurantibus numerosis (10-50) in quaque cellula, globosis vel ellipticis 40-60 μ . diam., episporio brunneo, crasso, rugoso.

Hab. in *Sanicula marylandica* et *S. Menziesii* in Alabama et Illinois Californiæ.

8. ***Synchytrium rubro-cinctum*** Magnus in Hedwigia 1874, p. 107. — 994 Cellulis epidermicis matricis intense rufis, protoplasmate rufo far-

ctis; sporangiis perdurantibus globosis, protoplasmate hyalino farctis; gallis tantum in cellulis fungillo occupatis formatis.

Hab. in *Saxifraga granulata* in Germania.

b) *Chrysochytrium* Schroet.

Protoplasmate aureo, oleoso.

9. **Synchytrium lætum** Schroet. Pfl. Par. Gatt. Synch. et Krypt. Fl. Schles. Pilze p. 186. — Sporangiis perdurantibus solitariis vel parce numerosis, usque ad 3, in cellula matricis nidulantibus, ellipsoideis usque $200 \approx 100$, raro in cellulis parenchymaticis foliorum, dein globosis $37-70 \mu$. diam.; episporio brunneo-castaneo, levibus; protoplasmate in plasmodiis juvenilibus rubro-aurantiaco, in maturis vero oleoso et luteo-aureo; gallis tantum in extensione cellulae matricis antice convexae formatis.

Hab. in foliis, pedunculis et in perigonio Liliacearum in Germania.

10. **Synchytrium Myosotidis** Kühn in Hedwigia 1868, Schroet. Krypt. Fl. Schles. Pilze p. 186. — Sporangiis perdurantibus plerumque solitariis, subinde 2-3, in cellula matricis formatis, globosis vel breviter ellipsoideis, $60-150 \approx 130$; episporio obscure-brunneo, levi; protoplasmate rubro-luteo; gallis tantum ad cellulam matricis limitatis; cellulis epidermicis dein sacciformibus et, ut glandulae globosae vel clavatae, super paginam foliorum se elevantibus.

Hab. in Borraginaceis et Rosaceis in Germania.

11. **Synchytrium pilificum** Thomas Bericht deut. Bot. Gesell. 1883. — Sporangiis perdurantibus globosis vel leniter ellipsoideis $80-180 \mu$. diam., plerumque solitariis in cellula matricis, episporio brunneo-castaneo; protoplasmate rubro-flavo, gallis e tuberculis hemisphaericis, verrucosis pilo longo, hyalino, crassiusculo, $20-40 \mu$. crass., verruca inserto ornato formatis, solitariis vel magnam partem folii occupantibus.

Hab. in foliis caulibus et calycibus *Potentillae silvestris* in Germania.

12. **Synchytrium aureum** Schroet. Pflanz. Gatt. Synch. 1870. — Sporangiis perdurantibus globosis, plerumque in cellula matricis solitariis $120-260$ (plerumque $160-180$) μ . diam.; membrana castaneo-brunnea, levi, protoplasmate luteo-aureo faretis; gallis plerumque e verrucis hemisphaericis vel breviter cylindraceutis, medio constrictis, centro sporangium continentibus, formatis subinde ad cellulam matricis limitatis.

Hab. in caulibus et foliis plantarum plurium variarum familiarum, in *Lysimachia Nummularia* vero frequens in Europa et America.

2. *Eusynchytrium* Schroet.

poræ perdurantes et sori æstivi simul præsentés.

3. **Synchytrium Taraxaci** De Bary et Wor. Beitr. Kennt. Chytr. 999
1863, Schr. Krypt. Fl. Schl. Pilze p. 188. — Cellulis membrana levi cinctis e zoosporis intra cellulam matricis formatis; protoplasmate sorum zoosporangiorum formante faretis; soris globosis vel ellipsoideis, 100 ≈ 60; sporangiis solitariis, mutua pressione angulosis, irregularibus; protoplasmate flavo-rubro; zoosporis globosis vel ovoideis, circiter 3 μ . latis, guttula luteo-rubra præditis; sporangiis perdurantibus, globosis, 50-80 μ . d., episporio fusco-brunneo, levi cinctis; gallis e verrucis parvis complanatis, sæpe in crustas rubro-aurantiacas vel rubro-sanguineas confluentibus formatis.

Hab. in foliis et involucris Compositarum nonnullarum in Germania, Belgio, Italia et America.

4. **Synchytrium sanguineum** Schroet. in Hedw. 1876, p. 134. — Cru- 1000
stis sanguineis, *Synchytrio Taraxaci* peraffine, a quo differt maculis sanguineis et matrice.

Hab. in *Cirsio palustri* in Silva nigra.

5. **Synchytrium Stellarie** Fuckel Symbolæ Mycol. Add. Schroeter. 1001
Krypt. Flora Schles. Pilze p. 189. — Zoosporis cellulam tenuem, mox poro ad basim sito germinantem dein in cellulam globosam sursum se mutantem et protoplasmate sorum sporangiorum formante faretam generantibus, parce numerosis, plerumque 10-30; protoplasmate rubro-aurantiaco; sporis perdurantibus solitariis vel per paria in cellula matricis, globosis, 57-149 μ . diam., plerumque 75 μ . diam., episporio crasso, brunneo-castaneo, levi, protoplasmate rufescenti-pallido; gallis e verrucis hemisphæricis solitariis vel confluentibus in crustas plus minusve latas formatis.

Hab. in foliis et sepalis *Stellarie mediæ* in Germania.

6. **Synchytrium Succisæ** De Bary et Wor. Bemerk. Kennt. Chytr. 1002
1863. — Soris ut in *Synch. Stellarie* formati, sed cellula ex zoosporis orta, parte superiori germinante et tum cellula inferiori evacuata; soris zoosporangiorum 100-170 μ . diam. plerumque 100 et ultra sporangia continentibus; sporangiis 25-50 μ . diam., protoplasmate rubro-aurantiaco faretis; sporis perdurantibus, modo in cellulis parenchymaticis gallarum tuberculorum, deforantis, dein

racemose dispositis, modo scitariis vel aggregatis in cellulis epidermicis, globosis vel ellipsoideis, plerumque 50-80 μ . latis, episporio fusco-brunneo; protoplasmate rubro-pallido; gallis verruciformibus, plerumque breviter cylindraceis usque 1 mm. altis et latis, solitariis vel in crustas brunneas confluentibus.

Hab. in caulibus et foliis *Succisae pratensis* in Germania.

17. **Synchytrium plantagineum** Sacc. et Sp. Mich. I, pag. 243, Sacc. M. V. n. 1125. — Tuberculis amphigenis hinc inde dense gregariis, granuliformibus, initio ochraceo-rufis, dein nigricantibus; sporangiis (?) sphaericis 110-130 μ . diam. flavo-ochraceis, anhisto-tunicatis, guttulis oleosis flavicantibus, magnitudine variis foetis.

Hab. in foliis *Plantaginis lanceolatae*, Conegliano (Spegazzini). — Etsi incomplete cognitum, tamen *Synchytrio Succisae* De Bary et Wor. (Sacc. M. V. n. 1124) cognatum videtur.

18. **Synchytrium papillatum** Farlow in Bull. Bussey Inst. II, p. 233 et in Bot. Gazette p. 239. — Maculis obscure purpureis, gallis glandularibus, e cellulis piriformibus, turgidis, papillatis formatis, sporas ellipsoideas, 60-70 μ = 40-50, episporio brunneo cinctas, saepe rugulosas continentibus; soris superficialibus, sphaeroideis, 100-120 μ . d.

Hab. in foliis *Erodii cicutarii* in California.

19. **Synchytrium Holwayi** Farlow The Synch. of the Un. St. in Bot. Gazette vol. X, 3, p. 239. — Maculis purpureis; tuberculis hemisphaericis vel subglobosis; cellulis perdurantibus sphaericis, 70-90 μ . diam., episporio brunneo-fusco, levi; soris sphaericis, 90-100 μ . diam., in cellulis matricialibus maturantibus.

Hab. in foliis *Monardae*, Decorah, Iowa Amer. bor.

20. **Synchytrium fulgens** Schroeter in Hedwigia XII, p. 141, Farlow The Synch. of the Un. St. Bot. Gazette vol. X, 3, p. 240. — Maculis minutis, purpureis; cellulis perdurantibus sphaericis, 66-82 μ . diam., episporio brunneo-fusco, levi; soris sphaericis vel ellipticis, 60-100 μ . diam., flavis, lucentibus.

Hab. in *Oenothera bienni* in Germania et California.

21. **Synchytrium innominatum** Farlow. in Botan. Gazette March. 1885, p. 240. — Maculis obscure rufis; zoosporangiis perdurantibus globosis vel leniter ellipsoideis, 70-100 μ . diam., episporio tenui, levi, cellula matricis immersis, dein superficiei foliorum evacuatis; soris luteis, circiter 120-150 μ . diam., matrice immersis.

Hab. in foliis *Malacothricis*, Santa Cruz, Cal. Amer. bor.

22. **Synchytrium decipiens** Farlow The Synch. of the Un. St. Bot. Gazette vol. X, 3, p. 240, *Uredo Leguminosarum* et *U. Fabae*

Curtis in Herb. *U. acidioides* Peck in 24 th. Report. New. York State Museum p. 88, *U. Peckii* Thüm. Myc. Univ. n. 538, *Synchytrium fulgens* var. *decipiens* Farlow Bull. Bussey Inst. II, p. 229. — Maculis luteis, lucidis; tuberculis hemisphaericis; soris sphaericis, 180-200 μ . diam., zoosporangiis circiter 15 μ . diam., plerumque valde numerosis; cellulis perdurantibus ignotis.

Hab. in foliis et caulibus *Amphicarpeæ* monoicæ in Massachusetts etc. Amer. bor.

Species incertæ sedis vel nobis minus cognitæ.

23. **Synchytrium bonaërense** Speg. Fungi Arg. Pug. IV, p. 37. — 1009

Cellulis perdurantibus sparsis v. aggregatis sæpius in tubercula pallide cinnamomea, minuta densissime aggregatis ac non rarius totum hypophyllum occupantibus, confluentibus, macula flavo-pallescente insidentibus, parenchymate innatis, sphaeroideis, 50-70 μ . diam., episporio crasso, levi, hyalino, protoplasmate densissime et grosse granuloso, intense aurantio-fldigineo.

Hab. ad folia viva *Hydrocotylis bonaërensis* in herbosis uliginosis prope el Parque de Palermo Amer. austr.

24. **Synchytrium australe** Speg. Fungi Arg. Pug. IV, p. 37. — Cellulis 1010

perdurantibus sparsis v. aggregatis sæpius ad nervos in tubercula aurantio-violacea, hypophylla, uda tumida, sicca depressa confluentibus, epidermidi innatis, sphaeroideis v. mutua pressione angulosis, 25-30 $\approx$ 25, episporio crasso, hyalino, levi, protoplasmate dense ac grosse granuloso-farcitis.

Hab. ad caules foliaque viva *Modiolæ* prostratæ in herbosis del Parque de Palermo Amer. austr.

25. **Synchytrium dendriticum** Fuck. Symb. Myc. p. 74, *Chytridium* 1011

dendriticum Fuck. F. rh. 1608. — Tuberculis foliorum pagine superioris in macula flavescenti minutissimis, dendritico-seriatis, fuscis; soris solitariis, globosis, griseis.

Hab. in foliis *Dentariæ bulbiferæ*, Oestrich Germaniæ.

26. **Synchytrium Urticæ** Sorok. Arbeit. d. dritt. Versammlung russ. 1012

Naturf. zu Kiew. 1873, pag. 39-42 cum icone. — Maculis flavis: cellulis perdurantibus reniformibus vel sphaeroideis vel oblongis.

Hab. in foliis *Urticæ* dioicæ in Russia. .

27. **Synchytrium piriforme** Reinsch Contrib. p. 97. — Tubercula pi- 1013

riformia, breviter pedicellata, in foliis Muscorum frondosorum insidentia formans; cellulis perdurantibus parenchymati plantæ infectæ semper insidentibus, basi truncata substrato arctissime adhæ-

rentibus, protoplasmate dense granuloso, obscure fusco, membrana crassa, plurilamellosa, basin cellulæ versus angulata.

Hab. in *Neckera viticulosæ* foliis in *Vogesis occid.*

28. **Synchytrium muscicola** Reinsch Contr. ad Alg. et Fungol. 1875.

— Fungillus tubercula sphaerica foliis et caulibus Muscorum frondosorum insidentia formans, cellulis perdurantibus parenchymati plantæ infectæ insidentibus, interdum in inferiore parte parenchymatis caulis in strato summo cellularum parenchymatis subtectis, protoplasmate dense granuloso, colore intense luteo-fusco, cellulis matricalibus zoosporangia evolventibus, sphaericis, paullo minoribus, cellulis perdurantibus 12-16 zoosporangia sphaerica includentibus; protoplasmate zoosporangiorum decolorato.

Hab. in foliis *Leskeæ* in *Vogesis occ.*

29. **Synchytrium? Iridis** Rabenh. in Hedw. 1871, p. 18. — Maculis punctiformibus brunneis, epidermidem plantæ hospitæ occupantibus.

Hab. in *Iride fumosa* in *Germania*.

Species incertæ.

30. **Synchytrium Centranthi** Rabenh. in Hedw. 1871, p. 17. — Hypnosporangiis plerumque 3-4, rarius singulis, polyedricis, angulis plus minus rotundatis, aurantio-fuscis, 21-33 μ .

Hab. in *Centrantho elato* in *Germania*.

31. **Synchytrium Punctum** Sorokin in Hedw. 1877, p. 113. — Maculis luteolis; tuberculis minutulis, atris; soris (?) sphaericis, 7-20 μ diam. membrana flava interiori et membrana externa brunnea, asperula prædita.

Hab. in *Plantagine media* in *Rossia*.

32. **Synchytrium Selaginellæ** Sorok. Arbeit. d. Naturfösch. bei der Univ. zu Kasan II, Bd. 1873.

33. **Synchytrium Cryosplenii** Sorok. Arbeit. d. Naturfösch. bei der Univ. zu Kasan II, Bd. 1873.

ZYGOCHYTRIUM Sorokin in Bot. Zeit. 1874, p. 305-314, t. VI, fig. 1-22 (Etym. *zygon* jugum et *chytrion* ollula). — Filamenta haustoria corporibus insectorum sub aqua inserta, apice ramorum sporangium per operculum pertusum formans. Protoplasma aurantiacum, granulis rubris faretum. Zoosporæ ex protoplasmate orientes. Zygosporæ episporio rubro verrucoso cinctæ, ex copulatione ramorum formatae.

1. **Zygochytrium aurantium** Sorok. in Bot. Zeit. 1874, p. 305-314, ¹⁰²⁰ VI, fig. 1-22. — Filamentis erectis, ramosis vel furcato-ramosis, pallide luteis, apice sporangio globoso, protoplasmate luteo, granulis rubris consperso farcto, dein operculo papilliformi, hyalino dilabente pertuso terminatis, zoosporis protoplasmate ortis, globosis dein amœbæformibus, pallide luteis, nucleo centrali rubro, cilio simplici tenui ornatis; zygosporis ex copulatione ramorum inferiorum ortis, sphæroideis, episporio rubro, crasso, muricato donatis.
- Hab.* in corpore insectorum sub aqua emortuarum in Russia.

TETRACHYTRIMUM Sorok. in Bot. Zeit. 1874, pag. 305-314, tab. VI, fig. 23-35 (Etym. *tetra* quatuor et *chytrion* ollula). — Filamenta trichotome ramosa, cyanea, ramis apice sporangia globosa, protoplasmate cyaneo farcta, operculo acutiusculo, hyalino aperta. Zoosporæ globosæ pallide cyaneæ cilio ornatae, in quoque sporangio quatuor.

1. **Tetrachytrium triceps** Sorok. in Bot. Zeit. 1874, pag. 305-314, ¹⁰²¹ tab. VI, fig. 22-35. — Filamentis erectis, continuis, ramosis, ramis tribus extimis sporangio globoso protoplasmate cyaneo farcto, operculo hyalino, papilliformi, dein dilabente pertuso terminatis, 15-17 μ . diam.; zoosporis in quoque zoosporangio 4, pallide cyaneis, nucleo oleoso, hyalino ornatis, cilio simplici præditis, globosis, 11 μ . diam.; zygosporis nullis.

Hab. in plantis putrescentibus et in coleopteris emortuis sub aqua in Russia.

CLADOCHYTRIMUM Nowakowski Beitr. Kennt. Chytr. 1876 (Etym. *clados* ramus et *chytrium* ollula). — Mycelium in matrice late effusum, filamentis subtilibus, protoplasmaticis («?»), membrana tenuissima cinctis formatum, repelite ramosum, sæpe hinc inde fusiformiter vel conoideo inflatum. Zoosporangia ex vesiculis myceliis formata, globosa, ostiolo cellulam matricis perforantia; zoosporæ cilio simplici ornatae.

1. **Cladochytrium tenue** Nowakowski Beitr. Kenntn. Chytr. 1876, ¹⁰²² tab. VI, fig. 6-13, Schroet. Krypt. Fl. Schles. Pilze p. 193, *Physo-derma tenue* Karst. — Mycelio circiter 1-2 μ . crasso intra cellulam matricis late effuso; zoosporangiis globosis, in duas partes divisus, altera sterili, altera dein in zoosporangium sessiliter cellula sterili insertum se mutante; protoplasmate hyalino; zoosporangiis latitudine variis, sæpius 18 μ . crassis, subinde usque ad 66 μ . cras-

sis, extra cellulam matricis, collo plus minusve elongato, erumpentibus; zoosporæ circiter 5 μ . diam.

Hab. in parenchymate *Acori Calami* et *Iridis pseudacori* in Germania et Fennia.

2. **Cladochytrium elegans** Nowakowski Beitr. Kennt. Chytr. 1876, tab. VI, fig. 14-17, Schroet. Krypt. Flora Schles. Pilze pag. 194. — Filamentis mycelicis 2,5 μ . crassis, vesiculis fusiformibus ornatis, zoosporangiis, apice vel sub apice e ramis mycelicis formatis, globosis ovoideis, plerumque 22-37 μ . crassis, apice operculo depresso erumpentibus; protoplasmate hyalino; zoosporis 7,5 μ . diam., nucleo crasso ornatis.

Hab. in muco *Chætophoræ elegantis* in Germania.

RHIZIDIUM A. Braun Ueb. Chytr. 1856, Schroet. Krypt. Fl. Schles. Pilze p. 193 (Etym. a *rhiza* radix). — Sporangia in matrice sessilia, e cellulis duabus, inferiore sterili, superiore vero fertili constituta. Cellula inferior basi in filamenta radicum forma matrice immersa producta; cellula superior in zoosporangium vel in sporangium perdurans se mutans. Sporangia perdurantia post aliquod tempus germinantia et cellulam globosam germinativam, dein in zoosporangium se mutantem formantia.

1. **Rhizidium mycophilum** A. Braun Ueb. Chytr. 1856, Schroet. Krypt. Flora Schles. Pilze pag. 193. — Zoosporangiis modo subglobosis, modo elongatis 40-88 $\approx$ 25, apice ostiolo papilliformi ornatis; zoosporis globosis, 5 μ . diam., sporangiis perdurantibus globosis vel ellipsoideis, 15-30 μ . diam., episporio crasso, brunneo, sæpius dense papilligero cinctis, protoplasmate guttula oleosa, crassa prædita faretis.

Hab. in muco *Chætophoræ elegantis* in Germania.

2. **Rhizidium intestinum** Schenk Ueb. Vork. Zell. Pfl. Zopf. zur Kennt. Phycom. p. 51, tab. 8, fig. 1-15. — Zoosporangiis globosis, basi vesiculam filamenta mycelica, ramosa, effusa emittentem gerentibus, dein ostiolo papilliformi ornatis; zoosporis globosis vel amebiformibus, nucleo oleoso et cilio simplici prælongo ornatis.

Hab. in Characeis in Germania.

3. **Rhizidium xylophilum** (Cornu) Dang. in Ann. Scienc. Nat. 1886, pag. 300, t. 13, f. 6-9, *Chytridium xylophilum* Cornu Monogr. Saproth. pag. 116. — Zoosporangiis ovoideo-acuminatis, depressis, subinde collo præditis vel lageniformibus, gregariis, operculo maturitate mucoso terminatis, zoosporis sphaeroideis, nucleo oleoso

et cilio simplici ornatis; sporis perdurantibus liberis, sphaeroideis. membrana crassiuscula cinctis, crasse uniguttulatis, pallide brunneis.

Hab. in fibris librosis Coryli Avellanæ et aliarum plantarum in Gallia.

4. **Rhizidium bulbigerum** Zopf Zur Kennt. Phycom. pag. 55, tab. 7, ¹⁰²⁷ fig. 5-8. — Zoosporangiis globosis, matrice immersis et apice in vesiculam minutam, inflatam prominulis, basi filamentis mycelicis ramosis cinctis; zoosporis globosis vel amœbæformibus, nucleo oleoso præditis.

Hab. in filamentis Spirogyræ crassæ in Germania.

5. **Rhizidium Fusus** Zopf Zur Kennt. Phycom. p. 59, t. 7, fig. 9-12. ¹⁰²⁸ — Zoosporangiis fusoides, externis, basi filamentis mycelicis ramosis cinctis, protoplasmate primo granuloso dein in zoosporas mutato faretis.

Hab. in Synedris majoribus in Germania.

6. **Rhizidium carpophilum** Zopf Zur Kennt. Phycom. pag. 60, tab. 9, ¹⁰²⁹ fig. 10-16. — Zoosporangiis globosis dein leniter piriformibus, basi filamentis mycelicis, parce ramosis, membranam cellulæ matricis perforante præditis, demum apice apertis; zoosporis globosis vel vix ovoideis, nucleo oleoso nitente, majori et nucleolis duobus minoribus obscurioribusque præditis, ciliis destitutis, 7 μ . diam.

Hab. in oogonio Achlyæ polyandræ in Germania.

7. **Rhizidium appendiculatum** Zopf Zur Kennt. Phycom. p. 63, tab. 9, ¹⁰³⁰ fig. 17-27. — Zoosporangiis piriformibus, basi pedunculo brevi tenui, membranam cellulæ perforante præditis, apice dein apertis; zoosporis globosis, minutis, nucleo oleoso et cilio longo, simplici ornatis, 2 μ . diam.

Hab. in cellulis perdurantibus Chlamydomonadis in Germania.

8. **Rhizidium sphærocarpum** Zopf Zur Kennt. Phycom. p. 62, tab. 8, ¹⁰³¹ fig. 16-27. — Zoosporangiis primo globosis dein apice inflatis et in vesiculam desinentibus, demum apertis, basi filamentis mycelialibus membranam cellulæ matricis perforante præditis; zoosporis numerosis, sphaeroideis vel elongatis, minutis 2,8 μ . diam. vel 5, 5 $\approx$ 2,8, nucleo oleoso, crasso et cilio longo, simplici ornatis.

Hab. in Spirogyra quadam in Germania.

9. **Rhizidium Cienkowskianum** Zopf Zur Kennt. Phycomyc. p. 56, t. 6, ¹⁰³² fig. 14-24 et tab. 7, fig. 1-4. — Zoosporangiis globosis, intra cellulam matricis collo longiusculo, prominulo donatis, filamentis radiciformibus cinctis, basi vesicula destitutis; zoosporis minutis, glo-

bosis; sporis perdurantibus globosis, membrana crassa cinctis, luteis, nucleo magno ornatis, 33 μ . diam.

Hab. in cellulis *Cladophoræ* in Germania.

10. **Rhizidium Schenkii** Dang. in Ann. Sc. Nat. 1886, pag. 298. — Zoosporangiis forma variis sæpe piriformibus vel ellipsoideis, filamentis mycelicis ornatis; zoosporis uninucleatis, 3 μ . crassis.

Hab. in *Algis* variis in Gallia.

11. **Rhizidium aciforme** Zopf Zur Kennt. Phycom. pag. 69, tab. 10, fig. 33-43. — Sporangiis piriformibus, minutis, 6-16 μ . diam., zoosporas minutas, circiter 2 μ . diam., per polum sporangii gelatinosum exeuntes continentibus.

Hab. in *Chlamidomonadis* speciebus quibusdam in Germania.

12. **Rhizidium apiculatum** (A. Braun) Zopf Zur Kennt. Phycom. p. 67, t. 10, f. 21-31, *Chytridium apiculatum* A. Braun Ueb. Chytr. 1356, p. 588. — Hemisphæricum vel fere globosum, sessile, basi lata insertum, usque 13 μ . latum, medio in apiculum, 3 μ . longum, operculiformem attenuatum.

Hab. in cellulis *Glæococci mucosi* prope Freiburg Germaniæ.

RHIZOPHIDIUM Schenk Algol. Mitth. 1858, Schroet. Krypt. Fl. Schles. p. 51 (Etym. *rhiza* radix et *ophis* serpens). — Zoosporangia unicellularia, sessilia, basi filamentis mycelicis, radiciformibus plerumque ramosis, apice uno vel pluribus ostiolis pertusis prædita. Zoosporæ uniciliatæ.

1. **Rhizophidium globosum** (A. Br.) Schroet. Krypt. Fl. Schles. Pilze p. 191, *Chytridium globosum* Braun Ueber Chytr. 1855. — Zoosporangiis globosis, 20-25 μ . diam., plerumque sessilibus, in cellula matricis numerosis, basi fasciculo filamentorum myceliorum, intra cellulam cinctis, apice 1-4-ostiolatis; ostiolis brevibus, papilliformibus, poro erumpentibus; protoplasmate hyalino; zoosporis 2-3 μ . latis.

Hab. in *Algis* nonnullis h. e. Desmidiaceis, Diatomeis et in sporis *Confervarum* etc. in Germania.

2. **Rhizophidium Mastigotrichis** (Now.) Schr. Krypt. Fl. Schles. Pilze pag. 191, *Chytridium Mastigotrichis* Now. Beitr. Kennt. Chytr. 1876. — Zoosporangiis maturitate plus minusve globosis vel breviter ellipsoideis, circiter 40 μ . latis, superne in collum plus minusve elongatum, verrucosum tubiformem, ad exitum zoosporarum

erumpentem attenuatis, basi filamentis mycelicis cinctis; filamentis istis in cellula matricis penetrantibus et tum in haustorium crassum, apice globose inflatum, incrassatis vel liberis et tum elongatis et ramosis; protoplasmate hyalino, zoosporis ovoideis. $8 \approx 5$, guttula hyalina et cilio simplici apice attenuato præditis.

Hab. in filamentis Mastigonematis æruginei in Germania.

3. **Rhizophidium roseum** De Bary et Wor. Beitr. Morph. u. Biol. Pilze 1863. — Zoosporangiis sphaeroideis vel elongato-sphaeroideis, 25-250 μ . diam., sessilibus, basi filamentis mycelicis, validiusculis, ramosis, radiciformibus cinctis, apice uno vel amplius ostiolis, conoideis vel cylindraceo-tubulosis ornatis; membrana primo hyalina, dein pallide brunnea; protoplasmate pallide rubro-carneo, zoosporis 3 μ . diam., cilio simplici auctis. 1038

Hab. in terra uda, in charta bibula uda etc. in Germania.

4. **Rhizophidium sporocionum** (Br.) Berl. et De Ton., *Ch. sporocionum* A. Br. Ueb. Chytr. 1855, p. 4. — *Rhizophidio globoso* peraffine et forsitan tantum ejus varietas, a quo vero exiguitate distinguitur. 1039

Hab. in cellula matre sporarum Oedogonii Vaucheri in Germania.

OBELIDIUM Nowakowski Beitr. zur Kennt. Chytr. p. 86, Schroet. Krypt. Fl. Schles. pag. 192 (Ety. ab *obelos* subula). — Zoosporangia unicellularia pedunculo plus minusve evoluta, crasse tunicato, septis apice carente, basi septata in mycelio radiato, reticulato-ramoso insidente inserta. Zoosporæ per ostiolum pertusum expulsæ.

1. **Obelidium mucronatum** Now. Beitr. Kennt. Chytr. pag. 86, t. V. fig. 1-5, Schroet. Krypt. Flora Schles. p. 192. — Zoosporangiis inferne in pedunculum stipitiformem, cylindraceum vel conoideum, crasse tunicatum attenuatis, ellipsoideis vel conoideis, 32-56 $\approx$ 8-15, plerumque 42 μ . longis, apice aculeo acuminato, firmo terminatis, basi mycelio radiato, circulariter effuso circ. 160 μ . diam. insidentibus; protoplasmate hyalino; zoosporis globosis, 2 μ . diam., lateraliter prope aculeum erumpentibus. 1040

Hab. in exuvia Culicis pipientis sub aqua servata intra *Chetophoram* quamdam nidulante in Germania.

OLPIDIOPSIS Cornu Monogr. des Saprolegniées p. 127, Schr. Krypt.

Flora Schles. Pilze p. 183 (Etym. ab *Olpidium*). — Sporangia mono-zoospora. in cellula matricis formata, amycelica. Zoosporæ biciliatæ. Sporangia perdurantia membrana crassa, aculeata, brunneola cincta, zoosporas, ut zoosporangia, gignentia.

1. **Olpidiopsis Index** Cornu Monogr. des Saprolegniées p. 145. t. III. fig. 11. — Sporis minute et crebre muricatis, protoplasmate granuloso faretis, cellula adhærente minute muricata, pallide brunnea, evacuata; sporangiis ellipsoideis, sæpe solitariis, magnis.

Hab. in filamentis Achlyæ in insectis evolutæ in Gallia.

2. **Olpidiopsis incrassata** Cornu Monogr. des Saprolegniées p. 146, tab. IV, fig. 12. — Sporis ovoideis non echinulatis, luteo-brunneis, protoplasmate granuloso, centro pallidiori, guttulis oleosis præditi; sporangiis clavatis; zoosporis notis.

Hab. in filamentis Achlyæ racemosæ in Gallia.

3. **Olpidiopsis fusiformis** Cornu Monogr. des Saprolegniées p. 147, tab. IV, f. 1-1. — Sporangii elongatis, fusiformibus, reniformibus vel linearibus, sursum attenuatis; sporis globosis, aculeis conicis, crassis, hyalinis ornatis, protoplasmate granuloso faretis.

Hab. in filamentis Achlyæ leucospermæ et A. racemosæ in Gallia.

4. **Olpidiopsis Aphanomyces** Cornu Monogr. des Saprolegniées p. 148, tab. IV, fig. 11. — Sporangii sphaeroideis vel ovoideis, intra vesiculas, apice vel ad medium ramorum brevium insertas, sitis, solitariis vel gregariis, ostioliis tubulosis, crassis; zoosporis notis; sporis non notis.

Hab. in Aphanomycete quodam, Paris Gallia.

ROZELLA Cornu Monogr. des Saprolegniées p. 148, Schr. Kr. Fl. Schl. Pilze p. 183 (Etym. a cl. botanico Roze). — Plasmodium cellulam matricis omnino implens, zoosporis formatum, dein in partes seriatim dispositas, transverse divisum. Ex parte quaque zoosporangium oritur membranæ cellulae matricis arcte adnatum. Protoplasma dein in zoosporas plures per papillam brevem exeuntes divisum. Zoosporæ biciliatæ. Sporangia perdurantia plasmodio partiali formata, solitaria, in cellula matricis libera, membrana crassa, aculeolata cincta.

1. **Rozella Monoblepharidis-polymorphæ** Cornu Monogr. des Saprolegniées p. 150, tab. IV, fig. 1-318. — Zoosporangiis non apice ramorum sed hinc inde in vesiculis sitis, ovoideis, poro pertusis; zoosporis notis; sporis sphaeroideis, brunneis, muricatis, centrum filamentum

incrassati *Monoblepharidis* occupantibus, subinde vero ad basin bifurcationis ramorum sitis.

Hab. in filamentis *Monoblepharidis* polymorphae in Gallia. — A ceteris speciebus matrice et zoosporangio partim filamento matricis adnato distinguitur.

Rozella Rhipidii-spinosi Cornu Monogr. des Sapro. p. 153, t. V, 1046
fig. 1-9. — Zoosporangiis plerumque obpiriformibus, apice papilla hemisphaerica, dein secedente praeditis; zoosporis ovoideis vel sphaeroideis, minutis, apice cilio longo, tenui ornatis; sporis sphaeroideis, echinulatis, brunneo-luteis vel rufescentibus.

Hab. in sporangiis *Rhipidii spinosi* in Gallia.

Rozella Apodyæ-brachynematis Cornu Monogr. des Sapro. p. 161, 1047
tab. V, fig. 10-14. — *Rozellæ Rhipidii* peraffinis, a qua differt echinulis sporarum brevioribus, nec non matrice.

Hab. intra sporangia *Apodyæ brachynematis* in Gallia.

Rozella septigena Cornu Monogr. des Saprolegniées p. 163, t. VI, 1048
Schr. Krypt. Fl. Schles. Pilze pag. 183. — Zoosporangiis in cellula matricis immutata seriatim dispositis, dense eam implentibus, et eius membranæ arcte adnatis ita ut cellula matricis tantum transverse pluriseptata appareat; dein papilla brevi, cellulam matricis perforante se evacuantibus; zoosporis 6-8 $\approx$ 4, apice attenuatis, hyalinis, crasse uniguttatis, antice et lateraliter cilio praeditis; sporangiis perdurantibus in plicis membranæ cellulæ matricis libere jacentibus, globosis, circiter 20 μ . diam., exosporio crasso, brunneo, aculeolato; aculeis circiter 2 μ . longis, numerosis.

Hab. in utriculis *Saprolegniacearum* in Germania et Gallia.

WORONINA Cornu Monogr. des Saprolegniées p. 176, Schroet. Krypt. Fl. Schles. Pilze p. 184 (Etym. a cl. mycologo Woronin, cui genus merito dicatum). — Sorus sporangiorum ex zoosporis in cellulam matricis penetratis formatus. Zoosporangia solitaria membrana propria non cincta, inter se adhærentia sed libera. Zoosporae biciliatæ. Sporangia perdurantia ex plasmodio gregatim formata. Germinatio per zoosporas in cystibus sporangiferis.

1. **Woronina polycystis** Cornu Monogr. des Saprolegniées pag. 176, 1049
tab. VII. — Greges zoosporangiorum circiter 104 μ . longis et 30 μ . latis; zoosporangiis solitariis globosis, circiter 14 μ . diam.; zoosporis ovoideis, plerumque 4 $\approx$ 2, biciliatis; sporangiis perduranti-

bus in soro magnitudine vario, sæpe in foveola cellule matricis posito dense gregariis; cystosporangiis mutua pressione angulosis.

Hab. in filamentis Saprolegniacearum in Germania et Gallia.

POLYPHAGUS Nowakowski Beitr. Kennt. Chytr. 1876, Schroeter Krypt. Fl. Schles. Pilze p. 196 (Etym. *polys* multus et *phago* edo). — Cellula rotunda ex zoospora formata germinando undique filamenta mycelica matrice dein immersa, emittens; cellula formata in zoosporangium se mutans. Dum sporangia perdurantia formantur, duæ cellulæ copulantur, et protoplasma alterius in alteram effunditur. Ex copulatione sporangium perdurans, membrana crassa circumdatum, oritur.

1. **Polyphagus Euglenæ** (Bail) Schroeter Krypt. Fl. Schles. Pilze p. 196, *Chytridium Euglenæ* Bail Mykol. Bericht 1855, non *Ch. Eugl.* Braun. — Cellulis magnitudine variis, globosis, ellipsoideis v. clavatis, cellulis globosis plerumque usque 37 μ . diam., elongatis vero usque 200 μ . longis, protoplasmate hyalino faretis; filamentis in matrice penetratis, in haustorium 6 μ . crassum inflatis; zoosporangiis ovoideis, ellipsoideis vel elongato-utriculiformibus, magnitudine valde variis; protoplasmate in zoosporas omnino diviso; zoosporis cylindraceis, utrinque rotundatis, 6-13 $\approx$ 3-5, cilio simplici ornatis, protoplasmate guttula oleosa prædito faretis; sporangiis perdurantibus e copulatione duarum cellularum ortis, globosis vel ellipsoideis, 20-30 μ . diam., episporio crasso, levi vel tenuiter aculeolato, luteo-brunneo, protoplasmate hyalino crasse uninucleato.

Hab. in *Euglena viridi* in Germania. — Sporangium perdurans germinando protoplasma emittit et zoosporangium hinc formatur.

Species tantum nobis nomine notæ.

2. **Polyphagus parasiticus** Now. 11 Sep. Abdr. tab. X, fig. 101-107.
3. **Polyphagus endogenus** Now. 11 Sep. Abdr. S. 17, t. X, f. 108-114.

DIPLOPHYSA Schroet. Krypt. Fl. Schles. Pilze p. 195, *Olpidiopsis* Cornu p. p. (Etym. *diplos* duplex, *physis* vesica). — Mycelium nullum. Sporangia perdurantia, in cellula matricis libera; cellula vacua hyalina iis adhærens.

1. **Diplophysa Saprolegniæ** (Cornu) Schroet. Krypt. Fl. Schl. Pilze 10 p. 195, *Olpidiopsis Saprolegniæ* Cornu Monogr. des Sapro. p. 145,

t. III, f. 10, *Chytridium Saprolegniæ* A. Br. Verjueg. p. 286. — Sporangiis solitariis vel numerosis (usque 50) in cellula matricis viventibus, apicè clavatis, magnitudine variis, elongato-rotundatis, ex cellula matrice utriculis cylindraceis, plus minusve elongatis, exeuntibus; zoosporis plerumque 4 μ . longis, circiter 2 μ . latis, ciliis duobus, altero apici, altero lateraliter insertis; sporangiis perdurantibus, zoosporangiis similibus membrana brunnea, aculeata cinctis.

Hab. in utriculis Saprolegniacearum in Gallia et Germania.

2. **Diplophysa elliptica** Schroet. Krypt. Flora Schles. Pilze p. 196. 1054

— Sporangiis perdurantibus ellipsoideis, plerumque cellulam matricis magnitudine æquantibus, membrana pallide brunnea, aculeis tenuibus ornata cinctis; cellula vacua sporangio paullo minore, membrana brunneola levi cincta.

Hab. in cellulis specierum e genere Mesocarpi in Germania.

UROPHLYCTIS Schroet. Krypt. Fl. Schles. Pilze p. 197 (Etym. *oura* cauda et *phlyctis* bulla). — Zoosporangia sessilia in plantis vivis, fasciculis filamentorum immersa. Sporangia perdurantia intra cellulas plantarum viventium e mycelio filiformi perforatas formata, copulatione cellularum similium orta. Cellule alterius protoplasma in alteram effunditur, hæc vero crescit et membranam crassam cincta in sporangium perdurans mutatur.

1. **Urophlyctis major** Schroet. Krypt. Fl. Schles. Pilze pag. 197. — 1055

Zoosporangiis nullis; sporangiis perdurantibus plerumque in pustulis rotundis, circiter 1 mm. latis, planis, rufo-brunneis, sparsis, raro (in caulibus) in verrucis elongatis, gibbosis; sporangiis fere globosis, sæpe e latere depressis, plerumque 38-41 μ . diam. membrana luteo-brunnea, levi cinctis.

Hab. in foliis radicalibus, raro in foliis caulinis et in caulibus Rumicis Acetosæ, R. arifolii, R. maritimi in Germania.

2. **Urophlyctis pulposa** Schroet. Krypt. Fl. Schles. Pilze p. 197, *Phy-* 1056

soderma pulposum Wallroth Flora German. 1833. — Zoosporangiis globosis, usque 0,2 mm. diam., in verrucis magnis, sæpe in crustas confluentibus, sitis, clausis, cellulæ inferiori amplæ fasciculo filamentorum adhærentibus; membrana tenui, hyalina; protoplasmate pallide luteo-rubro; zoosporis globosis, 4 μ . diam., cilio simplici præditis; sporangiis perdurantibus in verrucis vitreis, 1-2 mm. longis, semiglobosis vel planis, sitis, plerumque in cellula parenchymatica, parietibus maturitate zoosporangii cribrosis, nume-

rosis, juventute filamento cellulae matricis adhærentibus, in cellulis parvis copulationis sessilibus maturitate rotundatis e latere plus minusve depressis, 35-38 μ . diam., membrana castaneo-brunnea, levi cinctis.

Hab. in foliis, caulibus et in perigonis Chenopodiacearum h. e. Chenopodii glauci, C. rubri, C. cubici et Atriplicis patulae in Germania.

REESSIA Fisch. Beitr. Kennt. Chytr. (Etym. cl. botanico M. REESS genus dicatum). — Zoosporangia intra cellulam matricis sita. Zoosporangia faretæ, in collum longiusculum producta. Zoosporæ paria copulantes et sporam perdurantem, per zoosporas germinantem, generantes.

1. **Reessia amœboidea** Fisch. l. c. — Characteres generis.

Hab. in cellulis Lemnæ minoris et L. polyrrhizæ pr. Erlangen. — Cellulae fungillo occupatæ dealbantur.

CHYTRIDIUM A. Braun Betrachtung. Ersch. Verjüng. Nat. 1850, Schroeter Krypt. Fl. Schles. Pilze p. 192 (Etym. a *chytrion* ollula). — Zoosporangia sessilia in cellula matricis, basi in pedunculum radiceformem, a sporangio septo divisum, in cellulam matricis penetrantem, attenuata, operculo acute limitato, erumpentia. Zoosporæ globosæ uniciliatæ. Cilium simplex. Sporæ perdurantes intra cellulam matricis formatæ.

1. **Chytridium Epithemiæ** Now. Beitr. Kennt. Chytr. p. 191, tab. IV, fig. 12-13, Schroet. Krypt. Fl. Schles. Pilze p. 193. — Zoosporangiis superne globosis, 12 μ . diam., membrana crassiuscula, hyalina cinctis, biostiolatis, operculis convexis, orbicularibus dein dilabentibus ornatis, basi napiformibus, in pedunculum tenuem desinentibus; zoosporis paucis.

Hab. in Epithemiis in Germania.

2. **Chytridium Olla** Braun Ueb. Chytr. 1851, Schroeter Krypt. Fl. Schles. Pilze p. 192. — Zoosporangiis sessilibus, ovoideis, apice attenuatis, 25-52 et usque 60 μ . longis, 20-23 μ . latis, apice operculo conoideo-applanato, obtuse umbilicato dein dilabente pertusis, basi pedunculo simplici, 10-12 μ . crasso, urceolato, matrice immerso; protoplasmate hyalino faretis; zoospora globosa, 3-4 μ . diam.: sporangiis perdurantibus globosis, protoplasmate guttula crassa, oleosa ornato.

Hab. in oogoniis *Edogoniorum* in Germania. — «Au *Rhizidium?*»

3. **Chytridium piriforme** Reinsch Fresh. algæ p. 215. — Cellulis, zoo- 1060
gonidiis nondum egressis, operculo se apertis, ovato-piriformibus,
25-28 $\approx$ 13-16, basi sensim angustata, in radiculam in substrato vi-
vente radicantem prolongatis, diametro transversali dimidio dia-
metri longitudinalis angustiore, cytoplasmate dense subtiliter gra-
nuloso cytodermate distincto dupliciter striato; cellulis, zoogonidiis
egressis, subcylindricis usque subcuneatis; operculo transversaliter
a cellula sejungente subhemisphærico, apice rotundato (non acumi-
nato); radicula usque tertiam partem diametri longitudinalis cel-
lulae æquante, in medio plus minusve incrassata apiculo prolon-
gato deorsum.

Hab. in *Vaucheriae* sessilis et *V. geminatae* cellulis in
insula Kerguelensi. — Affine *C. Olle*. «Species nisi incerta, certo
male descripta».

4. **Chytridium brevipes** A. Braun Ueber Chytrid. 1856, pag. 587. — 1061
Ch. Olle peraffine, a quo differt magnitudine et pedunculo brevis-
simo rotundato.

Hab. in *Edogonio* flavescens? et *O. apophysato* in
Germania (Dr. IRZIGSOHN).

5. **Chytridium acuminatum** A. Braun Ueb. Chytr. 1855, p. 3. — *Ch.* 1062
Olle simile sed valde minus, 17 μ . longum; operculo longiori acu-
minato.

Hab. in cellula matri sporarum *Edogonii* Rothii et *O.*
echinospermi prope Freiburg Germaniæ.

6. **Chytridium Chlamidococci** A. Braun Ueber Chytr. 1855, p. 5. — 1063
Globosum, circiter 10 μ . diam. vel paullo longius, statu maturitatis
nondum visum.

Hab. in *Chlamidococci* pluvialis cellulis in Germania.
— «Au *Phlyctidium?*».

Species incertæ vel minus notæ.

7. **Chytridium transversum** A. Braun Ueber Chytr. 1855, p. 5. — Pri- 1064
mo globosum, dein ovoideum, in quaque parte in apiculum mam-
milliformem productum, et tum 17 μ . latum.

Hab. in *Chlamidomonate* Pulvisculo et in *Gonio* pe-
ctorali prope Freiburg Germaniæ.

8. **Chytridium Lagenula** A. Braun Ueb. Chytr. 1855, p. 4. — Elon- 1065

gatum inferne in stipitem attenuatum, superne dein in collum elongatum, obtusum, operculo destitutum, apice pertusum, 25-33 μ . longum, 8 μ . latum; zoosporis subglobosis, vix 2 μ . longis.

Hab. in *Melosira* variante et *Conferva bombycina* in Germania. — «An *Phlyctidium*?»

9. **Chytridium cornutum** Sorokin Beitr. Entw. Chytr. fig. 18-27. — Cellula membrana hinc inde incrassata, processus plus minusve elongatos emittente, superne pertusa, basi in pedunculum attenuata, protoplasmate hyalino dein obscuriori in zoosporas dein diviso; zoosporis dein liberis, nucleo nitente et cilio ornatis.

Hab. in *Hormidio* vario, Kazan Rossicæ. — Fungillus in juventute tantum cellula pedunculo alga inserta sistit.

10. **Chytridium laterale** A. Braun Ueb. Chytr. p. 5, 1855, t. III, 16-26. — Globosum, pedunculum radicumem, brevem emittens, maturitate una vel pluribus papillis mammillæformibus, lateralibus sine operculo apertis, ornatum, 13-17 μ . diam.; zoosporis 2,5 μ . longis, cilio 12-15 μ . longo.

Hab. in filamentis *Ulothricis zonatæ*, Freiburg Germ.

11. **Chytridium angulosum** A. Br. Ueb. Chytr. 1855, pag. 5. — *Ch. laterali* simile vel paullo majus, 20-25 μ . diam., globosum, maturitate subangulosum, ostiolis nonnullis minus prominulis pertusum; zoosporis 2,5-3 μ . longis.

Hab. solitarie vel geminatim in apicibus filamentorum *Oscillariæ* tenuis var. subfuscae pr. Freiburg Germ. et in Gallia.

12. **Chytridium anatropum** A. Braun Ueber Chytr. 1856, p. 588. — Elongatum, obpiriforme, plerumque obliquum et etiam incurvatum, apice rotundatum, inferne attenuatum, subacuminatum, maturitate 25-33, raro 50 μ . longum, 13-15 μ . latum; zoogonidiis cilio usque 3 μ . crasso et circiter 9 μ . longo ornatis.

Hab. in *Chaetophora* eleganti prope Berliu Germaniæ

13. **Chytridium Plumulæ** Cohn in Hedw. 1865, pag. 171. Schulze's Archiv. f. mykr. Anatom. III, p. 42, *C. Antithamnii* Cohn l. c. pag. 59, t. II. f. 3-4. — Cellulis subglobosis vel sæpius ovalibus, usque 15 μ . diam., radícula carentibus; zoosporangiis rubescentibus vel fusciscentibus; zoosporis numerosissimis, demum apertura irregulari erumpentibus, singulis singulæ *Antithamnii* cellulae membranam perforantibus, infra ejusdem membranam et protoplasma germinantibus, processum utriculiformem cellulae hospitalis, ramuli instar, producentibus et mox explentibus, reliquam cellulam vix afficientibus.

Hab. in processibus cellularum *Antithamni Plumulae* in insula Helgoland.

4. **Chytridium entosphæricum** Cohn in Hedwigia 1865, pag. 170. 1071
 — Cellulis globosis, albis, fere 16 μ . diam., singulis in singula Algae ejusdam marinae cellula evolutis; zoosporis? membranam cellulæ hospitalis extrinsecus perforantibus, infra lumen ejus germinantibus, enecatamque partem vel totam explentibus.

Hab. in cellulis intimis *Bangiae fusco-purpureæ* et *Ulothricis* in insula Helgoland.

5. **Chytridium Polysiphoniæ** Cohn in Hedw. 1865, p. 170, Schulze's 1072
 Archiv. f. micr. Anat. III, t. II, f. 2. — Cellulis solitariis 33 μ . diam. vel sæpius socialibus, subglobosis vel subangulatis, basi plana ad cuticulam *Polysiphoniæ* appressis, utriculos subjectos vix injuriantibus, radícula carentibus, zoosporangiis membrana nigrescente circumdatis, operculo orbiculari circumscisso, sursum apertis; zoosporis numerosissimis, hyalinis, nucleolo et cilio mobili instructis, saltantibus, 2.5 μ . diam.

Hab. ad *Polysiphoniam violaceam* in insula Helgoland.

6. **Chytridium decipiens** A. Braun Ueber. Chytr. 1855, pag. 6. — 1073
 Hemisphæricum vel crasse lenticulare, 42 μ . diam.; zoosporis paullo elongatis, 2.5 μ . longis.

Hab. in cellulis *Ædogonii Vaucheri* in Germania.

7. **Chytridium Pollinis-Typ hæ** Tomaschek Ueb. Binn. Poll. 1877. 1074
 — Tantum 12 μ . latum, membrana simplici cinctum, protoplasmate guttulis oleosis destituto.

Hab. in cellulis polliniciis *Typ hæ latifoliæ* in Austria.

8. **Chytridium? Euglenæ** A. Br. Ueb. Chytr. 1865, p. 5. — Juven- 1075
 tute fere globosum, dein urceolatum, sæpe hinc inde tumidulum, demum apice apertum; zoosporis elongatis.

Hab. in *Euglena viridi* prope München Bav. et Vratislaviam.

9. **Chytridium minimum** A. Braun Ueber Chytr. 1855, pag. 4. — 1076
 Minutum, elongatum, cellulis apice pertusis, 10-12 $\approx$ 5.5.

Hab. in apice filamentorum *Coleochaetes pulvinatæ* in Germania. — Species valde dubia.

10. **Chytridium depressum** Pringsh. in A. Braun Ueber Chytr. 1855, 1077
 p. 6. — Depressum, fere semiglobosum, basi lata insertum, circiter 42 μ . diam., medio apiculo incurvato præditum.

Hab. in *Coleochaete prostrata* in Germania (PRINGSHEIM).

11. **Chytridium glomeratum** Cornu Mon. Saprolegn. in Ann. Sc. Nat. 1078

Bot. 1872. — Sporangiis ignotis; sporis perdurantibus episporio aculeolato cinctis.

Hab. in *Vaucheria sessili* in Gallia.

22. **Chytridium helioforme** Dang. in Ann. Sc. Nat. Bot. 1886, p. 293.

— Zoosporangiis sphaeroideis 10-12 μ . diam. filamentis myceliis 6-7 simplicibus vel parce ramosis cinctis; zoosporis sphaeroideis uninucleatis, 3 μ . longis, per collum longum exeuntibus; sporis perdurantibus sphaeroideis, membrana duplici.

Hab. intra *Nitella*, *Chara* et *Vaucheria* in Gallia.

PHLYCTIDIUM A. Braun Ueb. Chytridium (ut subg.), Schroeter Krypt.

Fl. Schles. p. 190 (Etyim. a *phlyctis* vesica). — Sporangia libere cellula matricis inserta, ostiolo tubiformi vel poro aperta, erumpentia. Rhizoides nunc imperspicui, nunc verrucam minutam simulant, nunc e filamento brevi, solitario (*haustorium*) formati.

1. **Phlyctidium Pollinis-Pini** (A. Braun) Schroet. Krypt. Fl. Schles.

p. 190, *Chytridium Pollinis-Pini* Braun Ueb. Chytr. p. 4. — Zoosporangiis globosis, 20-25 μ . diam., apice tuberculo verruciformi, tenui præditis; membrana crassiuscula cinctis, pallide rufis, protoplasmate hyalino faretis, guttulis una v. duabus, crassis, oleosis ornatis; zoosporis per verrucam se evacuantibus; haustorio non vel indistincte visibili.

Hab. in cellulis medianis granuli pollinici Pini in Germania.

2. **Phlyctidium microsporum** (Now.) Schroet. Krypt. Fl. Schles. Pilze

p. 190, *Chytridium microsporum* Now. Beitr. zur kennt. Chytr. — Zoosporangiis globosis vel ellipsoideis, 30-50 μ . diam., per ostiolum tenuissimum, vix visibile se evacuantibus; protoplasmate hyalino faretis; zoosporis elongatis, circiter 2 μ . longis et tertium longitudinis latitudine æquantibus, gutta magna, oleosa et cilio ornatis; haustorio non visibili.

Hab. in filamentis *Mastigonematis æruginei* a sphaerulis gelatinosis *Chetophoræ* elegantis convolutis in Germania et Russia.

3. **Phlyctidium mammillatum** (A. Braun) Schroet. Krypt. Fl. Schles.

Pilze p. 190, *Chytridium mammillatum* Braun Ueber Chytridium p. 4. — Zoosporangiis ellipsoideis vel ovoideis, apice umbonatis et tum fere limoniformibus, circiter 25-30 μ 16-20, ostiolo angusto, pertuso ornatis.

Hab. in variis algis filamentosis in Germania.

- Phlyctidium volvocinum** (A. Braun) Schroet. Krypt. Fl. Schles. 1083
Pilze p. 190, *Chytridium volvocinum* Braun Ueber Chytridium
1856, p. 588. — Sporangii arrhizis, in basim subtilem, stipitifor-
mem attenuatis, ventricosis, maturitate turgidis, globosis, superne
attenuatis.

Hab. in *Volvoce globatori* in Germania.

5. **Phlyctidium Hydrodictyi** (A. Braun) Schroet. Krypt. Fl. Schles. 1084
Pilze p. 190, *Chytridium Hydrodictyi* A. Braun Ueber Chytr. 1855,
p. 6. — Zoosporangiis primo globosis dein ovoideis vel obpirifor-
mibus, basi applanatis, superne prominulis, $33 \approx 20-25$, protoplasma-
te subtiliter granuloso vel punctulato faretis; zoosporis per ostio-
lum unicum, apice insertum evacuantibus, haustorio brevi in cel-
lulam matricis ad basim sporangii penetrante.

Hab. sociatim in cellulis *Hydrodictyi* utricularis, quas
enecat, in Germania.

6. **Phlyctidium minimum** Schroeter Krypt. Fl. Schles. Pilze p. 191. 1085
— Sporangii globosis, plerumque magnitudine æqualibus, circiter
5 μ . diam. libere insertis, basi haustorio brevi, recto, apice glo-
bose inflato, in cellulam matricis penetrantæ præditis.

Hab. sociatim in cellulis *Mesocarpi pleurocarpi* in Ger-
mania.

SPHÆROSTYLIDIUM A. Braun Ueber Chytr. 1856 (Ety. *sphæra*
et *stylidion* stylus). — Genus *Phlyctidio* affine, a quo differt spo-
rangio apice ostiolo tubuloso prædito.

1. **Sphærostylidium ampullaceum** A. Braun Chytr. pag. 66. tab. V. 1086
f. 24-27. — Globosum, hyalinum, circiter 7 μ . diam., in collum
tenne, sphaerulam longitudine æquans productum, apiculo tenuis-
simo ornatum.

Hab. in filamentis *Mougeotiae*, *Ædogonii vesicati* et *O.*
undulati in Germania. — Species minuta et valde incerta.

2. **Sphærostylidium caudatum** (Reinsch) Berl. et De Ton. *Olpidium* 1087
caudatum Reinsch Fresh. Algæ p. 215. — Cellulis sphaericis, sine
radiculis substrato viventi insidentibus, in polo processu singulo
spiniformi, cellulæ diametrum subæquante, postremo aperto instru-
ctis; cytodermate distincto subcrasso cytoplasmate dense granu-
loso; cellular. 112-130 μ . diam.

Hab. in *Schizosiphonis Kerguelenensis* trichomatibus
in insula Kerguelensi.

OLPIDIUM A. Braun Ueber Chytr. in Monatsber Kön. Preuss. Akad. der Wiss. (Ëtym. ab *olpis* vas olearium). — Plasmodia semper immota. Sporangia rotundata vel elongato-rotundata, intra cellulam plantæ vel animalis viventia. Zoosporæ per processus cylindraceos extus se evacuantes, globosæ, ellipsoideæ vel ovoideæ, antice cilio unico ornatae. Sporangia perdurantia e plasmodio evoluta formata, membrana firma, levi prædita.

1. **Olpidium endogenum** (A. Braun) Schroet. Krypt. Flora von Schles. 10 p. 180. *Chytridium endogenum* Braun Ueber Chytr. p. 4, 1855. *Chytr. intestinum* Br. 1854. — Zoosporangiis globosis vel plus minusve ellipsoideo-depressis, sæpe mutua pressione irregularibus, in cellula matricis solitariis vel numerosis, usque 25 μ . diam., cellula matricis per ostiolum cylindraceum, plus minusve elongatum usque ad 5 μ . latum exeuntibus; protoplasmate hyalino; zoosporis circiter 3 μ . crassis, gutta oleosa, hyalina præditis; sporis perdurantibus globosis vel fere piriformibus, forma magnitudineque zoosporangia æquantibus, membrana levi, crassa, vesiculiformi, protoplasmate aqueo farta formatis, membrana sporam globosam, usque 15 μ . diam., membrana levi, firma circumdatam protoplasmate denso immersam continente.

Hab. intra cellulas Algarum viventium, quas enecat, in Germania.

2. **Olpidium entophyllum** A. Braun Ueber ein. neue Arten. Gatt. Chytr. 10 p. 589, Schroeter Krypt. Flora von Schles. Pilze p. 181. — Zoosporangiis plerumque quam in *O. endogeno* minoribus, non depressis, perfecte globosis vel subovatis vel piriformibus; collo in longitudine vario, non constricto; zoosporis 5 μ . crassis; sporis perdurantibus ut in *O. endogeno*.

Hab. in cellulis Algarum filiformium in Germania et in Gallia (DANGEARD).

3. **Olpidium Diplochytrium** (Tomaschek) Schroeter Krypt. Flora Pilze 10 pag. 181, *Diplochytrium* et *Chytridium luxurians* Tom. Ueber Binn. der gross. Zelle Poll. — Zoosporangiis globosis, solitariis vel numerosis (usque ad 30) in cellula matricis, magnitudine variis, extra cellulam matricis in utriculum plus minusve longum abeuntibus; zoosporis 2 μ . diam.; sporis perdurantibus usque 24 μ . diam., sporam circiter 20 μ . diam., ut illam *Olpidii endogeni* formatam, zoosporas rursus formantem continentibus.

Hab. in cellulis crassioribus polliniciis Pini silvestris in Germania.

Olpidium Lemnæ (Fischer) Schroet. Krypt. Fl. Schles. Pilze p. 181, 1091
Chytridium Lemnæ Fischer Ueber die Stach. Saproth. in Bot. Zeit.
 1880. — Zoosporangiis globosis, plerumque in quaque cellula ma-
 tricis immutata solitariis, per utriculum cylindraceum plus mi-
 nusve longum se evacuantibus; sporis perdurantibus zoosporangia
 magnitudine æquantibus, exosporio crasso et endosporio subtili præ-
 ditis, nucleo magno faretis, zoosporas rursus formantibus.

Hab. in cellulis epidermicis Lemnæ, Breslau in Germania.

Olpidium Trifolii (Pass.) Schr. Krypt. Fl. Schles. Pilze pag. 181, 1092
Synchytrium Trifolii Pass. in Rab. Fungi europ. exsicc. n. 2479.
 — Zoosporangiis solitariis vel seriatis (usque ad 20) in cellula ma-
 tricis (quam dilatant et implent) generatis, sphaeroideis vel ellipsoi-
 deis, in utriculum breve prominens exeundo productis; cellulis ma-
 tricis proximis quoque ampliatis tuberculosque gignentibus; spo-
 rangiis perdurantibus globosis, ellipsoideis vel fusoides, solitariis
 vel aggregatis, membrana crassa, levi, brunnea præditi, proto-
 plasmate hyalino faretis.

Hab. in cellulis epidermicis foliorum Trifolii repentis gal-
 las producens in Germania et Italia.

Olpidium destruens (Now.) Schroeter Krypt. Flora Schles. Pilze 1093
 p. 182, *Chytridium destruens* Nowakowski Beitr. Kenn. Chytr.
 — Sporangii globosis, dein oblongo-rotundis, usque 15 μ . diam.,
 ostiolo subtili, vix perspicuo erumpentibus, modo filamentis spar-
 sim insertis, modo in cellulis seriatis plus minusve numerosis; cel-
 lulam matricis globosam inflantibus et eam fere omnino implenti-
 bus; membrana post zoosporarum exitum rufo-lutea; protoplasmate
 hyalino medio tuberculo brunneo-lateritio præditi; zoosporis elon-
 gatis, vix 2 μ . crassis.

Hab. intra cellulas Chætonematis irregularis in Ger-
 mania.

Olpidium gregarium (Now.) Schr. Krypt. Fl. Schl. Pilze p. 182. — 1094
Chytridium gregarium Now. Beitr. Kennt. Chytr. — Zoosporan-
 giis globosis, plus minusve numerosis (usque ultra 10) in cellula ma-
 tricis nidulantibus, 30-70 μ . latis, papilla brevi, obtusa, conoidea
 erumpentibus; protoplasmate pallide rubescente; zoosporis globo-
 sis 4 μ . diam.

Hab. in ovis Rotiferorum in Germania.

Olpidium Coleochætæ (Now.) Schr. Krypt. Fl. Schles. Pilze p. 182, 1095
Chytridium Coleochætæ Now. Beitr. Kennt. Chytr. — Zoospo-
 rangiis solitariis vel per paria, raro 3-4 congestis, in cellula matri-

cis formatis, elongato-fusoides, in collum longum extus cellulam matricis² abeuntibus, sæpe 8 μ . longis in exemplaribus longioribus vero usque ad 125 μ . longis, 12 μ . crassis; zoosporis globosis, 2 μ . diam.

Hab. in oogoniis (nunquam in filamentis cellularum vegetantium) *Coleochætes pulvinatæ* in Germania.

9. ***Olpidium? zootocum*** (A. Braun) Schroeter Krypt. Flora Schles. 10 Pilze p. 182, *Chytridium zootocum* Braun Ueber Chytr. — Zoosporangiis globosis vel elongato-rotundatis, sæpe urceolatis, longitudine usque quintuplo latitudinis æquantibus, utrinque sphæroideorotundatis, utriculo, una extremitate oriente, plus minusve elongato, cylindræo erumpentibus.

Hab. in corpusculis *Anguillulæ* in fimo leporino in Germania. — Sec. cl. Dangeard ad Catenariam pertinet.

10. ***Olpidium? macrosporum*** (Now.) Schroet. Krypt. Fl. Schles. p. 182, *Chytridium macrosporum* Now. Beitr. Kennt. Chytr. — Sporangio cellulam matricis 55 $\approx$ 50, ellipsoideam, omnino implentibus utriculo undulato, 6-8 μ . crasso, usque 250 μ . longo erumpentibus; protoplasmate hyalino; zoosporis ellipsoideis 10 μ . longis, 6 μ . crassis, nucleo carentibus.

Hab. in ovis verisimiliter Rotiferi cujusdam in gelatina *Chætophoræ* elegantis viventis.

11. ***Olpidium tumefaciens*** (Magnus) Berl. et De Ton. *Chytridium tumefaciens* Magnus Sitz. Gesell. naturf. Fr. 1872. — Globosum, ad exitum zoosporarum, processibus uno v. duobus cellulam matricis perforantibus.

Hab. in filis siliis radicalibus *Ceramii flabelligeri* et *C. acanthonoti* in Germania.

12. ***Olpidium Brassicæ*** (Woron.) Dang. in Ann. Scienc. Nat. 1886, 10 p. 327, *Chytridium Brassicæ* Woronin Plasmod. Brassicæ 1878. — Globosum, intra cellulas matricis formatum; zoosporis per collum plus minusve longum exeuntibus; sporis immobilibus, radicalis, membrana crassiori hyalina vel luteola.

Hab. in Brassica in Germania? — *Olpidio endogeno* sec. cl. Woronin affine.

13. ***Olpidium Borzianum*** Mor. Nuov. Chitrid. cum icone (sed sine diagnosi). — Zoosporangiis initio globulos plasmaticos nudos sistentibus, dein perfectis membranâ obvolutis, sphæricis, flavido-roseis, 48-57 μ . diam.; zoosporis piriformibus v. ovoideis, 1-ciliatis, ro-

seis 4-5,5 $\approx$ 4,5; sporis quiescentibus inaequaliter globosis, levibus, 29-34 μ . diam., episporio rufo-brunneo, plasmate flavido.

Hab. in hyphis abnormiter inflatis *Saprolegniae* cujusdam, Bologna Ital. bor.

SIPHOPodium Reinsch Contr. Alg. et Fungol. p. 96 et in Bot. Jaresb. 1875, p. 230 (Ety. *siphon* tubus et *pous* pes). — Stroma unicellulare, ex cellula maxima in inferiore parte tubuliformi, in substrato vivente (fronde *Hepaticarum*) basi dilatata insidente, in superiore parte in ramos complures repetito furcato-ramosissimos transeunte formatum. Sporae unicellulares, sphaericae in ramulorum ultimorum summis attenuatis evolutae.

Siphopodium dendroides Reinsch Contr. Algol. et Fungol. p. 96 ¹¹⁰¹ et in Bot. Jaresb. 1876, p. 230. — Cellula stroma formante, in infima parte basi ampliata, substrato viventi insidente, membrana crassa, tristratosa, colore obscure fusco, ramis majoribus binis aut ternis, oppositis repetito furcato-ramosis, cellulae inferiore parte tubuliformi, trienti, usque quadranti plantulae altitudinis.

Hab. in fronde *Metzgeriae* furcatae, in Vogesis occ. — Latit. cellulae in media 16,8, sporarum diam. 5,6-9,7.

HAPALOCYSTIS Sorok. Beitr. Chytr. 1875 (Ety. *hapalos* tener et *cystis* vesica). — Sporangia obpiriformia, protoplasmate granuloso dein in 32 partes diviso, hyalino faretis, dein operculo dilabente apice pertusa. Zoosporae globosae, ciliis duobus ornatæ.

Hapalocystis mirabilis Sorokin. Beitr. Entw. Chytr. 1875, f. 44-65. ¹¹⁰² — Sporangio obpiriformi, basi 117 μ . diam., ligno putri adhærente; protoplasmate minute granuloso, hyalino, dein gradatim in 32 partes diviso; partibus per paria copulantibus, rotundatis, membrana sporangii dein superne ad operculum circumscissa; zoosporis globosis, medio nucleo præditis et ciliis duobus ornatiss, 11 μ . longis, ex ostiolo exeuntibus.

Hab. in lignis putrescentibus in Canale Grande Venetiis Italiae borealis. — Bot. Jahrb. 1875. p. 190.

NOWAKOWSKIA Borzi Eine neue Chytrid. c. icone (Ety. a cl. *Nowakowski* cui genus dicatum). — Zoosporangia subglobosa protoplasmate granuloso faretis, filamentis tenuissimis, subinde ramosis, cincta. Zoosporae minutae ovoides, uninucleatae et uniciliatae.

1. **Nowakowskia Hormothecæ** Borzi Eine neue Chytr. c. iconc. — Zoosporangiis subglobosis, protoplasmate hyalino granuloso, dein guttuligero et demum in zoosporas mutato farctis, filamentis radici-formibus, simplicibus vel ramosis, tenuissimis cinctis, 4-16 μ . diam.; zoosporis ovoideis, ad medium constrictis, apice nucleo oleoso et cilio simplici, 3-4 μ . longo ornatis, 1 μ . longis.

Hab. in *Hormotheca* quadam, Messina Siciliæ.

SPHÆRITA Dang. in Ann. Sc. Nat. 1886, p. 277, tab. XII, fig. 14-36 (Etyrn. a *Sphæra*). — Zoosporangia globosa, endogena, dein zoosporis farcta. Zoosporæ leniter elongatæ, antice uniciliatæ.

1. **Sphærita endogena** Dang. in Ann. Sc. Nat. Bot. 1886, p. 277. — Zoosporangiis globosis membrana tenuissima cinctis, primo protoplasmate oleoso; dein granuloso et demum in zoosporas divisio farctis; zoosporis leniter elongatis, antice cilio recurvo præditis, primo muco obvolutis, 1.5 μ . longis, hyalinis.

Hab. in corpore *Rhizopodorum* viventium in Gallia.

RHIZOGASTER Reinsch Contr. ad Alg. et Fungol. (Etyrn. *rhiza* radix et *gaster* venter). — Corpus plantæ unicellularis ex parte inferiore radiculari in substrato vivente radicante et ex parte superiore fructifero formatum; pars inferior plantæ evolutæ ex plurumque radiculis binis, contortis, attenuatis in spatia intercellularia parenchymatis in stratum viventem penetrantibus exstituta, pars superior ex utriculis ovalibus ternis in basi coherentibus sporas et zoogonidia (?) procreantibus formata. Plantula ex cellulis sphæricis minimis cellulis plantæ infectæ insidentibus evolvitur.

1. **Rhizogaster muscicola** Reinsch Contr. ad Alg. et Fungul. p. 97, et in Bot. Jaresb. n. 1875, p. 230. — Utriculis sporas procreantibus, 22-27 $\approx$ 13-15,5; longitud. utriculor; zoogonidia evolv. 16, 8-23,8.

Hab. in foliis *Orthotrichi* et *Barbulæ* Voges occid.

POLYRHINA Sor. Ann. Sc. Nat. 6 ser. 4 vol. p. 67, t. 3, fig. 29-39 (Etyrn. *polys* multus et *rhin* nasus). — Filamenta zoosporangifera erecta, longitudine varia. Zoosporangia gregaria, subglobosa in eolum longiusculum abeuntia. Zoosporæ oblongæ, minutissimæ.

1. **Polyrhina multiformis** Sorok. in Ann. Sc. Nat. 1876, p. 67, t. 3, fig. 29-39. — Filamentis zoosporangiferis erectis, 1-2 μ . crassis.

septatis, e mycelio repente, septato ortis; zoosporangiis gregatim apice filamentorum insertis, globosis, 4-6 μ . diam., in collum longiusculum, curvatum desinentibus; zoosporis oblongis, minutis, 5 μ . longis, ciliis non visis.

Hab. in corpore Anguillule ejusdam emortuæ in Rossia. — An huc spectat *Harposporium Anguillulæ* Lohde?

PLEOTRACHELUS Zopf Zur Kennt. Phycom. p. 33 (Ety. *pleos* refertus et *tracheleios* ad collum pertines). — Zoosporangia globosa, solitaria vel plura, processibus evacuationis zoosporarum ornata. Zoosporæ ovoideæ, uniciliatæ.

1. **Pleotrachelus fulgens** Zopf Zur Kennt. Phycom. pag. 33, tab. 5, 1107 fig. 25-36. — Zoosporangiis globosis, magnitudine variis, solitariis vel pluribus, 2-5, luteis vel lateritiis, processibus evacuationis zoosporarum tubulosis, hyalinis, radiatim dispositis, longiusculis ornatis; zoosporis minutis, guttulis oleosis et apice cilio simplici ornatis, 5 $\approx$ 3.5.

Hab. in Pilobolo crystallino in Germania.

ECTROGELLA Zopf Zur Kennt. Phycom. p. 35 (Ety. *ectrogein* destruere, nam fungillus protoplasma matricis destruit). — Zoosporangia elongata vel ovoidea, solitaria v. numerosa, papillis seriatis dispositis ornata. Zoosporæ globosæ vel amœbæformes, uniciliatæ.

1. **Ectrogella Bacillariacearum** Zopf Zur Kennt. Phycom. pag. 35, 1108 tab. 5. fig. 1-24. — Nunc solitaria, nunc gregaria, protoplasmate granuloso, hyalino, elongata subcylindracea vel ovoidea, zoosporangiis demum papillis tubulosis dein in unam vel in duas series dispositis, zoosporis per papillas exeuntibus, globosis vel subovoideis, nucleo oleoso præditis et cilio simplici ornatis, 2-3 μ . diam.

Hab. in Bacillariaceis in Germania.

AMÆBOCHYTRIUM Zopf Zur Kennt. Phycom. p. 41, tab. 6, fig. 1-13. (Ety. ab *amœba* et *chytrion* olla). — Zoosporangia piriformia, in collum attenuata, basi vel e latere processibus primo incrassatis dein in tubum attenuatis ornata. Zoosporæ amœbæformes, germinando filamenta mycelica ramosa emittentes.

1. **Amœbochytrium rhizidioides** Zopf Zur Kennt. Phycom. pag. 41, 1109 tab. 6, fig. 1-13. — Zoosporangiis piriformibus, in collum longum

cylindraceum attenuatis, basi vel lateraliter, processibus primo incrassatis dein in tubum attenuatis præditis, collo a septo operculari clauso, zoosporis amœbæformibus, 2-20 in quoque sporangio dein membrana cinctis et filamenta mycelica, ramosa, eseptata, subinde tunicam zoosporangii perforantia germinatione emittentibus.

Hab. in muco Chætophoræ in Germania.

HYPHOCHYTRIUM Zopf Zur Kennt. Phycom. p. 47, tab. 7, fig. 13-20 (Ety. ab *hypha* et *chytrium*). — Zoosporangia globosa vel fusioidea, papillata, basi vel subinde etiam apice filamentis mycelicis, quandoque ramosis ornata. Zoosporæ globosæ, minutæ uniciliatæ.

1. **Hyphochytrium infestans** Zopf Zur Kennt. Phycom. p. 47, tab. 7, fig. 13-20. — Zoosporangiis globosis, apice et basi apiculatis, 55-60 μ . diam. vel crasse fusioideis primo protoplasmate amorpho dein granuloso et demum in zoosporas divisio faretis, apice filamentorum myceliorum vel ad medium sitis; zoosporis per ostiolum exeuntibus, cilio unico longo ornatis, circiter 3 μ . diam.

Hab. in Helotio quodam in Germania.

RHIZIDIOMYCES Zopf Zur Kennt. Phycom. p. 48 (Ety. a *rhiza* radix et *myces* fungus). — Zoosporangia primo globosa dein in collum apice globose inflatum desinentia, basi vesicula filamenta mycelica ramosa emittente ornata. Zoosporæ ovoideæ, uniciliatæ.

1. **Rhizidiomyces apophysatus** Zopf Zur Kennt. Phycom. p. 48, t. 9, fig. 1-7. — Zoosporangiis primo globosis, basi vesicula matrice penetrante, filamenta mycelica ramosa emittente ornatis, dein apice in collum longum attenuatis, collo demum apice vesiculoso-incrassato; vesicula globosa, protoplasmate zoosporangi faretæ, ejus magnitudinem æquante, dein zoosporis faretæ; zoosporis uniciliatis, cilio simplici undulato, granulosi, ovoideis, 7-8 $\approx$ 4-5.

Hab. in oogniis Achlyæ racemosæ in Germania.

PROTOCHYTRIUM Borzi in Giorn. Bot. It. 1884 (Ety. *protos* primus et *chytrion* ollula). — Zoosporangia globosa, dein zoosporis faretæ. Zoosporæ subglobosæ, apice attenuatæ, uniciliatæ. Sporæ perdurantes intra vesiculam protoplasmate hyalino faretam, subglobosæ, crasse uninucleatæ.

1. **Protochytrium Spirogyræ** Borzi in Giorn. Bot. 1884. — Zoosporangiis globosis, primo protoplasmate granuloso præditis, centro

vacuolo magno ornatis, dein zoosporis faretis; zoosporis subglobosis apice attenuatis et cilio simplici tenui ornatis; sporis perdurantibus sphaeroideis, in vesicula tenui protoplasmate hyalino farta, 30-40 μ . diam. sitis, subglobosis, centro guttula oleosa ornatis, protoplasmate granuloso praeditis, 15-25 μ . diam.

Hab. in filamentis *Spirogyrae* crassae, Messina Siciliae.

PHYSODERMA Wallr. Fl. Germ. Crypt. p. 192, Schroet. Krypt. Fl. Schles. Pilze p. 194 (Etym. *physa* vesica et *derma* oerium). — Mycelium intra cellulas plantarum viventium effusum. Zoosporangia non visa. Sporangia perdurantia globosa vel ellipsoidea, subinde pressione irregularia, cellulis matricis immersa, membrana crassa, fragili, brunnea cincta, protoplasmate hyalino farta, verrucas non erumpentes, saepe ellipsoideas et in maculas magnas confluentes brunneas formantia.

Physoderma maculare Wallr. Flora Germanica, Schroet. Krypt. 1113 Flora Schles. Pilze p. 194. — Sporangiiis perdurantibus plerumque 3-8 in quaque cellula matricis, globosis vel ellipsoideis, saepe aliquantum depressis vel mutua pressione angulosis, plerumque 26-35 $\approx$ 17-30, membrana levi luteo-brunnea, dein castaneo-brunnea, multi-stratosa, cinctis; protoplasmate hyalino faretis; verrucis planis elongato-rotundatis, circiter 1-2 mm. longis, 0,5 mm. crassis, brunneis, aggregatis.

Hab. in caulibus et foliis *Alismatis* plantaginis in Germania, Fennia, Gallia, Italia et Sibiria As.

Physoderma Heleocharidis (Fuck.) Schroet. Krypt. Flora Schles. 1114 Pilze p. 194, *Protomyces Heleoch.* Fuck. Symb. Myc. — Sporangiiis perdurantibus solitariis vel per paria, in cellulis crassioribus parenchymaticis subinde pluribus, globosis vel ellipsoideis plerumque 18-28 $\approx$ 13-18, membrana levi castaneo-brunnea, circiter 1,5 μ . crassa cinctis, protoplasmate pallide luteo faretis; verrucis planis saepe in maculas elongato-rotundatas vel rhomboideas, brunneo-nigras, 2-6 mm. longas confluentibus.

Hab. in caulibus *Scirpi* palustris in Germania, Fennia, et Italia bor.

Physoderma Gerhardtii Schroet. Kryptog. Fl. Schles. Pilze p. 194. — 1115 Sporangiiis perdurantibus cellulis parenchymaticis regularibus immersis, globosis vel ellipsoideis, 15-20 μ . latis, in cellulis irregularibus, vero, valde irregulariter formatis, angulosis vel plerum-

que in quaque cellula solitariis et eam fere omnino implentibus; membrana pallide brunneo-ochracea levi cinctis.

Hab. in foliis et in vaginis Graminacearum, h. e. Phalaridis arundinaceæ, Glyceriæ aquaticæ et G. fluitantis in Germania. — Maculas planas, elongato-rotundatas, 0,5-1,5 cm. longas brunneo-nigras format.

4. **Physoderma vagans** Schroet. Krypt. Fl. Schles. Pilze p. 191. — Sporangii perdurantibus plerumque pluribus in quaque cellula, globosis vel breviter ellipsoideis, 20-35 $\approx$ 15-30; verrucis primo hyalinis, dein sordide brunneis.

Hab. in foliis variarum plantarum h. e. Ranunculi, Potentillæ, Cnidii, Silai etc. in Germania. — Tuberculos et foveolas format.

5. **Physoderma Menthæ** Schroet. Krypt. Fl. Schles. Pilze pag. 195, *Ustilago? Menthæ* Schroet. Pfl. Gatt. Synch. 1870. — Sporangii perdurantibus globosis vel breviter ellipsoideis, 22-33 μ . latis, episporio flavo-brunneo, crasso, levi cinctis.

Hab. in caulibus, raro in foliis Menthæ aquaticæ in paludosis, Breslau Germ. — Verrucas crassas, brunneo-nigras pulvere sporacea farctas format.

6. **Physoderma speciosum** Schroet. Krypt. Flora Schles. Pilze p. 195. — Sporangii perdurantibus globosis vel breviter ellipsoideis, plerumque 20-28 $\approx$ 18-22, episporio pallide brunneo, crasso, levi cinctis; protoplasmate hyalino farctis, plerumque in quaque cellula pluribus; verrucis planis elongato-rotundatis, 0,5-1,5 mm. longis, primo rufescentibus, dein obscure brunneis.

Hab. in foliis, petiolis et caulibus Symphyti officinalis in Germania. — Magnam partem foliorum occupat, sed non confluit.

7. **Physoderma Menianthis** De Bary Beitr. Morph. Physiol. 1864, Schroet. Krypt. Fl. Schles. Pilze p. 195, *Protomyces Menianthis* De Bary 1853. — Sporangii perdurantibus solitariis vel pluribus in quaque cellula matricis (usque 16), globosis vel ellipsoideis uno latere compressis, 28-35 $\approx$ 22-30, episporio brunneo, crasso cinctis; protoplasmate hyalino farctis.

Hab. in foliis et petiolis Menianthis trifoliatæ in Germania et Fennia. — Verrucas orbiculares vel elongato-rotundatas 0,5-1,5 mm. latas, primo roseas dein brunneas, planas, plerumque solitarias format.

Fam. 6. **Protomycetaceae** DE BARY.

Hyphæ filiformes, subinde nullæ: reproductio agamica et zoosporica nullæ; sporangia crasse, subinde bi-tritunicata, tunica interna, externis ruptis, cum protoplasma sporidiisque exiliente. Sporidia (in *P. macrosporo*) oblonga, immobilia, per paria se copulantia, indeque germinantia Fungilli aërophili, in plantis entoparasitici, ulterius inquirendi.

PROTOMYCES Unger Exanth. p. 341 (Etyim. a *protos* primus et *myces* fungus). — Follicola, maculas coloratas efformans. Sporæ sphaeroidæ, subhyalinae vel ochraceæ, episporio crasso donatæ majusculæ, in parenchymate foliorum efformatæ, sub epidermide nidulantes. — Genus biophilum.

Protomyces macrosporus Unger Exanth. der Pflanze p. 341, t. VI, 1120 34, *Physoderma gibbosum* Wallr. Flor. Krypt. Germ. p. 192. — Maculis gibbosis, sparsis, oblongis, caulem colliculosum mentientibus, epidermide jugiter obductis; sporis sphaericis, v. ellipsoideis maximis, 35-80 = 35-60, episporio 4-5 μ . cr., flavido, plasmate hyalino; sporidiis cylindraceo-oblongis 2-2,2 = 1.

Hab. ad caules et petiolos vegetos *Egopodii Podagrariæ* *Dauci*, *Mei*, *Oreoselini*, *Ambrosiæ trifidæ*, *Heraclei Spondylii* aliarumque *Umbelliferarum* in Thuringia. Germania Fennia, Africa et Amer. bor. — Cl. Caspary suspicatur, hanc speciem nihil aliud esse nisi *Peronosporæ Umbelliferarum* statum oogonidicum in eodem *Heracleo Spondylia* viventis (Conf. Casp. Ueber einige Hyphom. p. 328).

Protomyces pachydermus Thüm. in *Hedwigia* 1874, p. 97. — 1121 Acervulis callosis, epidermide tectis, dein erumpentibus, fuscis; sporis fere globosis vel subrotundis, pachydermicis, hyalinis, episporio crasso.

Hab. in pedunculis foliisque vivis *Taraxaci officinalis*, *Dauci Carotæ*, Neunkirchen prope Bayreuth Franconie sup., Berlin Germaniæ. — A *P. macrosporo* magnitudine sporarum differt (Cfr. Magnus Hedw. 1874, p. 113).

Protomyces Chrysosplenii Berk. et Br. Ann. Nat. hist. n. 1472. 1122 — Maculis albis, crassiusculis; sporis globosis, hyalinis, pedicellatis.

Hab. in foliis *Chrysosplenii oppositifolii*, New Pittsligo Britanniae.

Protomyces kreutensis Kühn in *Hedw.* 1877, p. 124. — 1123 Soris fuscis, paullo prominentibus, postremo interdum diruptis; sporis sphae-

ricis, nonnunquam ellipsoideis, rarius irregulariter subglobosis, 20-43, plerumque 30-36 μ . diam.

Hab. in foliis *Aposeridis foetidæ* prope Kreut et Gehölz Bavariae.

5. **Protomyces Erythronii** Peck 25 Rep. p. 90. — Maculis rubris v. purpuraceis; sporis in contextu foliorum genitis sparsis vel confertis saepe in serie breves dispositis, latis, globosis, obscuris, 50-65 μ . diam.

Hab. in foliis et pedunculis *Erythronii americani*, Greenbush Amer. bor.

6. **Protomyces Martianoffianus** Thüm. Pilzfl. Sibir. n. 123. — Acerulis minimis, subpustulatis, numerosis, dense gregariis in maculis orbiculatis, indeterminatis, non marginatis, hypophyllis, fusco-ochraceis, sub epidermide nidulantibus, in pagina superiore maculam aurantiaco-fuscam, non limitatam formantibus; sporis irregulariter globosis vel elliptico-globosis, episporio tenui, levi, pallidissime flavescens, intus granulosus, plerumque 16 μ . diam.

Hab. in *Potamogetonis natantis* foliis vivis prope Minussinsk Sibiriae Asiaticae.

7. **Protomyces fallax** Sacc. Mich. I, p. 118. — Follicola, epidermide tectus, gregarius; sporis globosis, 16-20 μ . diam., levissimis, guttulatis v. 1-nucleatis, initio hyalinis, tunica $\frac{1}{2}$ -2 μ . crassa, dilutissime fusca, tandem sporis totis fuscidulis.

Hab. in foliis *Pini silvestris* putrescentibus cum *Sphaeropside Strobi* B. et Br. var., Berolini Germaniae (P. Magnus). — Cum *Cvomate Abietis*, *Peridermiis* etc. comparatus sed omnino diversus.

8. **Protomyces carpogenus** Sacc. Mich. I, p. 118. — Sporis in acervulis applanatis, epidermide velatos, varie extensos, lateritio-roseos dense aggregatis, globulosis v. globoso-ovoideis quandoque obsolete angulosis, 18-20 μ . diam. vel 25 $\approx$ 20, pallide ochraceo-roseis, nubiosis, episporio concolori 1 μ . crasso.

Hab. in cortice *Cucurbitae*, socia *Phoma decorticante* DNtrs ad Travemünde an der Ostse pr. Lübeck Germaniae 1873 (P. Magnus).

9. **Protomyces Fergussonii** B. et Br. Ann. Nat. Hist. n. 1473. — Maculis punctisve brunneis, irregularibus; sporis obovatis, primo hyalinis, demum brunneis, levissime pedicellatis.

Hab. in foliis *Myosotidis*, New Pittsliigo Britanniae (Rev. I. FERGUSSON).

10. **Protomyces melanodes** B. et Br. Ann. Nat. Hist. n. 1898. —

Cellulis externis massa violacea dein nigrescente immixtis; sporis ellipsoideis; hyalinis, 15 μ . longis.

Hab. in foliis et inflorescentia *Phlogis* in Britannia.

1. **Protomyces Physalidis** Kalch. et Cooke in Grevillea. — Cellulis 1130
in maculis obscurioribus immersis; sporis globosis, pallidis, levibus,
10-20 μ . diam.

Hab. in foliis *Physalidis Hornemanni* in Africa austr.

2. **Protomyces punctiformis** Niessl Beitr. p. 16. — Acervulis mi- 1131
nutissimis, 50-60 μ . diam. punctiformibus, vix convexis, numero-
sis, gregariis, sub epidermide macula deficiente nidulantibus, gri-
seo-brunneis seu melleis; sporis subglobosis sed irregulariter-an-
gulosis, episporio hyalino, nucleo lutescente, 10 μ . diam.

Hab. in foliis *Butomi umbellati* prope Brünn Moraviæ.

3. **Protomyces Martindalii** Peck in Bull. Torrey Bot. Club. vol. V, 1132
p. 2, Jan. 1874. — Maculis pallidis; sporis numerosis, acervulis
sub epidermide nidulantibus, globosis, albidis, 15-18 μ . diam. epi-
sporio hyalino.

Hab. in *Cuscuta Gronowii*, New Jersey Amer. bor. — Le-
git cl. I. MARTINDALE, cui dicata est species.

4. **Protomyces Ari** Cooke in Grevillea. — Sporis aggregatis in ma- 1133
culis elongatis in substantia foliorum vel petiolorum semper vela-
tis globosis, simplicibus, brunneis, endochromate granuloso et epi-
sporio levi præditis.

Hab. in foliis et pedunculis *Ari maculati*, Chichester Brit.
(Dr. PAXTON).

5. **Protomyces Sagittariæ** Fuck. Symb. Myc. p. 75, *Physoderma?* 1134
Sagittariæ Fuck. Fungi Rhenani. — Acervulis minutis, subpustu-
latis, numerosis, in macula fusca sub epidermide nidulantibus; spo-
ris magnis, globosis, subangulatis, episporio crasso, luteo.

Hab. in foliis *Sagittariæ sagittæfoliæ* pr. Hattenheim
Rhenogoviæ.

6. **Protomyces Comari** Berk. et Br. Ann. Nat. Hist. n. 1708, Hed- 1135
wigia 1878. — Pustulis brunneis; sporis ternis quandoque solita-
riis in cellulis tumidis matricis, late obovatis, 25-30 μ . diam.

Hab. in *Comaro palustri*, Forfar Britannia. — Primo ob-
tutu *Hypospilæ Pustulæ* similis. An ad *Physoderma Menyanthis*
De Bary ducendus?

7. **Protomyces Muscorum** Karst. Fragm. Myc. XI, p. 4. — Acervu- 1136
lis superficialibus, rotundatis vel forma variis, confluentibus, fer-

rugineis, lat. 0,5-1 mm.; sporis sphæroideis, mucro obvolutis vulgoque per plures conjunctis, levissimis, 30-55 μ . diam., flavis.

Hab. ad muscos (*Hypna*) semiemortuos in monte Observatorii berget Aboæ Fennix.

18. **Protomyces ? pithyophilus** Karst. Fragm. Myc. XI, p. 4. — *Acer* vulis superficialibus, rotundatis vel forma variis, confluentibus, fuscis vel rufo-fuscis, lat., 1-1,5 mm.; sporis sphæroideis vel demum ovoideis, fusco-flavis impellucidisque, 45-65 μ . diam. vel 75 $\approx$ 60 μ .; sporis sphæroideis, 27-34 μ .

Hab. in ligno mucido pineo prope Mustiala Fennix.

19. **Protomyces rhizobius** Trail Scot. Nat. 1884, Jan. pag. 125. — Sporis sparsis, sphæricis, 30-33 μ . diam., tunica crassissima, 10-12 μ . cr., subhyalina vel pallide brunnea.

Hab. intra corticem radicum *Poæ* annuæ, mycelio delicato immixtus. — Sporæ quam cellulæ radicis plantæ nutritis multo majores.

Obs. *Protom. Martianoﬀianus*, *P. punctiformis*, *P. Sagittariæ*, nunc descripti, rectius militant inter Ustilagineas sub gen. *Doassansia*, ubi iterum inveniuntur; *P. Physalidis* vero inter *Entylomata* iterum describetur. *P. Fergussonii*, teste Trail Myc. Scot. n. 3060, ad *Entyloma canescens* Schröt. spectat.

MYXOMYCETEÆ Wallr ¹⁾.

Myxogastres Fr. Syst. Mycol. III, p. 67, *Mycetozoa* De Bary
Rost. Sluzowce Monogr. (1875) *Pilzthiere* Zopf in Schenk Handb. III vol.

Auctore DOCT. A. N. BERLESE.

Clavis subcohortium.

Myxomyceteæ (genuinæ). Aëreæ, numquam parasiticæ. Zoocystæ nullæ. Plasmodia semper præsentia, sæpe optime evoluta. Fructificatio plerumque maxime evoluta.

Monadineæ. Hydrophilæ, plerumque parasiticæ. Zoocystæ præsentis. Plasmodia nulla v. vix evoluta.

Myxomyceteæ Wallr. (genuinæ).

Plantæ primitus totæ mucilaginosæ, fluxiles, mobiles, forma variantes s. d. plasmodia sistentes. In statu fructificationis plasmodia hæc, subinde in partes plures divisa, in fructus immobiles transmutata. Fructus aut irregulares (*plasmodiocarpa*) aut regulares (*peridia*). Peridia interdum confluentia fructusque compositos (*æthalia*) sistencia. Sporæ endogenæ, in fructibus liberæ vel zoosporas emittentes ²⁾. Zoosporæ hæ confluentes plasmodiaque mobilia sistentes.

Clavis analytica Familiarum

1) Sporæ violaceæ vel brunneo-violaceæ (*Amaurosporæ*).

† Capillitium nullum (*Atrichæ*).

Protodermiaceæ. Peridium singulum.

†† Capillitium præsens (*Trichophoræ*).

§ Peridium vel æthaliū extus calcariferum (*Calcareæ*).

Cienkowskiaceæ. Capillitium e filamentis coloratis, reticulatim intertextis, apicibus nonnullis liberis formatum.

1) Caudè fatemur partem hanc Myxomycetes sistentem a perfectione multum abesse et ob difficultatem typos hos proteos tute noscendi et distinguendi et potissimum ex eo quod sola, quam possidemus, Myxomycetum monographia, etsi vere eximia, idiomate polonico plerisque botanicis ignoto, sit conscripta et opus Zopli tantum morpho-biologicum. Hinc, verisimiliter, errores v. saltem dubia plurima. Optimum faceret qui operis Rostafinskiani versionem latinam, ut pro libris systematicis sanctum mos est, nobis daret.

2) Sectio *Exosporarum* Rost. (sporibus exogenis) sistit tantum genus *Ceratium* quod ad interim ad *Hyphomyceteas* relatum fuit. Cfr. Syll. Hyph. p. 596.

Physaraceæ. Capillitium e tubis hyalinis, translucidis, parietibus subtilibus, vulgo reticulatis, ad angulos expansis formatum; columella sæpe carens.

Didymiaceæ. Capillitium e tubis subtilissimis, sæpe violaceis, simplicibus vel reticulatim intertextis, calce destitutis formatum; columella evoluta.

Spumariaceæ. Peridium cylindricum, obtusum, simplex vel ramosum, æthali-um cylindricum, columella centrali; capillitium e tubis violaceis calce destitutis, reticulatis formatum.

§§ Peridium vel æthali-um calce destituta.

× Peridium simplex.

a. Peridium columella præditum.

Stemonitaceæ. Columella dimidium vel fere apicem peridii attingens; capil-litium plerumque retiforme.

Raciborskiaceæ. Columella peridio dimidio triplove brevior, columellas secun-darias apice gerens. Capillitium ramis extimis arcuatim conjunctis.

Enerthenemaceæ. Columella apicem peridii attingens et ibi discum planum, ex quo capillitium oritur, efficiens.

aa. Peridium columella destitutum.

Echinosteliaceæ. Peridia stipitata capillitium ad basim stipitis oriens in rete contextum.

×× Æthali-um.

Amaurochaetaceæ. Columellæ peridiorum singulorum conerescentes ut rami distichi ad basim æthalii; singulæ columellæ systema capillitii regu-lare, retiforme formantes.

Brefeldiaceæ. Tubi capillitii e singula columella radiatim orientes et cum tu-bis analogis peridii propinqui se conjungentes et in locum unum con-fluentes.

AA) Sporæ non violaceæ, plerumque latæ coloratæ (*Lamprosporæ*).

† Capillitium nullum (*Atrichæ*).

§ Parietes peridii interiores nulli vel protuberantiis carentes (*Anemæ*).

Liceaceæ. Peridium vel æthali-um tegumentis integris, imperforatis.

Clathroptychiaceæ. Æthali-um parietibus regulariter perforatis.

§§ Parietes peridii intus protuberantiis præditi.

Heterodermæ. Protuberantiæ parietum reticulatæ.

†† Capillitium præsens (*Trichophoræ*).

Reticulariaceæ. Æthali-um simplex; peridia columellâ prædita; columella den-dritico evoluta; rami ad basim æthalii crescentes.

Calonemæ. Peridia et æthalia columellâ carentia.

Perichænaceæ. Capillitium crassitudinibus carens, sæpe parce evolutum, pa-rietes granulis calcareis copiose præditi; peridia semper simplicia.

Arcyriaceæ. Protuberantiæ capillitii verruciformes vel spiniformes vel an-nuliformes vel reticuliformes; peridia tunicâ densâ tecta; æthali-um calce destitutum.

Appendix.

Fructificatio in soros efformata. Pseudoplasmodia h. e. plasmodia aggre-gata. Zoospore nullæ (SOROPHOREÆ).

Guttulinaceæ. Sori stipite nullo vel parum evoluto; amœbæ pseudopodiis carentes.

Dictyosteliaceæ. Sori stipite distincte celluloso suffulti; amœbæ pseudopodiis acutis præditæ.

Clavis analytica Generum.

A) Sporæ violaceæ vel brunneo-violaceæ.

† Capillitium nullum.

Protodermium. Peridium singulum, pariete unico.

†† Capillitium præsens.

§ Peridium vel æthaliū extus calcariferum.

a. Capillitium e tubis reticulatim intertextis, apiceibus nonnullis liberis.

Cienkowskia. Apices liberi capillitii attenuati; granuli calcarei valde evoluti, sæpe ramosi.

aa. Capillitium e tubis hyalinis, translucidis, parietibus subtilibus, vulgo irregulariter reticulatim intertextis, ad angulos expansis formatum, sæpe columella carens.

× Peridia plura.

Fuligo. Peridia in pulvinulum (*æthaliū*) collecta; sporæ rotundæ.

Æthaliopsis. Peridia in pulvinulum collecta; sporæ ellipsoideæ.

×× Peridium singulum.

* Tubi capillitii omnino calce repleti.

Badhamia. Peridium irregulariter apertum.

** Tubi capillitii ex parte tantum calciferi.

Ω Rete capillitii irregulare.

⊖ Nodi pauci capillitii tantum calciferi.

Crateriachea. Nodi plurimi non evoluti, granuli calcarei pauci; peridium tenuiter tunicatum; columella cylindrica, centralis.

Leocarpus. Dimidia pars nodorum calce repleta; peridium bitunicatum.

⊖⊖ Nodi omnes calciferi, calce repleti.

Physarum. Peridium irregulariter dehiscens uni-vel bitunicatum, tubis spiniformibus carens.

Physarella. Capillitium stratis quatuor tuborum spiniformium radiantium suffultum.

Craterium. Peridium operculo dehiscens, tubis spiniformibus carens.

ΩΩ Rete capillitii regulare.

Tilmadoche. Tubi basi latiores, sursum attenuati, acute furcati; rami regulariter reticulati; granuli calcarei distincti.

aaa Capillitium e subtilissimis tubis, sæpe violaceis, simplicibus vel reticulatim intertextis, calce destitutis formatum; columella bene evoluta.

Didymium. Peridium extus semper crystallis calcareis tectum uni-vel bitunicatum.

Chondrioderma. Peridium extus granulis calcareis incrustatum, uni-vel bitunicatum.

aaaa Capillitium e ramis violaceis, calce destitutis, reticulatis forma-

tum; peridium cylindricum, obtusum, ramosum vel simplex; æthali-
um cylindricum, columella centrali.

Diachæa. Peridium simplex, columella centrali, calcigera.

Spumaria. Æthaliolum columella præditum, ramosum, aere repletum.

§§ Peridium vel æthaliolum calce destituta.

Ψ Peridium simplex.

± Peridium columellâ præditum.

I. Columella dimidium vel fere apicem peridii attingens; capillitium ple-
rumque retiforme.

a Rami ultimi capillitii sursum reticulum superficiale tegumento peridii
parallelum formantes.

Stemonites. Peridia cylindræa, breviter stipitata.

aa Reticulum superficiale nullum.

Comatricha. Columella sub apice peridii in capillitium, undique reticulum
completum formans abiens.

Raciborskia. Columella apice columellas secundarias breviores gerens. Ra-
muli extimi capillitii aculeis sparsis ornati.

Lamproderma. Columella dimidium peridii tantum attingens; capillitium re-
gulariter (ut in *Tilmadoche*) furcatum, vel in rete intertextum (ut
in *Arcyria*) formans.

II. Columella apicem peridii attingens, et ibi discum planum, ex quo ca-
pillitium oritur, formans.

Enerthenema. Tubi capillitii furcati, sed non reticulati.

±± Peridium columellâ carens.

Echinostelium. Tubi capillitii raro furcati; rami nonnulli in apicem liberum
abeuntes.

ΨΨ Æthaliolum.

∞ Columellæ peridiorum singulorum æthaliolum concrecentes ut rami disti-
chi ad basim æthalii; columellæ singulæ vero systema capillitii re-
gulare, retiforme, ut in *Comatricha*, formantes.

Amaurochæte. Capillitium e tubis ad nodos triangulariter incrassatis for-
matum.

∞ ∞ Tubi capillitii ex singula columella radiatim orientes et cum tubis
analogis peridii propinqui se conjungentes et in locum unum con-
fluentes.

Bresfeldia. Tubi capillitii tegumento peridii per vesiculas aeríferas adhæ-
rentes.

AA) Sporæ non violacæ, plerumque latæ coloratæ.

† Capillitium nullum.

*§ Parietes laterales peridii nulli vel uniformes.

a. Peridium v. æthaliolum tegumentis integris.

Licea. Fructus irregulares (plasmodiocarpa).

Tubulina. Peridia cylindrica, conglomerata, hypothallo nitido valde evoluta,
subinde stipitata insidentia.

Lindbladia. Æthaliolum nudum.

aa. Æthaliolum parietibus regulariter perforatis.

Clathroptychium. Æthaliolum e strato singulo peridiorum formatum; peri-

diorum pars superior campanulata, fibris sex tricornutis, ad basim descendentibus prædita.

Enteridium. Æthaliū e stratis nonnullis peridiorum formatum, cortice papraceo, tenui tectum, tunicæ late et symmetrice apertæ, post exitum sporarum rete simulantes.

§§ Parietes peridii intus systema secundarium protuberantiarum reticulatum formati.

Cribraria. Protuberantiæ reticulatæ persistentes, fibris tenuibus sæpe nodis incrassatis formatæ.

Dictydium. Protuberantiæ reticulatæ persistentes, tæniis latis cum fibrillis tenuissimis contextis formatæ.

Heterodictyon. Protuberantiæ reticulatæ inferne ut in *Dictydio*, superne ut in *Cribraria*.

†† Capillitium præsens.

* Æthaliū simplex; peridia columella prædita; columellâ dendritice evoluta; rami ad basim æthalii crescentes.

Reticularia. Capillitium e tubis tenuibus aere repletis, parietibus non incrassatis formatum.

** Peridia et æthalia columellâ carentia.

Ψ Capillitium protuberantiis carens, sæpe parce evolutum, parietes granulis calcareis copiose præditi; peridia semper simplicia.

Perichæna. Tegumenta duplicia; rete capillitii in parte interna superiore crescens.

ΨΨ Protuberantiæ capillitii verruciformes vel spiniformes vel annuliformes vel reticuliformes; peridia tunicâ densâ tecta; æthaliū calce destitutum.

Ω Peridia in pulvinulum collecta.

Lycogala. Æthaliū peridiis in pulvinulum collectis, peridia externa cortice cellulis coloratis formato tecta.

ΩΩ Peridia singula.

× Capillitium non reticulatum.

Oligonema. Tubi simplices.

×× Capillitium reticulatum.

⊕ Peridia extus cellulis tecta.

Dermodium. Cellulæ coloratæ, membrana simplici.

⊕⊕ Peridia extus cellulis destituta.

Lachnobolus. Rete capillitii uniformiter crescens in tota superficie parietum peridii.

Arcyria. Pars extrema retis tantum in expansionem cyathiformem stipitis crescens vel in contento ejus immersa.

Cornuvia. Rete capillitii omnino libera.

ΨΨΨ Protuberantiæ capillitii in lineam dextrorsum spiralem dispositæ, peridia simplicia, calce destituta.

Trichia. Capillitium e tubis numerosis, simplicibus, liberis formatum.

Hemiarcyria. Capillitium reticulatim connexum.

Appendix.

Guttulina. Subsessilis. Amœbæ heterogenæ.

Copromyxa. Subsessilis. Amœbæ homogenæ.

Dyctiostelium. Stipitatum: stipite simplici, celluloso. Sporæ non catenulatæ.

Acrasis. Stipitata: stipite simplici. Sporæ catenulatæ.

Polysphondylium. Stipitatum; stipite racemoso. Sporæ non catenulatæ.

Div. I. Amaurosporæ Rost.

Sporæ violaceæ vel brunneo-violaceæ.

Sect. A. Atrichæ Rost.

Peridia capillitio destituta.

Ordo I. Protodermiæ Rost.

Peridia simplicia vel regulariter formata, capillitio destituta; sporæ violaceæ.

Fam. 1. Protodermiaceæ Rost.

Characteres iidem ac Ordinis.

PROTODERMIIUM Rost. Mon. p. 90, Schroeter Krypt. Fl. Schles. Pilze p. 103 (Etym. *protos* primus et *derma* pellis). — Peridia simplicia, solitaria, regulariter formata. Massa sporigera nigro-violacea. Capillitium nullum. — Nomen leviter mutatum ob homonymon (*Protoderma*) inter Algas.

1. **Protodermium pusillum** (Schrad.) Rost. Mon. p. 90, Schr. Krypt. Fl. Schles. Pilze pag. 103, *Licea pusilla* Schrad. t. 6, fig. 4, Schw. Amer. bor. n. 2316, *Physarum Licea* Fries Syst. Myc. III, p. 143, Wallr. Fl. Cr. Germ. n. 2123. — Peridiis gregariis, discretis, hemisphæroideis, subdepressis, circiter 1 mm. latis, castaneo-fuscescentibus, nitentibus; massa sporigera atra; sporis globosis, 16-18 μ . diam., membrana nigro-violacea, glabra.

Hab. ad ligna putrida pinea, alnea, quercina etc. in Germania, Rossia et Amer. bor.

Ordo II. Calcareæ Rost.

Peridia discreta, regularia vel irregularia, rarius in æthalia confluentia, calcarea, capillitio etiam sæpe calcareo sæpissimeque columella instructa. Sporæ fusco-atræ v. violaceo-atræ aut subatræ.

Fam. 2. Cienkowskiaceæ Rost.

Calcariferæ; capillitium e filamentis in rete connexis, ramis nonnullis liberis, ceteris tunicæ peridii adherentibus præditis compositum, granulis calcareis latis, complanatis donatum, sæpe ramosum; columella nulla.

CIENKOWSKIA Rost. Mon. 91, Cooke Myx. Gr. Crit. p. 11, fig. 107 (Etym. a cl. CIENKOWSKI). — Peridia membrana simplici, irregulariter rupta. Rami liberi capillitii apice attenuati. Granuli calcarei bene evoluti, sæpe ramosi.

1. **Cienkowskia reticulata** (Alb. et Schw.) Rost. Mon. p. 91, *Phy-* 1140
sarum reticulatum Alb. et Schw. p. 90, t. 7, fig. 2, *Diderma reticulatum* Fries Syst. III, p. 112, Wallr. n. 2195. — Peridiis repentibus, reticulatim intertextis, aurantiacis vel brunneis; capillitio granulis calcareis prædito; sporis levibus nitide violaceis, 9 μ . diam.

Hab. in lignis etc. in Germania, Britannia et Suecia.

Fam. 3. **Physaraceæ** Rost.

Peridia membrana simplici vel duplici. Capillitium e tubulis tenellis, reticulatis, hyalinis, pellucidis, granulis calcareis vel aere repletis formatum. Columella ut plurimum nulla.

BADHAMIA Berk. Outl. p. 308, Linn. Trans. XXI, p. 153, Rost. Mon. pag. 139 (Etym. a cl. mycologo BADHAM). — Peridia irregulariter rumpentia, membrana simplici, tenella, calcarea. Tubuli capillitii peridiis undique æqualiter adnatis, reticulatim connexi, per totam longitudinem granulis calcareis minutis repleti. Columella subinde adest.

Clavis analytica specierum

- A) Sporæ leves.
 - † Membrana peridiorum gregariorum in capitulum unicum concreescens.
- B. *coadnata*. Sporæ 8-9 μ . diam.
 - †† Peridia discreta.
 - * Capillitium valde evolutum, sporangia vulgo columella prædita.
- B. *panicea*. Sporæ 9-16 μ . diam.
 - ** Capillitium evanescens; peridia columellâ carentia.
- B. *verna*. Sporæ 12,5 μ . diam.
 - B) Sporæ spinulosæ.
 - † Spinæ sporarum irregulariter sparsæ.
- B. *lilacina*. Peridia carneo-colorata.
 - †† Spinæ æqualiter dispositæ.
- B. *Alexandroviczii*. Plasmodiocarpa venosa.
 - * Peridia simplicia.
 - ⊖ Sporæ in parva glomerula coacervatæ.
- B. *hyalina*. Peridia perfecte globosa, inflata.
 - ** Peridia forma varia.
- B. *capsulifera*. Sporæ 10-12 μ . diam.

⊖⊖ Sporæ singulæ, liberæ.

! Peridium iridescent, violaceum.

B. utricularis. Sporæ 12,5 μ . diam.

!! Peridia grisea vel alba.

B. macrocarpa. Sporæ 12-15 μ . diam.

B. affinis. Sporæ 13-15 μ . diam.

Species incertæ sectionis.

B. ovispora.

B. rubiginosa.

B. fasciculata.

B. Curtisti.

B. microcarpa.

B. irregularis.

B. Fuckeliana.

B. fulvescens.

B. papaveracea.

B. inaurata.

B. pallida.

B. magna.

B. decipiens.

B. melanospora.

B. dictyospora.

1. **Badhamia panicea** (Fr.) Rost. Mon. p. 144, *Physarum paniceum* Fr. Syst. Myc. III, p. 141. — Peridiis globosis, gregariis, sessilibus, levibus; capillitio albo; sporis violaceis, 9-11 μ . diam.

Hab. in foliis dejectis Fagi stipulisque deciduis in Suecia. — *Chandr. globoso* admodum simile sed peridia tenerrima, haud applanata, levia, squamuloso-lacerata.

2. **Badhamia coadnata** Rost. Mon. p. 146. — Peridiis valde numerosis, conglomeratis, membrana communi gibbosa, nivea ex parietibus verticalibus sporangiorum orta tectis, hypothallo distincto suffultis; capillitio e floccis niveo-albis formato, copioso, rigido subinde columellam mediam deformem formante; sporis globosis, nitide violaceis, episporio crasso, levibus, 8-9 μ . diam.

Hab. in in Polonia.

3. **Badhamia fasciculata** (Jungh.) Rost. Mon. App. p. 2, *Physarum fasciculatum* Jungh. Fl. Crypt. Jav. p. 11, tab. II, fig. 8. — Peridiis globosis, albidis, irregulariter dehiscentibus dein omnino evacuatis, parte superiori fugaci, interiori persistente, subcupuliformi, margine lacero; stipitibus fasciculatis, cæspitose connatis, 3-6 et pluribus basi connexis, erectis, tenacibus, sordide lutescentibus, nitidis, sursum attenuatis, subsulcatis, basi incrassatis, nigrescentibus; sporis violaceis, 11-12 μ . diam. levibus.

Hab. in truncis Pandanorum prope Depok in Java anstraliore.

4. **Badhamia macrocarpa** (Ces.) Rost. Mon. p. 143, *Physarum macrocarpum* Ces. in Rab. F. Europ. exsicc. n. 1968. Cfr. Fl. 1855, p. 271. — Peridiis albis initio irregularibus, hemisphæricis, distin-

ctis et subinde confluentibus, globosis; stipite rigido, sulcato, rufo-brunneo; capillitio rigido, valde evoluto; sporis 12-15 μ . diam., atro-violaceis, crasse muricatis.

Hab. in corticibus in Italia, Germania, Polonia.

5. **Badhamia microcarpa** Schroet. Krypt. Fl. Schl. Pilze p. 131. — 1145

Peridiis sessilibus, circiter 0,5 mm. latis, in acervulos parvos collectis vel seriatim dispositis, hypothallo communi carentibus; peridiis tenui-tunicatis, nitide griseis; capillitio tenui, albo, floccis irregulariter calcarigeris, nunc 3-4 nunc usque 12 μ . crassis, nodis non crassioribus; sporis discretis, 7,5-9 μ . crassis, violaceis, levibus.

Hab. in culmis et caulibus in Germania.

6. **Badhamia affinis** Rost. Mon. p. 143. — Peridiis hemisphaericis, 1146

fortiter applanatis, basi plano-umbilicatis, stipitatis, griseo-albis, tunicis delicate rugulosis; sporis discretis, brunneo-violaceis, episporio rigidulo, 13-15 μ . diam. spinulosus.

Hab. in caulibus et foliis putridis in Chili (BERTERO) et America boreali (ПЕЕК).

7. **Badhamia verna** (Somm.) Rost. Mon. p. 145, *Physarum vernum* 1147

Somm. in litt. et Fr. Syst. Myc. III, p. 146. — Peridiis gregariis, depressis, versiformibus, confluentibus, at non sinuosis, fusco-atris, tenuissimis, levibus, fragilissimis, lacero-dehiscentibus, demum evanescentibus, floccis adnatis, vagis, albis; sporis fusco-nigris, 12-13 μ . diam., levibus.

Hab. ad ramos, stipulas, folia decidua etc. in Norvegia.

8. **Badhamia Fuckeliana** Rost. Mon. App. p. 2, *Trichamphora Fu-* 1148

ckeliana Rost. Mon. p. 138. — Peridiis discoideis 1 mm. lat., subinde supra vel basi excavatis stipitatis; stipite levi elongato, colorato; sporis atro-violaceis, episporio delicate spinuloso, 9-12 μ . diam.

Hab. in lignis et in Auricularia putridis in Germania. —

Adest forma *gracilis* peridio $\frac{1}{2}$ mm. lat.; stipite 1-1 $\frac{1}{2}$ mm. long.

9. **Badhamia utricularis** (Bull.) Berk. Linn. Trans. XXI, pag. 153, 1149

Cooke Handbook n. 1147, Rost. Mon. p. 142, fig. 110-112, *Sphaerocarpus utricularis* Bull. t. 417, fig. 1, *Physarum ovoideum* Schum. Saell. 1425, *Trichia utricularis* DC. Fl. Fr. 676, *Physarum hyalinum* β . *chalybeum* A. et S., n. 256, *Physarum botryoides* β . *chalybeum* Fr. Stirp. pag. 83, *Physarum utriculare* Chev. Fl. Par., I, 337, Berk. Ann. Nat. Hist. pag. 214, *Physarum cærulescens* Pers. in litt., *Physarum alutaceum* Wallr. Herb.,

Physarum melaleucum Nyl. p. 126. — Peridiis gregariis, confertis vel fasciculatis, sphæroideis, ellipsoideis vel ovoideis, sessilibus vel stipitatis, cærulescentibus vel violascente-lividis vel virescente-nigris, opacis vel metallicis; tubulis capillitii rigidiusculis reticulatim conjunctis, nodulis planis; sporis sphæroideis, liberis, spinulosis, violascente-atris vel atris, sub micr. violascente-fusculis, 10-12 μ . diam.

Hab. in cortice et ligno arborum frondosarum, præcipue Salicis, rarissime coniferarum, in fere tota Europa. — Sporangia 0,5-1 mm. lata levia vel leviter corrugata ut plurimum cærulescentia vel cærulescente-nigra; sporæ delapsæ albidæ vel cinereo-albæ; stipes nunc fere nullus (var. *melaleuca* NYL.), nunc usque ad 5 mm. altus, flaccidus, decumbens straminens (var. *Schimperiana* ROSTAF.), nunc brevis, sporangium æquans (in formis *genuina* et *splendente*, illa sporangiis ovoideis, violaceo-lividis, 0,7-6 mm. latis, hæc sporangiis exacte sphæroideis vel ellipsoideis, cærulescentibus, lilacinis, opacis aut virente-nigris, metallicis, 0,5-0,8 mm).

10. *Badhamia hyalina* (Pers.) Berk. in Linn. Trans. XXI, tab. 19, fig. 3, Cooke Handb. 8 n. 1143 Rost. Mon. pag. 140, fig. 113, Berl. fungi Moric. fasc. III, n. 6, fig. 1-5, Pat. Tab. An. Fung. p. 78, fig. 182, *Physarum hyalinum* Pers. Disp. tab. 2, fig. 4, Eng. Flor. V, pag. 315; Ann. Nat. Hist. n. 213, *Physarum membranaceum* Schum. Herb. *Physarum globuliferum* DC. in herb. *Physarum hyalinum a. albidum* A. et S., 256, *Physarum cinereum* Link Diss., I., pag. 27, *Physarum botryoides a. hylinum* Fr. Stirp. pag. 83, *Physarum botrytis* Somm. 1826, *Physarum gracile* Weinm. Herb. *Physarum cancellatum* Wallr. Fl. Germ., 2128, *Diderma papaverinum* Wall. Fl. Germ. 2210, *Physarum gracilentum* Fuckl. Sym. pag. 342, non *Didymium simulans* Howe. — Sporangii sessilibus v. stipitatis, fasciculatis, sphæroideis, inflatis, levibus, albidis vel cinereo-albis, sporis expulsiis niveis; stipite ramoso vel simplici, stramineo vel rufescenti, rigido vel flaccido, decumbenti; columella nulla; sporis 5-20 conglobatis, episporio crassiusculo, spinuloso, violascente atris vel atris, 10-12 μ . diam.

Hab. in lignis putrescentibus in Germania, Gallia, Italia, Suecia, Britannia, Fennia, Belgio et Amer. bor. — Var. *subsessilis* stipite brevi, vix perspicuo: var. *genuina* stipite 3-4 mm. longo,

plerumque rigido: var. **gracilis** stipite elongato ultra 5 mm. longo, plerumque fasciculato, flexibili, gracili. Cum typo ibidem.

11. **Badhamia capsulifera** (Bull.) Berk. Linn. Trans. XXI, p. 153, B. 1151
et Br. Ann. Nat. Hist. n. 1595 et in Grevillea vol. V, p. 12, Rost. Mon. p. 141, *Sphaerocarpus capsulifer* Bull. t. 470, f. 2, *Trichia capsulifera* DC. Fl. Fr. p. 684, *Physarum capsuliferum* Chev. Fl. Fr. I, p. 339. — Peridiis numerosis, hypothallo communi indidentibus, nonnullis stipite brevissimo præditis, irregulariter obovatis, griseo-albis, subinde hemisphæricis, deformatis, sessilibus, griseis vel nitide luteis, capillitio nodulis parum evolutis; sporis pallide violaceis, 10-12 μ . diam., membrana spinulosa præditis, 5-20 coalitis.

Hab. in ramis emortuis in Gallia et Britannia.

12. **Badhamia papaveracea** B. et Rav. in Grevillea 1873, n. 359, Rost. 1152
Mon. p. 147. — Peridiis globosis, brevissime stipitatis, ut plurimum congestis, albis, rugosis; floccis reticulatis, niveis; sporis atris, 10 μ . diam., sæpe obovatis, sursum granuligeris, circiter 7-congestis.

Hab. in ligno quercino putri, Aiken Carolinæ infer.

13. **Badhamia pallida** Berk. Linn. Trans. XXI, p. 153, t. 19, fig. 2, 1153
Ann. Nat. Hist. n. 732, Cooke Handbook n. 1145, *Badhamia nitens* Berk. in Trans. Linn. Soc. XXI, p. 153, t. 19, fig. 1, Cooke Handb. n. 1146, Rost. Mon. p. 147. — Peridiis sessilibus, depressis, sæpe lenticularibus, hinc inde irregulariter stipatis, subinde confluentibus, plicatis, pallide luteis; capillitio e tubis luteis ramosis, tunicæ internæ adhærentibus, angulos triangulares ad ramorum originem formantibus constante; sporis latis, episporio granuloso, 12-20 μ . longis, primo in cellulis 50 μ . latis nidulantibus.

Hab. in ramis quercinis putridis in Britannia.

14. **Badhamia Alexandrowiczii** (De Bary et Rost.) Rost. Mon. p. 146. 1154
— Peridiis gregariis, sed distantibus, irregularibus, subrotundis v. reniformibus, circiter 0,7 mm. latis, 0,7-2 mm. longis, nitide luteo-brunneis v. pallidis; capillitio bene evoluto, tubis crassis, nodis 35 μ . latis; sporis 9-11 μ . diam., obscure violaceis, levibus.

Hab. in foliis emortuis in Polonia et Germania. — Peridium crassum, rufo-brunneum, per operculum circulare dehiscens.

15. **Badhamia decipiens** (Curt.) Berk. in Grev. 1873, n. 66, *Physarum decipiens* Curtis in Am. Journ. p. 352, *Physar. chrysotrichum* B. et C. in Grev. 1873, n. 357. — Sessilis subglobosa, subinde depressa, basi lata applanata; plasmodio repente, venuloso, crasso, arcuato, e gilvo nigricante; columella nulla; peridio flocc-

cisque fulvis, tubulis crassis, inæqualibus, in rete laxè conjunctis; sporis levibus 11-12 μ . diam.

Hab. in ligno emortuo, Alabama Amer. bor. (PETERS).

16. **Badhamia lilacina** (Fr.) Rost. Mon. p. 145, fig. 108-109, *Physarum lilacinum* Fries Syst. Myc. III, p. 141, B. et Br. Ann. Nat. Hist. n. 211, Cooke Handbook n. 1138. — Peridiis plus vel minus perfecte globosis, sessilibus, levibus, opacis, nitide lilacino-carneis; capillitio in rete contexto, tubis diametro valde variabili, centro minoribus sed distinctis, columellam irregularem formantibus; sporis violaceis, verrucis obtusis, numerosis, irregulariter sparsis tectis, 12-15 μ . diam.

Hab. in lignis et corticibus putridis in Suecia et Britannia.

17. **Badhamia dictyospora** Rost. Mon. Suppl. 4, *Physarum canum* 1 in Hook. Herb. *Phys. rubiginosum* Berk. Engl. Fl. V, p. 315 (non Chev.). — Peridiis globosis vel globoso-turbinatis, irregulariter apertis, vel per operculum dehiscens, rufo-brunneis, nitidis et apice albicantibus, stipitatis; columella distincta, cylindracea, obtusa, obscura, e parte elongata stipitis formata; stipite brunneo-nigrescente, rigido, fragili; sporis irregulariter reticulatis, obscure violaceis, 11 μ . diam.

Hab. in truncis inter muscos in Britannia.

18. **Badhamia rubiginosa** (Chev.) Cooke Brit. Myc. p. 82, *Physarum rubiginosum* Chev. Fl. Par. 338, Cooke Handb. n. 1137, *Scyphium rubiginosum* Rost. Mon. p. 148 et Cooke Brit. Myx. p. 29, *Craterium obovatum* Peck 26 Rep. p. 75. — Peridiis globoso-turbinatis; stipite tenui; sporangio duplo longiori, rufo-brunneo, levi nitidulo; columella distincta, cylindracea, firma, obscura, e parte stipitis elongata formata; capillitio valde evoluto, albescens, peridio operculo delicato dehiscens; sporis violaceis, 14-15 μ . diam., vix verrucosis.

Hab. in truncis inter muscos in Gallia, Britannia et Amer. bor.

19. **Badhamia Curtisii** (Berk.) Rost. Mon. App. p. 3, *Physarum Curtisii* Berk. in Grev. 1873, p. 65, *Scyphium Curtisii* Rost. Mon. pag. 149. — Sessilis, obovata, fusca, sparsa vel lateraliter congesta, glabra, columella manifesta; floccis albis; sporis violaceis, 12 μ . diam.

Hab. in foliis et culmis putridis in Carolina inferiore (RAVENEL).

20. **Badhamia irregularis** C. et E. in Grevillea. — Sparsa, sessilis; peridiis suborbicularibus vel confluentibus, demum atro-brunneis; sporis fuscis, globosis, asperulis, 10 μ . diam.

Hab. in ligno pineo in America boreali.

21. **Badhamia fulvescens** Cooke in Grevillea IV, p. 69. — Peridiis 1161
sessilibus, subglobosis, sparsis vel 3-6 coalitis, cinnamomeo-ochraceis, ad basim pruina alba delicata; sporis pallide brunneis, minutis, ovatis, 7 μ . diam.

Hab. in tela corrupta, Dupplin Castle, Perth Britannicæ.

22. **Badhamia inaurata** Currey in Linn. Trans. XXIV, tab. 25, fig. 8, 1162
Berk. et Br. Ann. Nat. Hist. n. 1034, Cooke Handb. n. 1148, Saccardo in Mich. — Peridiis gregariis sessilibus, globosis vel fere globosis, nitide lutescentibus, 1,25 mm. latis, squamis floccosis, luteis tectis, rimis irregularibus ruptis; capillitio e floccis ramosis filiformibus, atris in ganglia varia confluentibus formato; sporis globulosis, echinulatis, atro-violaceis, 15-20 μ . diam.

Hab. in muscis et in lignis putrescentibus in Britannia, Italia et America bor.

23. **Badhamia magna** Peck 31 Rep. p. 56, *Dictydium magnum* Peck 1163
— Peridio globoso, tenui, fragili, irregulariter reticulato, cæruleo-purpurascente, pruinoso; stipite elongato, 10-15 mm. alto filiformi, albescente vel luteo; sporis globosis, atris, 10 μ . diam.

Hab. in Polyporo quodam et in ligno, Center Amer. bor.

24. **Badhamia melanospora** Sp. F. Arg. Pug. I, p. 88. — Peridiis 1164
sessilibus dense gregario-constipatis, sphæroideis, levibus, cinereo-bidis, sporis expulsis, niveis; columella nulla; tubulis capillitii rigidiusculis crebre reticulatim conjunctis, medio incrassato-fusiformibus, nodulis planis; sporis conglobatis vel liberis, levibus, atris, opacis, e mutua pressione polygono-angulosis, 15 μ . diam.

Hab. in trunco putrescente Cerei peruviani en el Bagnado de San José de Flores Argentina.

25. **Badhamia ovispora** Racib. Myx. Crac. p. 4, fig. 2, a, b. — Peridiis 1165
sessilibus, depresso globosis, 0,5-0,75 mm. latis, membrana abunde calcigera, scabra, fragili, basi flava apice decolorata; capillitio calce abundante, albo, rigido, nodis magnis, irregularibus; columella nulla; sporis violaceis, ellipsoideis, levibus, 14-16 $\approx$ 7-8.

Hab. in ramis Populi canescentis prope Cracoviam Polonia.

Species incerta.

26. **Badhamia fulvella** Berk. Linn. Trans. XXI, p. 154, Cooke Handb. 1166
n. 1144. — Peridiis gregariis, maculis distinctis, non formantibus, sessilibus, globosis, nigricantibus, pruina delicata, brunnea tectis, post

sporarum dehiscientiam luteis, capillitio albo, tubis inflatis; sporis obscure violaceis, in soros collectis, 12-18 μ . diam.

Hab. in ligno putri in Britannia. — Cl. Rostafinski inter species incertas locat (Cfr. Mon. p. 148).

PHYSARUM Persoon Observat. Mycol. pag. 5, Rost. Mon. pag. 93, Schr. Krypt. Fl. Schles. p. 127 (Pilze). (Etym. *physarion* vesica). — Peridia membrana simplici vel duplici, irregulariter dehiscientia. Capillitium peridio undique æqualiter adnatum. Noduli tubulorum granulis calcareis repleti. Columella vulgo nulla.

Clavis analytica specierum.

A) Tegumentum peridii simplex.

† Granuli calcarei plus vel minus rotundi.

* Tunica peridii, calce depauperata, hyalina.

Ph. candidum. Peridia stipitata vel sessilia.

** Tunica peridii, calce depauperata, saltem inferne violaceo-colorata.

Ph. lividum. Peridia sessilia.

Ph. compressum. Peridia stipitata, stipes niger, nitidus.

Ph. affine. Peridia stipitata, stipes niveo-albus, opacus.

†† Granuli calcarei in massulis parvis angularibus.

* Columella præsens.

Ph. globuliferum. Peridium stipite albo.

Ph. citrinum. Peridium stipite colorato.

** Columella nulla.

Ψ Granuli calcarei pauci, nodi non omnes incrassati.

Ω Capillitium elasticum.

Ph. Famintzini. Capillitium post aperturam peridii se diu elongatis.

ΩΩ Capillitium non elasticum.

Ph. leucophæum. Granuli calcarei forma communi.

Ph. capense. Granuli calcarei angulis rectis terminati.

ΨΨ Granuli calcarei numerosi.

Θ Peridium semper sessile.

∞ Plasmodiocarpum forma varium, repens, venosum.

Ph. muscorum. Capillitium carneo-coloratum.

∞ ∞ Peridium simplex.

Ph. cinereum. Tunica peridii et granuli calcarei albi.

Ph. virescens. Tunica peridii et granuli calcarei lutei vel grisei.

Ph. Braunianum. Tunica peridii et granuli calcarei brunnei.

Ph. rubiginosum. Tunica peridii et granuli calcarei rubiginosi.

Θ Peridia semper stipitata.

Ph. polymorphum. Stipes colorati minime rigidi, sæpe fasciculati; peridia coalita.

Ph. leucopus. Stipes niveo-albus; peridia grisea.

Ph. sulphureum. Stipes et peridium sulphurea.

Ph. flavum. Stipes et peridium flava.

Ph. psittacinum. Stipes rufus.

Ph. pulcherrimum. Stipes purpureus.

Ph. flavicomum. Stipes brunneus vel luteo-coloratus.

B) Tunica peridii duplex.

$\frac{1}{1}$ Tunica interna densior.

Ph. didermoides. Peridia stipitata.

$\frac{1}{1}$ Tunica externa densior; peridia sessilia.

* Plasmodiocarpum repens vel reticuliforme.

Ph. sinuosum Plasmodiocarpum rima longitudinali ruptum.

** Peridium singulum.

⊖ Peridium globosum.

Ph. Diderma. Peridium niveo-album.

⊖⊖ Peridium non globosum, luteo-aurantiaecum, raro album.

Ph. conglomeratum. Sporæ 8-9 μ . diam. parvè spinulosæ.

Ph. contextum. Sporæ 12 μ . diam. distinctè spinuligeræ.

Species incertæ sectionis.

α . Peridia fuliginea vel læte colorata.

Ph. Petersii.

Ph. fimetarium.

Ph. Lervillei.

Ph. flavidum.

Ph. atropurpureum.

Ph. flavo-virens.

Ph. chlorinum.

Ph. hypnophilum.

Ph. inaequale.

Ph. luteo-valce.

Ph. roseum.

Ph. atrum.

Ph. luteolum.

Ph. pæreum.

Ph. pulchripes.

Ph. polycephalum.

Ph. antiades.

Ph. polyedron.

Ph. cæspitosum.

Ph. Schweinitzii.

Ph. reticulatum.

Ph. subglobosum.

Ph. elegans.

β . Peridia albida vel cinerescentia.

Ph. simile.

Ph. Phillipsii.

Ph. ellipsosporum.

Ph. effusum.

Ph. granulatum.

Ph. muscicorum.

Ph. albicans.

Ph. ornatum.

Ph. imitans.

Ph. obrussum.

1. **Physarum compressum** A. S. Lus. p. 97, Sacc. in Mich. I, p. 433, 1167 fig. 80-82, *Physarum nephroideum* Rost. Mon. pag. 93, Berl. fungi Moric. fasc. III, n. 6, fig. 10-14. — Peridiis longitudinaliter compressis ambitu rotundatis sed ob basim excavatam reniformibus minute cinereo-furfuraceis, vix 1 mm. latis, stipite $\frac{3}{4}$ -1 mm. long. cylindraceo, striatulo, fusco, diu persistente instructis;

columella subnulla; capillitio ex floccis hyalinis hinc inde massulis calcareis lutescentibus oblongis incrustatis, sporis globulosis v. obtuse angulosis, 11-13 μ . diam., granulosi, guttulis, atroviolaceis.

Hab. in culmis putridis Sorghi et in ligno putri udo Mori albæ aliarumque arborum in Germania et Italia boreali.

2. **Physarum Diderma** Rost. Mon. p. 110. — Peridiis sessilibus, basi angusta adnatis, globosis, niveo-albis, tunica peridii duplici, externa densiori, fragili, crassa, calcigera, interna tenui, valde distante, granulis calcareis plurimis anguloso-globulosis columellam obsoletam formantibus; sporis subviolaceis, aculeatis, 9-10 μ . diam.

Hab. in Varsoviæ Poloniæ (ALEXANDROWIC).

3. **Physarum lividum** Rost. Mon. p. 95, *Phys. griseum* Link Diss. II, fig. 42, p. p. *Phys. effusum* Link in Herb. *Phys. conglobatum* Fr. Symb. gast. p. 21, p. p. non Ditm. *Spumaria licheniformis* Sz. Am. ses. n. 2364, *Didymium physaroides* Mont. Fl. Alg. p. 412, non Fr. *Licea alba* Bong. Herb. — Peridiis confertis, sessilibus, subrotundo-irregularibus, nigris furfuraceo-albidis; columella plane nulla; sporis globosis, subangulosis, opacis, subasperulis, 10-12 μ . diam., floccis vix nullis.

Hab. in truncis humi jacentibus Opuntiae nec alibi obvium in Germania, Suecia, Algeria et Amer. bor.

4. **Physarum candidum** Rost. Mon. p. 96. — Peridiis eumorphis v. irregulariter globosis, sessilibus v. stipitatis, irregulariter diffractis, niveo-albis; stipite concolore, elongato, plicato, 1 mm. alto, rigido, crustaceo; tunicis calce amissa niveo-albis; capillitio granulis calcareis rotundis niveo-albicantibus; sporis pallide violaceis, muricatis, 12-15 μ . diam.

Hab. in ligno putri in insula Juan Fernandes pr. Chili (BERTERO).

5. **Physarum didermoides** (Ach.) Rost. Mon. pag. 97, fig. 74-87, Cooke Myx. Gr. Br. p. 11, f. 74, 87, Pat. Tab. An. Fung. pag. 75, fig. 176, Schroet. Krypt. Fl. Schles. Pilz. pag. 128, *Spumaria didermoides* Ach. in Pers. Syn. pag. 29, 1801, *Claustria didermoides* Fr. S. V. S., pag. 451, 1849, *Diderma oblongum* Schum. Saell. n. 1,423, 1803, Flor. Dan. tab. 1973, fig. 1, Fr. Syst. Myc. III, p. 103, *Didymium congestum* B. et Br. Ann. N. H. 1850, p. 365, Cooke Hdbk. n. 1130, *Didymium farinaceum* Purt. M. F. pag. 273. — Peridiis persistentibus ovoideis, columella carentibus, membrana duplici præditis, interiori crassa, colorata, calcigera, al-

tera tenui decolorata, basi in stipitem tenuem, album, filiformem, subinde ramorum hypothallo communi valde evoluto insidentem attenuatis; capillitio granulis calcareis rotundis, albis prædito; sporis violaceis, membrana crassa, spiculosa cinctis, 12,5-14,2 μ . diam.

Hab. in foliis emortuis, in culmis etc. in Russia, Britannia, Germania, Suecia, Italia.

Physarum Schrøteri Rost. Sluzowc. Dod. I, p. 419, Karst. M. 1172 F. IV, pag. 102. — Peridiis stipitatis, hemisphæricis, applanatis; stipite conoideo, crasso, aureo, nitente, in columellam distinctam, obtuse conoideam porrecto; tubulis tenellis, reticulum densum, granulis calcareis præditum formantibus; sporis spinulosis, fusco-atris, 10-11 μ . diam.

Hab. ad folia et ramulos Alni in parœcia Tammela Fenniae.

Physarum globuliferum (Bull.) Rost. Mon. p. 98, *Sphaerocarpus* 1173 *globulifer* Bull. Champ. p. 134, tab. 484, fig. 3, *Stemonitis globulifera* Gmel. Syst. Nat. II, p. 1467, n. 2, *Physarum globuliferum* Pers. Syn. p. 175, tab. 3, fig. 11, 12. *Trich. globulifera* D. C. Fl. p. 2, p. 253, *Diderma globuliferum* Fr. Syst. Myc. III, p. 100. — Peridiis globosis, stipitatis griseo-pallido; stipite longitudinem peridii æquante vel duplo longiori, rigido, fragili, albo, sulcato; columella magna, cylindracea, obtusa, alba, capillitio bene evoluto, rigido non collabente; vesiculis calcareis numerosis, magnitudine variis, luteolis vel rubiginosis; sporis 9-11 μ . diam., pallide violaceis, levibus.

Hab. in muscis, foliis et lignis putrescentibus in Gallia, Germania et Suecia.

Physarum Petersii B. et C. in Grevillea 1873, n. 356, p. 66. Rost. 1174 Mon. p. 116, et App. p. 6. — Peridiis globosis, delicatis, luteis; stipite æquali, lateritio; floccis subflavis; sporis pallide violaceis, levibus, 8-9 μ . diam.

Hab. in ligno emortuo, Alabama Amer. bor. — Peridia exacte sphaerica, stipitata, cum distincta columella, sed valde parva et lenticulari. Capillitium ut in sequente, color peridii et stipitis varius.

Physarum simile Rost. Mon. App. p. 6. — Peridiis perfecte glo- 1175 bosis, griseo-albis, stipitibus peridia in longitudine æquantibus, rigidis, lutescentibus; capillitio rigido, persistente, valde evoluto, calcigero; sporis pallide violaceis, 7,5 μ . diam. levibus.

Hab. in lignis in Carolina (Curtis). — Peridia exacte sphaerica, rava, stipitata; stipes longitudine peridium adæquans, aut

bis longior, striis exaratus, rigidus, fragilis, gilvo-ravus, elongatus intus peridium in columellam distinctam, $\frac{1}{4}$ altitudinis peridii attingentem. Capillitium bene evolutum, rigidum, solidum, cum plurimis calcariis sed parvis, triangularibus aut elongatis.

10. **Physarum citrinum** Schum. Saell. 1,436, *Physarum aurantiacum* β . *rufipes* A. et S. Cons. p. 262, *Physarum verrucosum* Link. Herb. *Physarum compactum* Ehr. Syl. Ber. p. 21, *Physarum Schumacheri* Spr. Syst. IV, p. 528, *Diderma citrinum* Fr. S. M. III, p. 100, 1829, Cooke Hdbk. n. 1107, *Diderma rufipes* Fr. S. M. III. 101, *Diderma compactum* Wallr. Herb. *Physarum chrysocephalum* Wallr. Herb. *Physarum flavum* Fekl. Sym. p. 343, 1869, *Didymium melleum* B. et Br. Cey. Fung. 651, *Didymium chrysocephalum* B. et B. N. A. Fung. p. 348, *Physarum Schumacheri* Rost. Mon. p. 99, Cooke Myx. Gr. B. p. 11, Schr. Krypt. Fl. Sch. Pilze pag. 130. — Peridiis stipitatis, sphæroideis, raro difformibus, irregulariter verrucosis v. squamulosis, citrinis v. virescente-flavis, 0,5 mm. latis; stipite erecto, subulato, levi vel striato in stylum brevem, conoideum, sporangium intrans, porrectum; capillitio granulis calcareis angulatis, minutis, conglomeratis prædito; sporis sphæroideis, episporio firmo, levi, fusco-atris, diam. 7–11 μ .

Hab. in foliis Sphagni etc. in Germania, Italia, Fennia, Britannia Ceylon Amer. bor. et Afr. austr. — Var. α . **genuinum** Rost. l. c.: stipite luteo, peridio luteo vel griseo-luteo 0,5 mm. diam.; sporis 7–8 μ . diam., granulis calcareis pallide lutescentibus. — Var. β . **aurantiacum** R. l. c.: sporis aurantiacis; stipite brunneo; sporangio 0,5 mm. diam.; sporis 11 μ . diam., granulis calcareis brunneis. — Var. γ . **rufipes**: sporangio luteo vel aurantio, nitido, stipite rufo-aurantiaco; granulis calcareis luteis. — Var. δ . **compactum** R. l. c.: sporangio venæformi, repenti, brevi, luteo vel aureo-luteo, columella carente, cum stipite evanescente.

11. **Physarum Leveillei** Rost. Mon. App. p. 7, *Physar. aureum* β . *chrysopus* Lév. Ann. Sc. Nat. 1846, p. 166. — Peridio lenticulari, furfuraceo, stipiteque sursum attenuato, aureis; floccis evanidis; sporis globosis, glabris, violaceo-atris, 10–11 μ . diam.

Hab. ad folia decidua, Chili (GAY). — Var. **chrysopus** R. l. c.: stipite sporangio concolori luteo-aureis, sporangio 1 mm. diam.; sporis 10 μ . diam. granulis calcareis luteo-aureis. — Var. **aufipes**: stipite aureo, peridio citrino. In Venezuela. — Var. **Fuistingii**: stipite aurantiaco, peridio brunneo-rufo. In Westphalia.

2. **Physarum pulcherrimum** B. et R. in Grevillea 1873, p. 65, n. 354, 1178
Rost. Mon. p. 105. — Peridiis globosis, lilacino-purpureis; capillitio lilacino; stipite brevi purpureo; sporis pallide violaceis, 8-9 μ . diam.

Hab. in ligno pineo etc. putri in Carolina et Pennsylvania Americae borealis. — Peridia sphaerica, lilacino-purpurea, appensa, truncata, sine columella; stipes duplo longior, purpureus, rectus, fragilis, fortiter oblonge plicatus; capillitium tenue cum calcariis purpureis vix parum evolutis, angulose globulosis.

3. **Physarum psittacinum** Ditm. in Sturm. t. 62, Rost. Mon. p. 104, 1179
Didymium erythrinum C. in Grev. 1873, n. 344, *Didymium Ravenelii* B. et C. in Grev. n. 346. — Peridiis sphaericis, verruculosis, virescentibus; stipite subulato-gracili, aurantiaco, floccis hyalinis, copiosis, 1,5-2 μ . diam. gangliis calcareis angulosis, copiosissimis intermixtis; sporis globosis, 7-8 μ . diam., intus granulosus, levibus, fuligineo-violaceis; stipite amœne aurantiaco-rubello, striatulo.

Hab. in foliis putrescentibus Fagi et Piri in Suecia, Gallia, Germania, Italia et Carolina inf.

4. **Physarum rubiginosum** Fr. Symb. Gast. p. 21, Rost. Mon. p. 104, 1180
Karst. Myc. Fenn. p. 103, *Leangium rubiginosum* Fr. stirp. Fungi p. 83, *Physarum fulvum* Fr. Syst. Myc. III, p. 143. — Peridiis gregariis, sessilibus, aurantiacis, dein rubiginosis columella destitutis, usque ad 1 mm. latis; granulis calcareis angulatis, minutis, aurantiacis; sporis levibus violaceo-atris, diam. 9-12. μ . mm.

Hab. in muscis in Suecia et Fennia.

5. **Physarum Famintzini** Rost. Mon. p. 107. — Peridiis sessilibus, 1181
minutis, confertis, subinde confluentibus, obscure castaneis, irregulariter hemisphaericis, vertice dehiscens; columella nulla; capillitio elastico, post exitum calcis se diu elongante; nodis plerisque non evolutis, nonnullis in granulos calcareos lacteo-gilvos mutatis; sporis pallide violaceis, levibus, 10 μ . diam.

Hab. in ramis arborum in Polonia.

6. **Physarum Braunianum** De Bary in litt. Rost. Mon. pag. 105. — 1182
Peridiis irregulariter globosis, minutis, sessilibus, simplicibus v. in acervulos collectis brunneis; columella nulla; capillitio bene evolutum, granulis calcareis parvulis, fuscis, anguloso-globulosis; sporis violaceis, levibus, 10-11 μ . diam.

Hab. ad Grünewald pr. Berlin in Germania (A. BRAUN).

7. **Physarum virescens** Ditm. in Sturm Deutschl. Flor. t. 61, Rost. 1183

Mon. p. 103, Cooke Myx. Gr. Brit. pag. 13, Schroet. Krypt. Fl. Schles. p. 128, *Didymium nectriiforme* B. et C. Grev. p. 353, *Didymium croceo-flavum* B. et Br. Ceyl. n. 757, *Didymium lateritium* B. et B. in Grevillea 1873, n. 352, *Physarum thejoteum* Fr. Gast. pag. 21, 1818, *Physarum anceps* Fuck. Sym. Myc. p. 343, 1869, *Physarum Ditmari* Rost. Mon. App. p. 8. — Sporangii plerumque aggregatis, sessilibus, sphæroideis vel ovoideo-sphæroideis, flavis vel virescentibus, circiter 0,3 mm. latis; capillitio evanescente, granulis calcareis, numerosis, irregularibus, minutis prædito; columella nulla; sporis sphæroideis, levibus, fusco-seu violaceo-atris, 7-9 μ . diam.

Hab. in foliis et lignis in Fennia, Britannia, Germania, Italia, Suecia et Ceylon. — Var. **lateritium** B. et Br.: peridio globoso, v. subreticulato, ex hypothallo membranaceo, repente orto, lateritio, granulato, floccis albis; sporis atris. In foliis emortuis in Carolina inferiori (RAVENEL). — Var. **croceo-flavum** B. et Br.: gregarium sessile, extus flavum, farinaceum, intus croceum; floccis flavis; sporis fulvis, 10 μ . diam. In foliis putridis in insula Ceylon.

18. **Physarum conglomeratum** (Fr.) Rost. Mon. 109, Syn. *Diderma ochraceum* Hoffm. Flor. Germ. III, t. IX, f. 2, b. *Spumaria granulata* Schum. Saell. II, p. 196, *Didymium contextum* β . *conglomeratum* Fr. Symb. Gast. pag. 20, *Diderma conglomeratum* Fr. Syst. myc. III, p. 111, *Did. granulatum* Fr. l. c. p. 110, *Did. minutum* Fr. l. c. p. 111, *Leocarpus minutus* Fr. Summ. Veg. Scand. p. 450, *L. granulatus* Fr. l. c. p. 451, *Carcarina conglomerata* Fr. l. c. p. 451. — Sporangii discretis, conglomeratis, sessilibus rotundatis, angulatis, applanatis, membrana exteriori crassiuscula, granulosa, calcarea, fragili, flava vel ochracea, interiori tenella, cinerea vel flavescens, lat. 0,2-0,5 mm.; capillitio granulis calcareis, numerosis, angulato-irregularibus, coloratis prædito; columella centrali cylindracea; sporis parce spinulosis, violaceo-atris, 8-9 μ .

Hab. in foliis et muscis raro in Germania, Suecia, Fennia et S. Francisco Californiæ.

19. **Physarum contextum** Pers. Syn. Fung. p. 168, Rost. Mon. p. 109, Cooke Myx. Gr. Brit. p. 14, Schroet. Krypt. Fl. Schles. Pilze p. 130. *Diderma contextum* Pers. Obs. I, p. 89, 1796, Ditm. t. 39, Cooke Hdbk. n. 1117, *Didymium contextum* Fr. Gast. p. 20, 1818, *Leocarpus contextus* Fr. S. V. S. pag. 450, 1849, *Chondrioderma contextum* Rost. in Fuck. Sym. Myc. II, p. 74, 1873, *Diderma*

flavidum Peck N. Y. Report, *Diderma ochroleucum* B. et C. in Grevillea. — Sporangii discretis sessilibus, densissime confertis, subrotundatis vel reniformibus, basi lata, 1-1,5 mm. longa, 0,25 mm. lata, membrana duplici, exteriori crassiuscula, calcem includente, flava, citrina vel nivea, interiori tenella, flavescente; capillitio granula calcarea, irregularia, conglomerata incoloria, numerosa continente; columella vulgo nulla; sporis fusco-atris, spinulosus, 11-13 μ . diam.

Hab. in lignis, corticibus, herbis, filicibus, muscis etc. locis umbrosis in Suecia, Fennia, Germania, Britannia et Amer. bor. — Var. *a. genuinum* Rost. l. c.: peridiis reniformibus basi lata insidentibus, gregariis vel complicatis, 1-1,5 $\approx$ 0,25 mm. In eodem substrato. — Var. *b. splendens* R. l. c. peridiis elongatis, contortis, 1-2,5 $\approx$ 0,25 mm. In eodem substrato obvium et æque frequens ac typus.

20. *Physarum flavum* Fr. Symb. Gast. p. 22, Rost. Mon. p. 100, *Physarum citrinellum* Fr. in Herb. Kunze *Craterium flavum* Fr. Summ. Veg. p. 454. — Peridiis sphaericis, rugoso-verrucosis, luteis; stipitibus brevibus subæqualibus, rugosis, pallidioribus; floccis erectis, albis; sporis nigro-fuliginosis, 10-11 μ . diam. 1186

Hab. ad sarmenta et stipites Ruborum v. c. Filicum aliasque herbaceas quiskulias in Suecia et Germania.

21. *Physarum sulphureum* Alb. et Schw. Consp. Fung. p. 93, tab. 6, fig. 1, Fries Syst. Myc. III, p. 134, Rost. Mon. p. 101. — Peridiis sphaericis, rugoso-squamulosis, sulphureis; stipite levi, brevi, albo, e basi incrassata in formam exacte conicam attenuato, peridium longitudine æquante vel tantillum excedente; floccis flavis; sporis violaceo-nigricantibus, 10-12 μ . diam. 1187

Hab. ad folia sicca decidua in Germania et Rossia.

22. *Physarum leucopus* (Link) Rost. Sluzowc. p. 101, Cooke Myx. Gr. Brit. p. 12, Schroet. Krypt. Fl. Schles. Pilze p. 129, Karst. Myc. Fenn. p. 102, *Didymium leucopus* Link Diss. 2, p. 42, 1809. *Physarum bullatum* Link Diss. 2, p. 42, 1809, Ditmar. tab. 22, *Physarum albo-punctatum* Link Herb. *Didymium leucopus* Fr. S. M. III, p. 121, 1829, Eng. v. 313, Cooke Hdbk. n. 1127, p. p. *Physarum ramentaceum* Fr. in litt. ad Wein. 1836. — Peridiis sæpe hypothallo insidentibus, stipitatis sphaeroideis vel ovalibus, subinde leviter deplanatis, niveis, 0,5 mm. latis; stipite stricto, rigido, fragili, sursum attenuato, longitudinaliter plicato, longitudine vario, subinde obsoleto, niveo; capillitio bene evoluto, granula numerosa, angulata, irregularia, magnitudine varia includente; 1188

columella nulla; sporis sphæroideis, spinulosis, fusco-atris, 9-11 μ . diam.

Hab. in lignis putrescentibus in Fennia, Germania, Britannia, Suecia, Amer. austr., Ceylon et Afr. austr.

23. **Physarum cinereum** (Batsch) Pers. Syn. Fung. p. 170, Rost. Mon. f. 77, 78, 89, p. 102, Cooke Myx. Gr. Brit. p. 13, f. 71, 72, 85, Schroet. Krypt. Fl. Schles. Pilze p. 128, *Mucilago crustacea* Mich. Gen. t. 96, f. 9, *Lycoperdon cinereum* Batsch fig. 169, *Lycoperdon Alni* Bjer. in Vet. Handl. p. 39, *Trichia caerulea* Trent. p. 229, *Physarum violaceum* Schum. Saell. 1428, Fl. Dan. tab. 1980, f. 2, *Physarum corrugatum* Link Herb. *Physarum caelatum* Ehr. Herb. *Physarum conglobatum* Fr. Gast. p. 21, Letell. t. 710, f. 3, *Didymium cinereum* Fr. Syst. Myc. III, p. 126, Engl. Fl. v. 314, Cooke Hdbk. n. 1133, *Physarum plumbeum* Fr. Syst. Myc. III, p. 142, *Physarum Weinmanni* Fr. var. in litt. *Didymium melanopus* Wallr. n. 2, 193, *Physarum sinuosum* Wallr. *Didymium scrobiculatum*, Berk. Hook. Journ. p. 66, *Physarum album* Fuck. F. Rhen. p. 1469. — Peridiis gregariis, sessilibus, ovoideo-sphæroideis vel hemisphæricis, subinde applanatis, cinereo-albis, magnitudine variis; capillitio granulis calcareis numerosis, angulatis, irregularibus prædito; columella nulla; sporis sphæroideis, levibus vel verrucis parvis ornatis, fusco-atris, 7-13 μ . diam.

Hab. in corticibus, ligno et foliis in Fennia, Germania, Britannia, Italia, Belgio, Gallia, Lusitania, Ceylon, Amer. bor., Africa austr. et Australia. — Var. **ovoideum** Sacc. in Mich. II, pag. 334: peridiis verticaliter ovoideis, dense gregariis; floccis albidis, in ganglia calcarea varia abeuntibus; sporis globulosis, 12 μ . diam., levibus, atrofuligineis. In cortice Ailanthi glandulosæ in Gallia.

24. **Physarum capense** Rost. Mon. p. 113, fig. 92. — Peridiis irregulariter hemisphæricis v. turbinatis, sessilibus, simplicibus v. sæpissime in acervulos confertis, hypothallo copioso suffultis, griseo-albis; columella nulla; capillitio copioso, granulis calcareis paucis, globulosis, angulose terminatis prædito, internodiis longissimis; sporis pallide violaceis, levibus, 11-14 μ . diam.

Hab in ramis ad Caput bonæ spei.

25. **Physarum ellipso sporum** Rost. Mon. App. 10, *Enteridium cinereum* Schw. Am. Fungi n. 2365. — Longe lateque effusum, varie constatum et non inepte referens congeriem intestinorum, serpens, hinc inde reticulatim confluens serpulis semper applanatis cortice peridii membranaceo, firmo, crassiusculo, candido; capilli-

tio valde evoluto, calcigero; sporis ellipsoideis, tenui-tunicatis, 14-16 $\approx$ 11-12, violaceis, plicato-rugosis.

Hab. ad herbas putres in Carolina Americæ borealis.

26. **Physarum leucophæum** Fr. Symb. Gast. pag. 24, Syst. Myc. III, 1192 p. 132, Rost. Mon. p. 113, Cooke Myc. Gr. Brit. p. 15, Schroet. Krypt. Fl. Schles. Pilze p. 129, *Sphaerocarpus albus* Bull. p. 136, var. 3, 4, 1791, *Trichia filamentosa* Trent. p. 227, 1797, *Physarum confluens* Link Diss. II, p. 42, 1809, *Physarum connexum* Link Diss. II, pag. 42, 1809, *Physarum Hypnorum* Link Diss. II, p. 42, 1809, *Physarum albopunctatum* Link. Herb. *Physarum clavus* Ehr. Herb. *Physarum conglobatum* Ditm. t. 40, 1817, *Didymium melanopus* β . *clavus* Wallr. non Fries, 1833, *Didymium terrestre* Fr. in Weinm., 1836, *Physarum albipes* De Bary not Link. 1859, *Physarum striatum* Fuck. Sym. Myc., p. 341, 1869, *Didymium hemisphaericum* Fekl. Sym. Myc. p. 341, 1869. — Peridiis stipitatis vel sessilibus, depresso-sphaeroideis, cinereo-albis, leviter in cæruleum vergentibus; stipitibus strictis, subinde connexis, dilute fuscescentibus, longitudine variis, sæpe nullis; capillitio non elastico, granulis calcareis parvis, irregularibus immixtis; columella nulla; sporis sphaeroideis, levibus, obscure violaceo-fuscis, 8-9 μ . diam.

Hab. in truncis, muscis, etc. in Fennia, Germania, Britannia, Italia, Gallia, Hungaria et Afr. austr. — Var. **genuinum** sporangio griseo-albo, stipite rigido erecto brunneo, subinde sessili. — 1. **stipitatum** sporangio stipitato. — *a.* **connexum** stipitibus per totam longitudinem coalitis, sporangiis subinde confluentibus. — 2. **sessile** stipite brevi, evanido vel nullo, singulatim persistente. — *a.* **conglobatum** sporangiis persistentibus, in cæspitulis connexis subinde confluentibus. — Var. **violascens** sporangiis violaceis, iridescentibus, stipite sæpe luteo subinde duriusculo, fere in substrato recumbente: 1. **stipitatum** 2. **sessile**. — Var. **flexuosum** plasmodio caviformi repente, subinde reticulatim intertexto.

27. **Physarum flavicomum** Berk. Hook. Journ. p. 66, n. 63, *Stemonites* 1193 *fulvipes* Fr. Fungi Natal. p. 33, *Physarum cupripes* B. et Br. Fungi Car. Exec. III, n. 76, et in Grevillea 1873, p. 65, n. 355, *Physar. roseum* B. et Br. in Grev. 1873, p. 65, *Physarum Berkeleyi* Rost. Mon. pag. 105, fig. 83, 88. — Peridio hemisphaerico, umbilicato, subviolaceo vel lilacino; columella nulla; stipite elongato, recto, gracili, sursum attenuato, rimoso, gilvo v. cupreo; ca-

pillitio solido cum granulis calcareis variæ magnitudinis, gilvis, luteo; sporis pallide violaceis, 8-11, levibus.

Hab. in ligno putri in Carolina, in insulis Antillis et in Europa. — An *Ph. cupripes* vocandum?

28. **Physarum roseum** B. et Br. Ceyl. II, n. 760, Rost. Mon. Add. 1 p. 10. — Peridiis globosis, purpureis, subovoideis; stipite carneo-brunneo; capillitio persistente; sporis nitide violaceis, 8-9 μ . diam.

Hab. in foliis graminum in insula Ceylon.

29. **Physarum obrussum** (B. et C.) Rost. Dod. p. 11. *Didymium obrussum* B. et C. in Grevillea 1873, p. 350, *Didym. tenerrium* B. et C. f. Cub. I, n. 533. — Hypothallo tenuissimo, scarioso; stipite aureo, deorsum incrassato, hyalino; peridio albo vel citrino, umbilicato, floccis candidis; sporis violaceis, 8-10 μ . diam. levibus.

Hab. in foliis Gonoboli, Texas Amer. bor. et in insula Cuba.

30. **Physarum polymorphum** (Mont.) Rost. Mon. p. 107, *Didymium polymorphum* Mont. Ann. Sc. Nat. p. 361, Syll. n. 1074, *Didym. luteo-griseum* B. et C. in Grev. p. 65, *Didym. polycephalum* Rav. cfr. Grev. p. 53, *Didymium connatum* Peck in 26 Rep. p. 74. — Gregarium, stipitatum, raro sessile; peridio compresso cinereo, vario, simplici, obovato, obcordato orbicularive, confluenti-polycephalo, lentiformi, ambitu lobato aut circumvoluto; stipite filiformi, subulato vel pluribus connatis, membranaceis conumve sulcatum referentibus, lutescentibus; floccis reticulatis albis intertextis, ramosis, hinc inde anguloso-dilatatis, hyalinis; sporis subglobosis fusco-violaceis, spinulosis, 9-11 μ . diam.

Hab. ad cortices, Cuba, Carolina, Newfield, New Jersey, Pennsylvania et Portville Amer. bor. — Peridia versiformia, sæpe confluentia, rava, truncata; stipites subulati, fortiter rimati, flavidogilvi, raro simplices, communiter fasciculati, nutantes vel procumbentes; capillitium fortiter evolutum cum granulis calcariis magnis, angulose globulosis.

31. **Physarum muscorum** (Alb. et Schw.) Berl. *Fuligo muscorum* 11 A. et S. Nisk. 86, t. 7, f. 1, *Lignidium griseo-flavum* Link Obs. I, p. 24, t. II, fig. 37, Nees Syst. f. 95, *Lignidium muscicola* Fr. Symb. gast. p. 10, *Lign. reniforme* Fr. Symb. gast. p. 10, *Reticularia muscorum* Fr. Syst. Myc. III, p. 94, *Physarum sinuosum* Wein. in Fr. Syst. Myc. III, p. 145, *Phys. gyrosum* Rost. Mon. p. 111. — Hypothallo expanso, tenui, pallido, diaphano, nunc brevi, nunc late effuso, peridia plura conjungente; peridiis tenuis-

simis, membranaceis simplicibus, fragilissimis, venuloso-nodulosis, ochraceis mox vero exalbidis, pellucidis; floccis peridio adnatis, ramosis, axillis membranaceis passim anastomosantibus, flavis; sporis pallide violaceis, levibus, 8-11 μ . diam.

Hab. ad quisquillas pinetorum projectas et ad bryeta sphaegnosa uda in Germania, Suecia et Lusatia. — Peridia valde versiformia sed plus minusve elongata in communi fortiter evoluto hypothallo, sessilia aut plasmodiocarpa irregularia simplicia, in primo casu, oblonga rima, in altero irregulariter dehiscencia communiter furva aut carnei coloris, rarius subcandida; capillitium habet *junctionas nodorum* tenuissimas granulos calcarios plurimos diversæ magnitudinis, angulose-globulosos sæpe cum lateribus acutis; sporis *emissis*, capillitium peridiorum sibi adjacentium occupat eorum superficiem, et confertur in villulos carnei coloris aut subalbos.

32. **Physarum sinuosum** (Bull.) Rost. Sluzowc. p. 112, f. 91, Cooke 1198

Myx. Gr. Brit. p. 14, fig. 91, Schr. Krypt. Fl. Schles. Pilze p. 130, *Reticularia sinuosa* Bull. t. 446, f. 3, Söw. t. 6, *Physarum bivalve* Pers. Obs. tab. I, fig. 2, *Trichia sphaerica* β . *polymorpha* Trent. pag. 230, *Angioridium sinuosum* Grev. S. C. Fl. t. 310, Eng. Fl. v. 315, Cooke Handb. n. 1142, fig. 128, *Diderma valvatum* Fr. Syst. Myc. III, pag. 109, *Angioridium valvatum* Fr. Ind. Syst. Myc. *Didymium sinuosum* Dur. et M. Fl. Alg. p. 411, *Carcerina valvata* Fr. S. V. S., p. 451, *Leocarpus melaleucus* Gay in Mont. Syll. 1,072, *Diderma contortum* Fuck. Sym. Myc. pag. 341, *Diderma pallidum* B. et C. in Grevillea III, pag. 52. — Peridiis sessilibus, difformibus (plasmodiocarpis), elongatis, flexuosis, connexis vel reticulatim conjunctis, rima longitudinali dehiscantibus, niveis vel griseo-albis vel flavescentibus, membrana duplici, exteriori calce onusta, fragili, interiori tenella, cinerescente, magnitudine varia, vulgo 5-7 mm. longa, 2 mm. lata; capillitio granulis calcareis numerosis, niveis prædito, denso; sporis sphaeroideis, episporio crassiusculo, lento, levi, nigricante-fuscis, 8-9 μ . diam.

Hab. in substantiis variis, præcipue muscis et corticibus in Britannia, Germania, Belgio, Italia, Fennia, Suecia, Argentina et Guyana.

33. **Physarum luteolum** Peck 23, pag. 35, tab. II, fig. 15-18. — Peck 1199

ridiis minutis, laxe gregariis, sessilibus, lutescenti-cinnamomeis, ir-

regulariter ruptis; floccis copiosis, luteo-albidis; sporis globosis, purpureo-brunneis, 10 μ . diam.

Hab. in foliis vivis Corni canadensis, Adirondack Americæ borealis.

34. **Physarum affine** Rost. Mon. p. 94, ? *Trichia rugosa* Trent. ? *Trichia nivea* Fl. Dan. tab. 776 fig. 4. — Peridiis e globoso depressis subreniformibus, albis; stipite niveo-albo, opaco, peridium subæquante; capillitio valde evoluto, niveo-albo; sporis pallide brunneo-violaceis, episporio crasso, verrucoso, 10–12 μ . diam.

Hab. in ligno putri in Germania et Polonia.

35. **Physarum albicans** Peck 30 Rep. pag. 150, tab. II, fig. 5–8. — 12
Didymium subroseum Peck. — Peridiis albescentibus, fugacibus, basi excepta, externe granulis calcareis pruinosis, globosis; capillitio albicante; stipite albo, conoideo subinde basi connato, leniter penetrante; sporis globosis, purpureo-brunneis, 8 μ . diam.

Hab. in lignis et muscis, Adirondack Amer. bor.

36. **Physarum atro-purpureum** Peck 31 Rep. Bot. pag. 40. — Spar- 12
sum vel gregarium stipitatumque; peridiis globosis, levibus v. raro rugosis, obscure rufis; stipite cylindraco, levi, nigricante vel subconcolore; capillitio albicante, subinde roseolo; columella nulla; sporis globosis, levibus, in massa obscure brunneis, solitariis obscure-rufis, 8–9 μ . diam.

Hab. in ligno emortuo, Adirondack in montuosis Amer. bor.

37. **Physarum chlorinum** Cooke in Grev. V, p. 101, t. 86, f. 10. — Spar- 12
sum vel gregarium; peridiis parvis, sessilibus subglobosis, chlorino-viridibus, simplicibus, stellato-fisssis; sporis subglobosis, atris, opacis, 8–9 μ . diam.

Hab. in ligno emortuo Cocos nuciferæ, Demerara Amer. australis.

38. **Physarum granulatum** Balf. fil. in Grev. I, p. 115. — Stipitatum, 1 12
mm. album ex hypothallo brunneo-nigrescente oriens; stipite basi dilatato, cinnamomeo v. obscure brunneo v. sordide griseo, striato, peridium longitudine æquante; peridio globoso, griseo, granulis crassis tecto, membrana simplici, sordide alba, granulis calcareis, minutis, rotundis in maculis irregularibus dispositis prædita; columella nulla; capillitio decolorato, ex filamentis delicatis reticulatim intertextis, nodulis calcariferis præditis forniato; sporis violaceis, membrana levi, 9–10 μ . diam.

Hab. in corticibus, absque patria (herb. Currey).

39. **Physarum imitans** Racib. Myx. Crac. p. 5, fig. 3 a, b. — Pe- 120

ridiis hemisphaericis, umbilicatis, cinereo-albis, irregulariter dehiscentibus, stipitatis cum stipite usque ad 1 mm. altis, erectis aut subnutantibus; stipitibus subulatis, fusco-nigris; sporangiis paullo longioribus, rigidis; columella nulla; capillitio albo, abundante, rete irregulare efformante; nodis nonnullis tantum calce repletis, polymorphis; sporis 9,5-10 mm. latis, violaceis, verruculosis.

Hab. in ramis in Polonia.

10. **Physarum inæquale** Peck 31 Rep. Bot. pag. 40. — Peridiis ¹²⁰³ sessilibus, subglobosis vel irregularibus, sæpe elongatis et confluentibus, granulis minutis rubris copiose præditis; capillitio lutescenti-fulvo, granulis calcareis repleto; sporis brunneis, levibus, valde inæqualibus, 8-30 μ . diam.

Hab. in ligno emortuo, Grissinis Amer. bor.

11. **Physarum pulchripes** Peck 26 Rep. pag. 75. — Peridio globo- ¹²⁰⁷ so, colore vario, ochraceo, griseo, brunneo vel nigro; stipite gracili, æquali vel leniter conoideo, rubro; sporis globosis, brunneis, 8 μ . diam.

Hab. in lignis emortuis putridis, Richmondille et Worcester Americæ borealis.

12. **Physarum Phillipsi** Balf. fil. in Grev. X, p. 116. — Peridiis subses- ¹²⁰⁸ silibus v. breviter stipitatis, 1 mm. et amplius altis; stipite nigro, rigido, peridio valde minori præditis, subreniformibus v. subpiriformibus, subinde confluyendo deformatis, lateraliter compressis, umbilicatis, griseolis, rugosis, fragilibus, tunica simplici decolorata, dense granulis calcareis minutis, rotundis, hinc inde collectis faretæ; columella nulla; capillitio hyalino, floccis delicatis, peridio adnatis, in rete contextis, angulis inflatis nodulosis granulis calcareis minutis, repletis; sporis violaceis, membrana crassiuscula, 17 μ . diam.

Hab. ad humum in calidariis Shrewsbury in Britannia.

Species incertæ.

13. **Physarum antiades** (Bull.) Fr. Syst. Myc. III, p. 135, *Sphaero-* ¹²⁰⁹ *carpus antiades* Bull. Champ. Fr. p. 127, tab. 368, *Trichia antiades* D. C. Fl. Fr. 2, p. 252, Chev. Par. p. 325. — Peridiis globosis, fulvo-fuligineis, lineis sinuosis notatis punctatisque, stipitibus ramosis sulcatis nigricantibus, floccis sporisque fuscis.

Hab. ad ligna putrida Galliæ. — Species omnino sui tribus typus; stipes crassus, difformis, e pluribus confluentibus ramosus, sulcis irregularibus lacunosus, hypothallo membranaceo, albido;

peridium versus apicem rima irregulari dehiscit. per quam protruduntur flocci.

44. **Physarum reticulatum** Berl. *P. atrum* Schw. Am. fung. n. 2299, nec Fr. — Sessile, oblongum aut subdifforme, aggregatum, extus nigrum aut subcinerescens; peridiis glabriusculis sed eleganter reticulatis; sporis atris; floccis raris, candidis interspersis compactioribus.

Hab. in cortice, rarissime, Bethlehem Amer. bor. — Majus *Ph. cinereo*, cui affine.

45. **Physarum effusum** Schw. Am. fung. n. 2297. — Longe lateque effusum; peridiis longitudinaliter serpentibus, reticulatis aut omnino late effusis, candidis, valde applanatis, fere membranaceis; floccis et sporidiis crebris, nigrescentibus.

Hab. in pulvere vaporario, Salem Amer. bor.

46. **Physarum cæspitosum** Schw. Am. fung. n. 2301. — Substipitatum aut saltem basi attenuata, cæspitose crescens et sparsim; acervulis 3-linearibus; peridiis stipatis, turbinatis, ovatis, basi contracta, membrana exteriori luteo-squamulosa aut punctato-squamulosa; sporis nigro-brunneis; floccis citrinis inspersis.

Hab. in foliis et stipitibus Rhododendri, Bethlehem Amer. bor.

47. **Physarum elegans** Schw. Am. fung. n. 2294. — Peridiis majusculis aggregatis, densis, subrotundis, difformibus, convexis, superne applanatis, eleganter amethysteis, subrugosis; sporidiis nigrofuscis, conglomeratis; floccis crassiusculis.

Hab. in fragmentis vegetalibus Salem Amer. bor. — Valde distinctum sed rarum.

48. **Physarum fimetarium** Schum. Saell. II, pag. 205, Fr. Syst. III, p. 138. — Peridio obovato, dilute purpurascenti-umbrino; stipite brevi subflexuoso; capillitio sporidiisque fuscis.

Hab. in fimo vaccino in Scandinavia — Sparsum, primo fluxile album, dein subalutaceum, piriforme, substipitatum, demum purpurascenti-umbrinum, peridio vertice lacero, stipe subflexuoso superne parum incrassato.

49. **Physarum flavidum** (Peck) Berl. *Didymium flavidum* Peck Rep. on the St. Mus. — Peridiis subglobosis, sessilibus, tenuibus, luteis, pruina minuta, lutea conspersis; sporis subglobosis, atris, 10 μ . diam.

Hab. in corticibus Abietis balsameæ, North Elba Americæ borealis.

50. **Physarum flavo-virens** Alb. et Schw. Nisk. pag. 97, Fr. Syst. 121

Myc. III, p. 137. — Peridio obovato, flavo-virente; stipite fuscescente; sporis compactis, nigris.

Hab. inter muscos ad truncum putridum, Augusto in Lusatia. — Species dubie proposita, sed characteres offert eximios; stipes mediocris; peridium piriforme, fragile, leve, nec squamulosum.

51. **Physarum hypnophilum** Fr. *Stirpes Femsj* p. 83. — Subsessile, pe- 1217
ridio rotundato levi, badio; floccis tenerrimis sporidiisque atris.

Hab. ad rupes madentes supra *Hypnum cupressiforme* in Suecia. — Sparsum aut gregarium, hypothallo nullo persistente; stipes aut nullus aut brevissimus, crassiusculus, subdecumbens, concolor; peridium admodum tenue, subglobosum aut basi productum, magnitudine seminis *Sinapis*, badium, subnitens, apice irregulariter dehiscens, laceratum; exoletum rugosum fit, at non hyalinum; flocci tennelli nigri, lateribus peridii adnati.

52. **Physarum luteo-valve** Schw. *Am. n.* 2298. — Lobato-difforme, 1218
convexum subconfluens; peridiis extus aurantio-splendentibus, quasi compressis bivalvibus; sporis flavissimis.

Hab. in stipitibus dejectis rarius, Carolina.

53. **Physarum muscicolum** Pers. *Obs. Myc. I*, p. 6, *Syn. p.* 176, *A. et* 1219
S. p. 93. — Peridio turbinato cinereo; stipite brevi levi lutescente; floccis albis; sporis atris.

Hab. ad muscos majores in pinetis sphagnosis etc. rarissime, in Suecia et Germania. — Situs sparsus aut gregarius, absque evidenti hypothallo; stipes longitudine variat, peridio duplo circiter longior, sæpe rutilans; peridium leve, demum squamulosum, inter formam obovatam et cylindricam varium; flocci adnati, albi, sporis compactis.

54. **Physarum ornatum** Peck 31 *Rep. Bot. p.* 40. — Peridiis depres- 1220
sis vel hemisphaericis, planis vel leviter concavis, griseo-cinereiscentibus, granulis luteis minutis præditis, evacuatis albidis; stipite brevi, nigro vel brunneo-nigricante, siccitate longitudinaliter striato; columella nulla; capillitio nodis numerosis prædito; sporis globosis, levibus, brunneo-violaceis, 10-12 μ . diam.

Hab. in ligno putri, Albany Amer. bor.

55. **Physarum atrum** (Pers.) Fr. *Syst. Myc. III*, p. 147, non Schw., 1221
Lycogala atra Pers. *ined.* — Stipato-aggregatum, confluens, atrum; peridiis tenerrimis rotundatis; floccis nullis; sporis atris.

Hab. ad truncos vetustos in Vogesis, in Germania et Britannia (Mougeot). — Peridia basi plana adnata, rotundata, ad medium connata, sæpe adeo stipata, ut crustam contiguam sistant, 2 mm. lata,

et ut sporæ copiosissimæ, rotundæ, laxæ, opacæ atra, irregulariter dehiscenstia.

56. **Physarum piceum** Fr. Syst. Myc. III, p. 143. — Sparsum; peridio sessili, globoso, piceo nitente, floccis tenerrimis sporisque fuligineo-atris.

Hab. in ramis decorticatis coacervatis quercinis in Suecia. — Peridia admodum tenuia, membranacea, glaberrima, sed rugulosa, irregulariter dehiscenstia, seminis Brassicæ magnitudine; flocci admodum tenues, ægre conspiciendi.

- 57 **Physarum polycephalum** Schw. Consp. Car. n. 382. — Stipitibus coalitis, lutescentibus; peridiis in capitulum aggregatis, oblongis; corticis squamulis sulphureo-viridibus; pulvere nigro.

Hab. ad truncos, folia, stipites, gramina etc., Wilkes Am. bor.

58. **Physarum polyedron** Schw. Am. Fung. n. 2300. — Gregarium ac subsparsum; peridiis majusculis, nigro-fuligineis, absque splendore, subhemisphæricis, exacte pentagonis lateribus nempe planis, rugosis, tandem quasi stellatim ruptis parte inferiori persistentibus; sporis nigro-fuligineis; floccis compactis concoloribus interspersis.

Hab. in antiquissimis truncis Juglandis, Bethlehem Am. bor.

59. **Physarum Schweinitzii** Berk. in Grevillea 1873, n. 358, p. 66, Rost. Mon. pag. 116, *Polyangium vitellinum* Schwein. — Gregarium, nitidum, flavum; floccis parvis sporisque globosis granulatis, concoloribus, 15 μ . diam., sæpe irregularibus.

Hab. in fragmentis vegetabilium, Bethlehem Amer. bor.

60. **Physarum subglobosum** B. et C. in Grevillea 1873, p. 66, n. 357, Rost. Mon. p. 115. — Peridiis sessilibus, subglobosis, subinde depressis, cinnamomeis; floccis e basi assurgentibus fulvis.

Hab. in ligno putri Alabama Amer. bor.

PHYSARELLA Peck in Rev. Mycol. 1882, pag. 172 (Etym. *Physarum*, cui affine). — Peridia stipitata, cyathoidea, granulis calcareis prædita, post sporarum exitum basim atque pseudo-columellam cavam servantia. Capillitium e filamentis pallidis contextum et stratis quatuor tuborum spiniformium, horizontaliter radiantium suffultum. Tubuli granulis calcareis tecti. Sporæ globosæ, leves, brunneo-nigræ.

1. **Physarella mirabilis** Peck in Rev. Mycol. 1882, p. 172, tab. XXIX, fig. 5. — Peridiis stipitatis, sursum subinfundibiliformibus, minute fibrillosis vel squamulosis, luteo-rufulis vel sordide luteis; basi

atque columella spuria diu persistentibus; stipite aequali vel vix conoideo, rufo-brunneo; capillitio e filamentis pallidis gracilibus hinc inde incrassatis et anastomosantibus composito, tubulis aliis 4-stratosi elongatis, spiniformibus horizontaliter inter parietes peridii extensis, apice obtuse exteriori; sporis levibus, globosis, brunneo-nigris, 8 μ . diam.

Hab. in foliis et corticibus emortuis in Amer. bor. (D. G. Rex).

— Peridia cum stipite 3-4 mm. alta.

FULIGO Hall. Helv. 3, p. 110, Rost. Mon. p. 134 (Etym. *fuligo*, ob faciem). — Magnitudine varia, deformata, varia colorata. *Æthali*um peridiis tenuiter approximatis, venosis, varie inter se confusis, formatum. Tunica centrali capillitium et sporas continens, externa vero non semper in corticem evoluta, granulis calcareis prædita infera vero pellicula hypothalli conjuncta. Capillitium valde evolutum, granulis calcareis irregulariter rugulosis, parce numerosis præditum. Sporæ globosæ, leves.

1. **Fuligo septica** (Link) Gmel. Syst. nat. pag. 1466, Karst. M. F. 1228 IV, pag. 107, *Mucilago æstiva* Mich. t. 96, f. 1, *Mucor*es Gled. p. 138, p. 160, *Mucor unctuosus flavus* Huds. Fl. Ang., *Mucor septicus* Link Sp. Pl. n. 1656, Fl. Dan., t. 778, Bolt. t. 134, *Mucor primus ovalis* Schff. t. 192, *Mucor tertius* Schöff. t. 194, *Fuligo* Hall. n. 2133, 2134, 2135, *Mucor mucilago* Scop. Fl. Carn. II, 1638, *Lycoperdon luteum* Schr. Fl. Bav. II, 629, *Reticularia carnos*a Bull. t. 424, f. 1, *Reticularia hortensis* Bull. tab. 424, f. 2, *Reticularia lutea* Bull. t. 380, f. 1, *Fuligo candida* Pers. Obs. I, 151, *Fuligo vaporaria* Pers. Obs. I, 155, Fl. Dan. t. 1, 363, f. 1, *Fuligo flava* Pers. Disp. p. 8, *Fuligo rufa* Pers. Disp. p. 8, *Fuligo pallida* Pers. Obs. II, p. 36, *Fuligo lecis* Pers. Syn. p. 161, *Fuligo violacea* Pers. Syn. p. 160, Icon. Pict., t. 1, *Reticularia septica* With. Arr. IV, p. 463, Pert. p. 703, *Reticularia ovata* var. With. Arr. IV, p. 463, *Fuligo flavescens* Schum. Saell. 1413, *Fuligo cerea* Sow. t. 399, *Æthali*um *flavum* Link Diss. I, p. 42, Ners. f. 92, Grev. S. C. Fl. t. 272, *Fuligo cerebrina* Broudeau p. 74, tab. 3, f. 1-4, *Fuligo varians* Somm. Fl. Lapp. pag. 231, Rost. Mon. pag. 134, Pat. Tab. An. Fung. pag. 77, fig. 181. *Reticularia vaporaria* Chev. Fl. Par. I, p. 342, *Æthali*um *violaceum* Spr. Sys. IV, p. 533, *Æthali*um *candidum* Schlecht. in Spr. Syst. IV, p. 533, *Æthali*um *septicum* Fr. Syst. Myc. III, p. 93. Cooke Handb. n. 1101, a. *flavum*, b. *cinnamomeum*, c. *rufum*.

d. *violaceum*, *Fuligo carnosa* Duby Bot. Gall. II, p. 863, *Fuligo hortensis* Duby Bot. Gall. II, p. 863, *Æthaliium rufum* Wallr. Fl. Germ. 2097, *Æthaliium septicum* b. *vaporarium* Rabh. Fl. Germ. 2133, *Æthaliium ferrincola* Schwz. Am. 2372, *Reticularia rufa* Schwz. Am. 2377, *Æthaliium rufum* Alexandr. t. 11, f. 6-11, *Æthaliium vaporarium* Fr. Berk. in Gard. Chron. p. 409, Cooke Handb. n. 1102, — Peridiis intertextis membrana vulgo colorata; æthelio forma vario, corticato vel ecorticato, superficie gyrosa, colore varia, ut plurimum flava vel candida; sporis sphaeroideis, fusco-atris, sub micr. fuscescentibus, levibus, 7-10 μ . diam.

Hab. supra corpora varia, potissimum truncos, in Germania, Suecia, Britannia, Italia, Hungaria, America, Tasmania et Queenslandia. — Nunc pulvinata, globosa vel hemisphaerica, nunc dilatata, 10 cm. lata vel adhuc ultra; nunc strato floccoso, plerumque flavo aut stipato, levissimo, flavido-rufa corticata, nunc ecorticata. — Sec. cl. Raciborski (Cfr. Hedw. 1885, p. 168), sporæ 8-12 μ . metiuntur.

2. **Fuligo tatrica** Racib. in Hedw. 1885, p. 169. — Peridiis (æthelio) atque capillitio iis *Fuligini septicæ* simillimis, sporis vero, obscure violaceis papillis minutis, punctiformibus præditis, 8-10 μ . diam.

Hab. in truncis putrescentibus prope Jaszczurowka Hungariæ.

3. **Fuligo simulans** Karst. Myc. Fenn. IV, p. 104. — Formæ prioris ecorticatæ sat similis, sed sporis obscurioribus (violaceo-atris vel fere atris) et majoribus 9-16, plerumque 10 mm. diam. diversa.

Hab. super folia Vaccinii Vitis idææ aut inæqualiter effusa aut ejus caules et ramulos vivos vel emortuos ambiens, prope Mustiala Fennicæ obvia. — Sec. cl. Raciborski (Cfr. Hedw. 1887, p. 111) est forma *Fulig. septicæ*.

4. **Fuligo ochracea** Peck 31 Rep. p. 56-57, *Licea ochracea* Peck — Peridiis brevibus, connatis, ex hypothallo albo orientibus, extus farina minuta luteo-aurea vel nitide ochracea vestitis; sporis globosis, nigro-purpurascensibus, 10 μ . diam.

Hab. in graminaceis viventibus et in Lycopodio annotino, Lake Pleasant Am. bor.

ÆTHALIOPSIS Zopf Die Pilzth. oder Schleimp. pag. 149 (Etym. ab *Æthelio* h. e. *Fuligo*). — Fructificatio in æthelio corticato copiose calcarifero. Capillitium abunde reticulatum, vesciculis calcaris ir-

regularibus numerosis præditum. Genus, teste Zopf, sporis formâ ellipsoideâ ab omnibus *Calcariaceis* facile distinguendum.

1. **Æthaliopsis stercoriformis** Zopf Die Pilzth. oder Schleimp. p. 150. 1232

— Peridiis facie omnino stercoris pulli, forma et magnitudine variabilibus, majoribus plerumque botuliformibus, substrato secundum totam longitudinem lata basi insidentibus, gibboso-inæqualibus, cortice exili abunde calcarea albo-gypsea fragilissima tectis, capillitio griseo-albo, nodis granulis calcareis numerosis intertexto præditis; hypothallo parum evoluti; sporis ellipsoideis, brunneis, verruculis minutis dense obtectis, 10,5–18,5 × 9,3–14,5.

Hab. in foliis putridis prope Berlin Germaniæ. — Teste Raiborski (Cfr. Hedw. 1887, p. 110) ad *Fuliginem* re vera spectat, nam sporæ ellipsoideæ in aliis Myxomycetibus occurrunt.

CRATERIUM Trent. in Roth Cat. 2, p. 224 (Etym. a *crater* vas).

— Peridia stipitata, regularia, operculo dehiscentia, basi persistente, papyracea, crateriformia, membrana duplici. Tubuli capillitii basi calcarei, rigidi, persistentes. Columella calcarea.

Subg. 1. Lejocraterium Rost.

Peridium superficie levi, margine acuto; operculum planum dein dilabens.

1. **Craterium pedunculatum** Trent. Obs. Bot. p. 244, Cooke Hdbk. n. 1233

1149, Karst. Mycol. fennica IV, p. 105, *Fungoides infundibuliforme* Mich. t. 86, f. 13, *Craterium vulgare* Nees f. 120, Chev. Par., t. 4, f. 26, Rost. Mon. p. 118, f. 96, 101, 104, 106, Pat. Tab. An. Fung. p. 76, fig. 177, *Craterium leucocephalum* Desm. Cat. p. 27, *Craterium minutum* Cooke Fungi Brit. I. n. 525, II, n. 208. — Peridiis cyathiformibus, superne rugosis, lucidis et sursum levibus; stipitibus longitudinem peridiorum æquantibus, coloratis, valde plicatis, nitidis; operculo sordide albescente; sporis nitide violaceis, 8–11 μ diam., levibus, spheroides.

Hab. in muscis, foliis et ramis putrescentibus, in Bavaria, Fennia, Gallia, Italia, Britannia, Belgio et Australia. — Var. **genuinum** sporangio obscure brunneo, stipite croceo-lutescente. — Var. **confusum** sporangio ochraceo-brunneo; stipite rubiginoso-luteo vel fusco-brunneo. — Var. **albicans** sporangio albescente subtus sordide ochraceo; stipite ochraceo vel obscure brunneo. Cum typo ibidem.

2. **Craterium piriforme** Ditm. in Sturm D. C. Fl. f. 10, Fries Syst. Myc. 1234

III, p. 150, Cooke Handbook n. 1150, Rost. Mon. p. 120. — Pe-

ridiis piriformibus, ochraceo-brunneis, nitidis; stipitibus peridio brevioribus, plicatis, operculo albo; columella distincta; sporis nitide violaceis, 8-11 μ . diam. levibus.

Hab. in lignis in Britannia, Germania et Suecia.

3. **Craterium Ærsterdtii** Rost. Mon. p. 120. — Peridiis piriformibus stipiteque brunneo-atris, operculo convexo, niveo-albo; columella distincta; sporis pallide violaceis, 8-10 μ . diam. levibus.

Hab. in lignis, Kopenaghen Daniæ.

4. **Craterium minutum** (Leers) Fr. Syst. Myc. III, pag. 151, Rost. Mon. pag. 120, Pat. Tab. An. Fung. pag. 76, fig. 178, *Peziza minuta* Leers Fl. Herb. n. 1085, *Cyathus minutus* Hoff. Veg. Cr. tab. 2, fig. 2. Sow. tab. 239, *Trichia minuta* Relh. Cant. teste Fr., *Nidularia minuta* With. Arr. IV, *Sphærocarpus operculata* Schum. Saell. 1503, *Physarum turbinatum* Schum. Saell. 1450, *Craterium leucocephalum* Grev. S. C. Fl. t. 65? *Craterium minutum* Fr. Syst. Myc. III, pag. 151, Eng. Fl. v. 316, Cooke Handb. 1151, *Craterium turbinatum* Fr. Syst. Myc. III, pag. 152, *Arcyria leucocephala* Auct. — Peridiis piriformibus, alutaceis vel ferrugineis, operculo convexo, concolori; stipite brevi concolori; columella distincta; sporis violaceo-atris, levibus, 8-10 μ . diam.

Hab. supra folia, muscos etc. æstate et autumno, in Suecia, Germania, Britannia, Italia, Belgio, Gallia et Fennia. — Var. **genuinum** sporangio operculo ochraceo. stipite rugoso, brevi. — Var. **turbinatum** sporangio operculo et stipite æqualiter sordide luteis; stipite brevi, longitudinem sporangii æquante vel dimidio longiore. Cum typo ibidem.

5. **Craterium nutans** Fr. Syst. Myc. III. pag. 151, *C. minutum*, *C. aureum* Fuckel Symb. p. 342, *C. Friesii* Post. Mon. p. 122, f. 105. — Peridiis piriformibus inclinatis stipiteque elongato, levi subferrugineis, operculo convexo, flavo; floccis nullis; sporis atris.

Hab. ad Lichenes putrescentes humi jacentes in Suecia et Germania, raro.

Subg. 2. **Trachycraterium** Rost.

Peridium in parte superiore granulis calcareis rugosum, albo-punctatum. Operculum crassum, cupulatum.

6. **Craterium leucocephalum** (Pers.) Rost. Mon. p. 123, fig. 98-100, *Fungoides minimum* Mich. tab. 86, fig. 14, *Peziza convivalis* Batsch p. 121, *Stemonitis leucocephala* Pers. in Gmel. Syst. 1,464,

Stemonitis cyathiformis Schrnk. p. 19, *Trichia cinerea* Trent. p. 227, *Arcyria leucocephala* Hoff. Veg. Cr. t. 6, f. 1, *Physarum pedunculatum* Schum. Saell. 1453, *Trichia aureæ affinis* Fl. Dan. t. 1314, f. 2, *Cyathus cinereus* Part. Mid. Fl. t. 35, *Craterium leucocephalum* Ditm. t. 11, Grev. S. C. Fl. t. 65, Eng. Fl. V, p. 316, Cooke Handb. n. 1152, *Craterium vulgare* Chev. Fl. Par. 340, *Physarum leucostictum* Chev. Fl. Par. t. 9, f. 29, *Craterium leucostictum* Fr. Syst. Myc. III, p. 152, *Cupularia leucocephala* Link. Handb. III, 421, *Physarum xanthopus* Wallr. in sched., *Craterium xanthopus* Wallr. Fl. Germ. II, 358, *Craterium deoperculatum* Fr. in Weinm., 597, *Craterium pendulum* Fr. in Weinm. 597, *Cupularia xanthopus* Rabh. Fl. Cr. 2226, *Craterium pruinosum* Corda Ic. VI, t. 12, f. 33, *Physarum subulatum* Sacc. in Myc. Ven. specim. — Peridiis turbinatis, erectis, ferrugineis, albo-variegatis, parte inferiore stipiteque valde plicatis, ferrugineis; columella, capillitio; sporique ferrugineo-brunneis, levibus, 8-11 μ . diam.

Hab. in variis substantiis in tota fere Europa.

7. **Craterium aureum** (Schum.) Rost. Mon. pag. 124, *Trichia aurea* 1239 Schum. Saell. 1461, *Craterium mutabile* Fr. S. M. III, p. 154, Eng. Fl. V, p. 316, Cooke Handb. 1153, *Cupularia mutabilis* Rabh. Fl. Cr. n. 2225, *Physarum Durieui* Mont. Herb., *Physarum atomum* Carm. in Hook. Herb., *Physarum sulphureum* β . *atomum* Klotzsch. in Hook. Herb. — Peridiis luteis vel luteo-rubris turbinatis, globosis vel ovoideis; stipite brevi aureo-lutescente, minute rugoso; capillitio granulis calcareis prædito; columella lutescente; sporis rubiginoso-brunneis, 8-10 μ . diam., levibus.

Hab. in lignis, muscis etc. in Suecia, Algeria, Britannia et Germania.

Species incertæ.

8. **Craterium minimum** B. et C. in Grevillea 1873, p. 67, Rost. Mon. 1210 p. 125. — Stipite brevissimo; peridio cyathiformi, minimo; basi rufo; margine albo; sporis ?

Hab. in culmis putrescentibus in Carolina inferiore.

9. **Craterium porphyrium** Schw. Am. Fung. n. 2308. — Peridiis dense fasciculatis, turbinatis, porphyriis, splendentibus; stipitibus brevissimis in massam crassam basilem connatis; sporis floccisque subelastice expansis, rubris.

Hab. in lignis cariosis Bethlehem Amer. bor. — Cæspites elongatos format.

LEOCARPUS Link. Spec. Pl. I, p. 25 (Etym. *leios* levis et *carpos* fructus). — Peridia irregulariter rumpentia, e membrana duplici composita, interiori massam sporarum undique cingente capillitium protrudente, exteriori crassa. Tubuli capillitii reticulatim connexi. Noduli alii tenelli, aere repleti, alii inflati, granulis calcareis foeti.

1. **Leocarpus fragilis** (Dicks.) Rost. Mon. pag. 132, Pat. Tab. An. Fung. pag. 77, fig. 180, *Lycoperdon fragile* Dicks. Cryp. t. 111, fig. 3, Sow., tab. 136, *Reticularia fragilis* Poir. Ency. *Lycoperdon parasiticum* With. Arr. IV., 379, *Diderma vernicosum* Pers. Obs. tab. 111, fig. 7, Fl. Dan. tab. 1312, fig. 2, Eng. Fl. V., 311; Cooke Handb. n. 1108, *Trichia lutea* Trent. p. 230. *Diderma vernicosum*, β . *parasiticum* Pers. Syn. 165, *Physarum nitidum* Schum. Saell. 1451, *Physarum vernicosum* Schum. Saell. 1452, *Leocarpus vernicosus* Link. Obs. I., 25, Nees. f. 100, Grev. S. C. Fl. 111, Corda. V., f. 32, *Leocarpus spermoides* Link. Obs. I., 25, *Leocarpus atro-virens* Fr. Gast. p. 13, *Leangium vernicosum* Fr. Strip. Femj. 83, *Leangium atro-virens* Fr. Stirp. 83. *Diderma atro-virens* Fr. S. M. III., 103, *Tripotrichia elegans* Corda. Ic. I, f. 288 a. — Peridiis aggregatis sessilibus aut stipitatis, obovoideis, raro subrotundis, e flavescenti spadiceis vel rufescentibus nitidis; stipite filiformi, adscendente albo vel albo-flavescente; sporis sphæroideis, fusco-atris, spinulosis, 12–14 μ . diam.

Hab. in foliis, ramulis et muscis, in Suecia, Bohemia, Belgio, Britannia, Germania, Tasmania et California.

CRATERIACHEA Rost. Mon. p. 125 (Etym. *Craterium* et *cheo* fundo). — Peridia irregulariter rupta, parte infera persistente, margine laccerato. Columella centrali, cylindræa, calce prædita. Capillitium e tubis delicatis in rete collectis formatum. Nodi non evoluti, tantum abnormiter subinde granulis calcareis inflati. Interstitia retis marginem peridii versus diminuentia et in extremitates parvas breves, margine conjunctas terminata.

1. **Crateriachea mutabilis** Rost. Mon. p. 126. — Peridiis cylindricis, arcuatis, obovatis, rubiginoso-fuscis, hypothallo discoideo, concolori suffultis, irregulariter ruptis; sporis subviolaceis, 8–10 μ . diam., valde verrucosis.

Hab. in lignis prope Berlin Germaniæ (Cienkowski).

TILMADOCHÉ Fr. Summ. Veg. Scand. p. 454 (Etym. *tilma* quod vel-
litur et *dochejon* receptaculum). — Peridia stipitata, irregulariter
vel reticulatim rumpentia, membrana simplici, tenerrima calcarea.
Tubuli capillitii basi lati, simplices, sursum angulo acuto repetite
farcati, ramis ultimis lateribus peridii superioris vix adnati, re-
gulariter reticulati, hinc inde tantum granulis calcareis fœti. Gra-
nula calcarea fusoides, minuta, haud numerosa. Columella nulla.

1. **Tilmadoche nutans** (Pers.) Rostaf. Sluzowc. p. 127, f. 129, *Sphaerocar- 1244*
pus albus Bull. t. 407, f. 3, c-g., *Stemonitis alba* Gmel. Sys.
1469, *Mucor albus* Sobolen. Petr. 324, *Physarum nutans* Pers.
Syn. p. 171, Berk. Eng. Fl. V., 314, Cooke Hdbk. n. 1135 partly,
Physarum subtile Pers. Syn. p. 171, *Trichia cernua* Schum. Saell.,
1410, *Physarum bulbiforme* Schum. Saell. 1432, Fl. Dan. t. 1974,
f. 3. *Physarum marginatum* Schum. Saell. 1440, *Physarum Di-*
dymium Schum. Saell. 1441, *Physarum albopunctatum* Schum.
Saell. 1433, *Physarum brevipes* Schum. Herb., *Physarum cine-*
reum Schum. Herb., *Physarum leucopus* Schum. Herb., *Trichia*
alba DC. Fl. Fr. II., 202, *Physarum albipes* Link. Diss. I., 27,
Physarum sulcatum Link. Diss. I., 27, *Physarum connatum*
Ditm., t. 41, *Physarum cernuum* Fl. Dan. t. 1974, f. 2. *Physarum*
nutans, α *albo-cinereum* Fr. S. M. III., 128, *Didymium margina-*
tum Fr. S. M. III., 116, *Tilmadoche cernua* Fr. S. V. S., 454,
Physarum nutans Saccardo Myc. Ven. Spec. p. 174. — Peridiis sti-
pitatis, lenticularibus, subtus planis vel concavis, umbilicatis, nu-
tantibus, rimosis vel rugulosis, cinereo albis; stipite gracili, sub-
ulato, cernuo, striato vel rugoso, albido-cinereo vel fuscescente,
longitudine peridium æquante vel eo duplo longiori; capillitio den-
so, granulis calcareis parvis, irregularibus prædito; sporis sphaeroi-
deis, levibus, fusco- v. violaceo-atris, 9-10 mm. diam.

Hab. ad truncos passim quoque muscos foliaque decidua autumn
initio post multas pluvias in tota fere Europa, Am. bor., Afr. australi
et Australia. — Var. **propria** stipite longitudinem peridii æquante
vel duplo longiori, tenui, contorto. — Var. **rigida** stipite fere cy-
lindræco, rigido, peridio triplo longiore vel ultra. Cum forma ge-
nuina.

2. **Tilmadoche Pini** (Sch.) Rost. Mon. p. 128, *Physarum Pini* Schum. 1245
Saell. 2 p. 203, *Physarum nutans* auct. varior. — Peridiis hemi-
sphaericis subtus umbilicatis, erectiusculis, squamoso-diffractis, ma-
jusculis, gregariis, cinereo-cæsiis; stipite elongato, attenuato, levi,
nigro-fusco, floccis sporidiisque compactis, nigricantibus.

Hab. ad truncos abietinos putrescentes in Suecia et Germania. — *Tilmad. nutanti* similis illa tamen major et robustior magisque socialis. Peridia, quam in *Tilm. nutante*, majora dein superne areolatim in squamas dehiscentia. Squamæ et gleba sporidiorum diu persistentes.

3. **Tilmadoche gracilentia** (Fr.) Rost. Mon. p. 129, Syn. *Trichia nutans* Trent. Obs. p. 227, *Physarum solutum* Schum. Saell. n. 1446. *Ph. globosum* Somm. Flor. Lapp. p. 243, *Ph. gracilentum* Fr. Syst. Myc. III, p. 133, *Didymium furfuraceum* Fr. I. c. p. 116, *Tilmadoche soluta* Fr. Summ. Veg. Scand. p. 454. — Peridiis stipitatis, exacte sphæroideis, nutantibus, fusco-atris; stipite filiformi v. subulato, fuscescente, fusco-luteo; sporis violaceo-atris.

Hab. in truncis et muscis in Suecia, Germania, Britannia, Fennia et America bor.

4. **Tilmadoche viridis** (Gmel.) Sacc. in Mich. II, p. 263, *Stemonitis viridis* Gmel. Sys., II., 1469, *Stemonitis aurantia* Gmel. Sys., II., 1469, *Stemonitis bicolor* Gmel. Sys. II., 1469, *Sphærocarpus luteus* Bull. t. 407, f. 2, *Sphærocarpus viridis* Bull. t. 407, f. 1, *Sphærocârpus aurantius* Bull., t. 484, f. 2, *Physarum aureum* Pers. Disp. t. I, f. 6, Grev. t. 124, Ditm. t. 23, *Physarum viride* Pers. Syn. pag. 172, Ditm. t. 24, Nees. f. 108, *Physarum aurantium* Pers. Syn. t. III, f. 7, *Physarum luteum* Pers. Syn. 172, *Trichia viridis* DC. Fl. Fr., II., 253, *Trichia aurantia* DC. Fl. Fr. II., 253, *Physarum nutans*, β . *viride* Fr. S. M. III., 129; Cooke Hdbk. n. 1135 var. *B.*, *Physarum nutans*, γ *aureum* Fr. S. M. III, 129, Cooke Hdbk. n. 1135, var. γ . *Physarum nutans*, δ . *coccineum* Fr. S. M. III, 129, *Physarum striatum*, *c. aurantiacum* Fr. S. M. III, 131, *Physarum nutans*, *c. luteo-virens* Rabh. Fl. Cr. 2,268, *Physarum viride* Fr. S. V. S., 453, *Physarum aureum* Fr. S. V. S. 453, *Physarum coccineum* Fr. S. V. S. 453. *Tilmadoche mutabilis* Rost. Mon. p. 130 fig. 123, 127 132. — Peridiis stipitatis, sphæroideis, depressis vel concavis, umbilicatis, nutantibus, irregulariter vel reticulatim rumpentibus, luteis, luteo-virentibus vel aurantiis; stipite deorsum incrassato, cernuo, gracili, stramineo, luteo, coccineo, fuligineo, nigro-fuligineo vel ferrugineo, longitudine vario; capillitio colore peridii, granula calcarea fusoidæa includente; sporis fusco-v. violaceo-atris, 8 μ . diam., levibus.

Hab. ad truncos putridos in Suecia, Germania, Gallia, Belgio, Britannia, Fennia, Italia et Africa austr. — Var. *lutea* sporangio varie lutescente, subinde griseo-lutescente, stipite concolori

vel ferrugineo prædito, (Bull.) Rost. Mon. pag. 130, Cooke Myx. p. 22, Pat. Tab. An. Fung. p. 166, fig. 366, plerumque irregulariter, rarius reticulatim rupto. — Var. **aurantiaca** (Bull.) Rost. Mon. p. 130, Cooke Myx. p. 22: peridio aurantiaco vel rubiginoso-aurantiaco, stipite rarius concolori, plerumque brunneo-fuscescente, prædito, reticulatim vel subinde irregulariter rupto. Cum typo ibidem.

5. **Tilmadoche gyrocephala** (Mont.) Rost. Mon. p. 131, *Didymium* 1248
gyrocephalum Mont. in Ann. Sc. Nat. Ser. 2, VIII, Cent. I, p. 362, et Syll. n. 1073, *Cribraria stramineiformis* Speg. fungi arg. pug. II, n. 109. — Peridiis compressis, in capitulum helvelloideum, subtus umbilicatum, cinereum, circumscriptione sphaericum vel irregulare, squamulis flavo-virentibus secedentibus extus vestitum, gyroso-confluentibus; stipitibus e basi membranacea expansa, longe subulatis, aureis; sporis 9-11 μ . diam., violaceis, levibus.

Hab. in foliis dejectis muscisque loco Serra da Estrada nova dicto Brasiliæ (Aug. de SAINT-HILAIRE) et a la Recoleta Am. australis (SPEGAZZINI).

6. **Tilmadoche columbina** (Berk.) Rost. Add. p. 13, *Didymium colum-* 1249
binum Berk. in ms. — Peridiis perfecte globosis, griseo-albis, leviter metallicis; stipitibus superne rectis, rigidis, fragilibus, cylindricis, niveis; capillitio e tubis hyalinis in rete densum conjunctis formato; granulis calcareis paucis, sat magnis, in internodiis tantum evolutis; sporis pallide violaceis, 9 μ . diam., levibus.

Hab. in Venezuela (BERKELEY).

7. **Tilmadoche oblonga** (B. et C.) Rost. Add. p. 13, *Trichamphora* 1250
oblonga B. et C. in Grevillea 1873, p. 66. — Stipite lateritio, compresso, sursum attenuato, gilvo-maculato, flexuoso; peridio oblongo, apice demum hiante, subcylindraceo, umbrino, rubro-fusco, inferne multo obscuriori, particulis nitentibus consperso, poro minute pertuso; capillitio e tubis tenuibus, subviolaceis, in rete densum contextis, in pluribus locis connatis, granulis calcareis irregulariter oblongis, gilvis, plerumque ex pariete peridii exordientibus præditi composito; sporis minutis, levibus, pallide violaceis, 7-10 μ . diam., levibus.

Hab. in ligno emortuo, Pennsylvania (MICHENER).

8. **Tilmadoche minuta** (Kickx) Berl. *Craterium minutum* Kickx non 1251
 Fr. *Physarum rufibasis* B. et Br. Ceyl. Fungi n. 762, *Chondrioderma inflatum* Rost. Mon. p. 425, *Tilmadoche hians* Rost. Add. p. 14. — Peridiis e gilvo nigricantibus, plus minusve oblongis sti-

tatis, fistula (?) stipitis interiorem partem peridii perfodiente et verticem dehiscentem attingente; stipite rufo-brunneo, sulcato e basi parva orbiculari, scariosa, concolori oriundo; capillitio e tubulis luteo-violascentibus, tenuibus in rete densum conjunctis, in pluribus locis connatis, granulis calcareis irregulariter oblongis, gilvis, plerumque in parietibus peridii incipientibus repletis formato; sporis violaceis, levibus, 8-10 μ . diam.

Hab. in foliis emortuis in Belgio et in insula Ceylon.

Species incerta.

9. **Tilmadoche cavipes** Berk. Three new indian Fungi in Grev. XI, p. 39. — Mycelio reticulato, candido; peridiis junioribus carneis, senioribus lateritio-effractis, pulveraceis, globosis; stipitibus candidis, basi incrassatis, gossypinis, cavis; sporis atro-purpureis, globosis, levibus; capillitio parco, flavo.

Hab. in foliis variarum specierum *Phalænopsis*, in insulis Andaman (E. S. BERKELEY).

Fam. 3. **Didymiaceæ** Rost.

Peridia membrana simplici v. duplici, crystallina v. granula, sæpe in crustam crassam fragilem conglomerata et adglutinata, includente. Capillitium floccis raro tubulis, tenerrimis, solidis, violaceis vel hyalinis, æqualibus formatum. Flocci e basi peridii vel columella assurgentes, latera petentes, simplices vel ramis sparsis reticulatim conjunctis, levibus vel protuberantibus præditis, rarissime calcarei. Columella forma valde varia.

CHONDRIODERMA Rost. Mon. p. 167, Schroet. Krypt. Fl. Schles. Pilze p. 123 (Etym. *chondros* cartilago et *derma* pellis). — Peridia sessilia vel stipitata irregulariter vel stellatim rupta, tunica simplici vel duplici, externa granulis calcareis difformibus tecta aut, iisdem accumulatis, crustacea, ab interna spatio aere repleto discreta, interna vero, si adest, delicata, calce destituta, vibrante. Columella sæpius præsens.

Clavis analytica specierum.

I. Tunica peridii simplices, calce in granula vel crustas collecta (*Monoderma*, *Pseudodiderma*).

A) Plasmodiocarpa.

Ch. leptotrichum. Venosum, irregulare, columella carens, membrana squamis tecta.

Ch. anomalum. Venosum, convexum, columella lata.

Ch. reticulatum. Reticulatum, applanatum, columella carens.

B) Peridia simplicia.

† Tunica tantum granulis calcareis tectæ.

Ch. zeylanicum. Peridia lenticularia; columella nulla.

Ch. Alexandrowiczii. Peridia irregularia, columella carentia.

Ch. niveum. Peridia hemisphærica, columella lata prædita.

†† Tunicæ crustaceæ.

Ch. deplanatum. Peridia columella carentia.

Ch. Micheli. Peridia columella prædita, sessilia vel stipitata, discoidea, margine peridii post exitum sporarum patellaceo.

Ch. spumariodes. Peridia columella prædita, arete stipata, in hypothallo valde evoluto.

Ch. fallax. Peridia columella prædita, perfecte globosa.

Ch. Friesianum. Peridia forma irregularia, columella prædita.

II. Tunica peridii duplex, externa ab interiori facile separabili (*Diderma*).

A) Capillitium fere nullum.

Ch. difforme. Peridia capillitio fere omnino destituta.

B) Capillitium e basi ad apicem ramosum.

Ch. Sauteri. Peridia capillitio e basi ad apicem multoties ramoso fasciculato.

C) Capillitium reticulatum.

Ch. calcareum. Flocci uncinulis calcareis incrassatis præditis.

Ch. globosum. Flocci uncis destituti, peridia globosa, calceo-alba, columella concolori.

Ch. testaceum. Flocci uncinulis destituti; peridia hemisphærica, carneo-rufescenti colorata, columella concolori.

Ch. vaccinum. Flocci nuncinis destituti; peridia globosa, sordide lutescentia; columella crystallis calcareis repleta.

III. Tunica peridii simplex, a capillitio et massa sporacea facile separabili (*Leangium*).

A) Peridia columella prædita.

Ch. Trevelyani. Peridia stellatim rumpentia, laciniiis æqualibus acute attenuatis.

Ch. radiatum. Laciniae non numerosæ (4-8); peridia lenticularia, sessilia vel stipitata.

Ch. floriforme. Laciniae non numerosæ, irregulares; peridia perfecte globosa; stipes elongatus.

B) Columella nulla.

Ch. Ærstedtii. Peridia stellatim rupta; laciniae non numerosæ, verrucis fragilibus, nitentibus ornatae.

Ch. Stahl. Peridia irregulariter rupta vel poro centrali aperta vel rima longitudinali dehiscentia.

Species incertæ sedis.

C. Cookei.

C. affine.

C. mutabile.

C. ochraceum.

C. sublateritium

C. crustaceum.

C. stromateum.

C. subdischyospermum

C. Friesianum.

C. macrosporum.

C. simplex.

C. similans.

C. cubense.

C. pezizoideum.

Subg. 1. Monoderma Rost. Mon. p. 169.

Tunica peridii simplex, extus strato granulorum calcis tecta.

1. **Chondrioderma Alexandrowiczii** (De Bary et Rost.) Rost. Mon. p. 169, fig. 176, *Didymium Chondroderma* De Bary et Rost. in Alex. Stroj p. 89. — Peridiis sessilibus, difformibus, non truncatis, columella carentibus, sæpe pluribus in acervulos parvos collectis, rugulosis, granulosisque; capillitis e floccis simplicibus, badiis, utrinque hyalinis, huc valde diffluentibus et inter se jungentibus; sporis levibus, subviolaceis, 10-12 μ . diam.

Hab. prope Varsavia Poloniæ (ALEXANDROWICZ).

2. **Chondrioderma zeylanicum** (B. et Br.) Rost. Mon. App. p. 15, *Didymium zeylanicum* B. et Br. Fungi of Ceylon n. 754. — Peridio lenticulari, umbilicato, albido-griseo, demum rupto, delicato, pulverulento; stipite 2 mm. longo, rufo, sursum attenuato, elongato, sulcato, fulvo, hypothallo adnato; capillitio albo, anastomotice ramoso, crassitudine vario; columella nulla; sporis globosis, 10 μ . diam., violaceis, levibus.

Hab. in ligno putri in insula Ceylon. — Tubi capillitii tenues, hyalini in rete laxum et densum contexti.

3. **Chondrioderma reticulatum** Rost. Mon. p. 170. — Plasmodiis venulosis, applanatis, arcuatis, repentibus, in reticula irregularia junctis, columella carentibus, sessilibus, hypothallis pariter reticulatis sed multo latioribus, delicatis, subalbis insidentibus; capillitio e floccis hyalinis, tenuissimis, laxis in rete densum conjunctis formato; sporis levibus, subviolaceis, 7-8 μ . diam.

Hab. in ramulis putrescentibus Pini, Neuchatel Helvetiæ (MORTIER).

4. **Chondrioderma pezizoideum** (Jungh.) Rost. Mon. p. 424, *Trichamphora pezizoidea* Jungh. Fl. Cr. Jav. pag. 12, tab. II, fig. 9. — Peridio subnutante, albido-cinerecente e membranula crustacea simplici dein undique furfuraceo-rumpente, rimosa sed persistente composito, cupulæformi, discoideo, stipitato; stipite subulato, fuscescente, glabro, basi in membranam nitidam, matrici arcte adnatam dilatato; capillitio e floccis in rete connexis formato; sporis violaceis, levibus, 8-9 μ . diam.

Hab. in truncis putridis in insula Java.

5. **Chondrioderma Mülleri** (Berk.) Rost. App. p. 15, *Physarum Mülleri* Berk. in ms. — Peridiis aut plane discoideis, aut discoideis cum fimbria pateræformi, sursum curvatis, niveis, stipitatis; sti-

pitibus rectis, rigidis, stritis oblongis ferrugineo-fuscis excavatis; capillitio e floccis in rete contextis formato; sporis violaceis 10-11 μ . diam.

Hab. in Australia et Paradenya in insula Ceylon.

9. **Chondrioderma Berkeleyanum** Rost. App. p. 16, *Trichamphora* 1258
pezizoides Berk. Intr. to crypt. bot. p. 335, non Jungh. — Peridiis leviter scutellatis, niveis, stipitatis; stipitibus rigidis basi basiis, superne pallidioribus; capillitio e floccis tenuibus in rete contextis formato; sporis subviolaceis, valde aculeatis, 10-11 μ . diam.

Hab. in insula Tahiti.

Subg. 2. **Pseudodiderma** Rost. App. p. 16.

Tunica peridii simplex, extus massis granulorum calcis sæpe dilabentibus tecta.

7. **Chondrioderma niveum** Rost. Mon. pag. 170, Cooke Myx. G. Brit. 1259
p. 37. — Peridiis perfecte hemisphaericis vel mutua pressione leniter angularibus, 2-3 μ . latis, sessilibus, niveo-albis, tunica tenuissima præditis; columella lata, sparsa, rubiginoso-brunnea; capillitio valde evoluto, e floccis simplicibus validis, rigidis nonnullis expansionibus in parte superiori præditis, pallide violaceis formato; sporis obscuris, violaceis, verrucosis, 10-11 μ . diam.

Hab. in ligno putri, Linlithgow in Britannia.

8. **Chondrioderma subdictyospermum** Rost. Mon. App. p. 16. — Pe 1260
ridiis hemisphaericis, basi lata hypothallo adnatis, niveis, pariete valde fragili; columella nulla vel distincta, hyalina; capillitio bene evoluto, reticulato, nigro-violaceo; sporis 8-10 μ . diam.; floccis protuberantiis irregulariter dispositis præditis aut in reticula incompleta conjunctis.

Hab. in Venezuela (BERKELEY).

9. **Chondrioderma fallax** Rost. Mon. p. 171. — Peridiis hypothallo 1261
communi, distincto coacervatim sed non nimis compactim insidentibus, sessilibus, sphaeroideis, albo-lutescentibus; columella nunc exigua, plana, nunc distincta, ovata, media; capillitio initio fasciculato, sursum valde diffuenti, subviolaceo; sporis subviolaceis, valde aculeolatis, 12-14 μ . diam.

Hab. in Salzburg Tyroliae (SAUTER).

10. **Chondrioderma liceoides** Rost. App. p. 17, *Licea macrospora* 1262
Schw. Am. Fung. n. 2317, *Lignyota nigra* Fr. S. V. S. p. 459. — Plasmodiis quasi acus crassis, repentibus, aut pulvinatis, albis; pariete duplici interiore delicato, violaceo, exteriori huic attiguo gilvo-fusco et valde in calcem converso; capillitio exigue tantum

evoluta, cum floccis simplicibus, aut versus verticem semel aut bis diffluentibus; sporis levibus, subviolaceis, 11-12 μ . diam.

Hab. in *Pepouibus putridis*, Carolina.

11. **Chondrioderma anomalum** Rost. Mon. p. 169. — Plasmodiis venulosis, repentibus valde convexis, arcuatis, varie contortis; superficie minute granulosa; columella valde fortiter evoluta, lata basi substrato innixa, arcuata, strutura plasmodiocarpis similibus; capillitio cum floccis delicatissimis, tenuibus, laxis, sine colore, densum reticulum formantibus; sporis fere levibus flavis 11-13 μ . diam.

Hab. ad Kiew Rossie (WALZA).

12. **Chondrioderma deplanatum** (Fr.) Rost. App. p. 17, *Chondrioderma physaroides* Rost. Mon. p. 170, *Spumaria physaroides* DC. Fl. Fr. VI, pag. 101, non Pers. *Diderma deplanatum* Fr. S. M. III, p. 110, Engl. Fl. V, p. 312, Cooke Hdbk. n. 1116, *Leocarpus deplanatus* Fr. S. V. S. p. 450. — Peridiis sessilibus, irregularibus, rotundis, 1-3 mm. diam., convexis vel leniter applanatis, mutue compressis, calceo-albis; tunica crustacea, calce repleta; columella non vel vix conspicua omnino depressa, pallide ochracea; capillitio tenui, delicato, floccis hyalinis in rete connexis; sporis violaceis, parce verrucosis, 12 μ . diam.

Hab. in foliis et ramis emortuis in Britannia, Suecia, Peradenya Ceylon.

13. **Chondrioderma? Cookei** Rost. Mon. Suppl. p. 17, *Physarum Tussilaginis* B. et Br. Ann. Nat. Hist. n. 1597, Grevillea V, p. 12. *Badhamia capsulifera* Cooke Fungi Brit. Ser. I, n. 526, Ser. II, n. 206. — Peridiis sessilibus, rotundis vel irregularibus, applanatis, laxe adnatis, leniter nitidulis, levibus, griseo-lividis; capillitio delicato, tenui, e floccis hyalinis, parce calcariferis formato; sporis globosis, obscure violaceis, rugosis, 11-12 μ . diam.

Hab. in foliis *Tussilaginis* in Britannia.

14. **Chondrioderma Friesianum** Rost. Mon. p. 173. — *Diderma difforme*, Fr. Syst. Myc. III, p. 106. — Peridio sessilibus subhemisphericis, valde mutatis in calcem, niveis, post crustam delapsam cinereis; columella distincta, lenticulariter applanata, flavo-gilva aut carneis coloris; capillitio bene evoluta, sine colore, cum floccis in reticulum conjunctis; sporis pallide violaceis, 8 μ . crassis, levibus.

Hab. in corticibus, caulibus etc. in Europa. — A *C. globoso* differt forma irregulari, peridio interno subreticulato, sporis fere umbrinis.

15. **Chondrioderma leptotrichum** Racib. Myx. Crac. p. 7, fig. 4. — Pe-

ridiis venulosis aut, irregularibus planis, membrana simplici, squamis parvis, calcareis tectis; columella nulla; capillitii tubulis tenuissimis, usque 08,3 μ . diam., rete efformantibus flaccidum, valde densum, quod a plasmidio facile totum extrahi potest; sporis nigro-fuscis, 12,5-13,2 μ . diam., membrana verruculosa.

Hab. in agro Cracoviensi Poloniæ.

6. **Chondrioderma Michelii** (Lib.) Rostaf. in Fuck. Symb. myc. zweit. 1268 Nachtr. pag. 74 et Mon. pag. 172, fig. 131, 146, 149, 150, Schr. Krypt. Fl. Schles. Pilz. p. 123, *Diderma contortum* Hoffm. t. 9, f. II a, *Reticularia contorta* Poir. Ency. VI, 182, *Reticularia hemisphærica* Sow., t. 12, *Physarum depressum* Schum. Saell. n. 1439, Fl. Dan. t. 1972, f. 2, *Diderma physarioides* Schum. Herb., *Diderma depressum* Fr. Syst. Myc. III, 108, *Diderma lenticulare* Wallr. Herb., *Didymium Michelii* Lib. Exs. II, 180, *Didymium hemisphæricum* Berk. Eng. Fl. V, p. 312, Cooke Handb. n. 1119, *Physarum Michelii* Corda Ic. V, f. 33, — Peridiis sessilibus vel stipitatis, lenticularibus, granis fere crustulam, frustulatum secedentem, conglomeratis, niveis; stipite plicato, plicis in partem inferiorem peridii extendentibus, ochreo-albo; floccis capillitii tenellis; columella in forma sessili lenticulari, convexa, rufa, in forma stipitata plana, incarnata; sporis sphæroideis, levibus, violaceo-fuscis, 8 μ . diam.

Hab. in ramulis emortuis in Suecia, Gallia, Belgio, Germania et Italia.

7. **Chondrioderma spumarioides** (Fr.) Rost. Mon. pag. 173, fig. 142, 1269 Cooke Myx. p. 38, fig. 142, Schroet. Krypt. Fl. Schles. Pilze p. 123, *Spumaria physarioides* Pers. Syn. 163, Herb., *Spumaria alba* Schum. Saell. n. 1414, Fl. Dan. t. 1798, f. 2, *Didymium spumarioides* Fr. Gast. 20, *Carcerina spumarioides* Fr. S. V. S. 451, *Diderma spumarioides* Fr. Syst. Myc. III, p. 104, Eng. Fl. V, pag. 311, Cooke Handb. n. 1109, *Diderma farinaceum* Peck. in Rep. — Peridiis forma irregularibus niveo-albis vel griseis vel carneo coloratis, in acervulos collectis vel hypothallo valde evoluto insidentibus; columella non perspicua vel niveo-alba, centro libera vel multiformi carneo-colorata; capillitio e floccis hyalinis vel nitide violaceis, in rete connexis formato; sporis violaceis, spinulosis, 8-10 μ . diam.

Hab. in muscis, foliis etc. in Britannia, Germania, Suecia, Belgio et Amer. bor. — Var. **Carcerina** Rost. Mon. l. c. fig. 142, 145, Pat. Tab. An. Fung. pag. 167, fig. 378; peridiis minutis,

$\frac{1}{3}$ - $\frac{1}{2}$ mm. diam. niveo-albis, farinaceis, gregariis, stipatis, hypothallo albescente vel rubiginoso insidentibus, calce præditis; columella non perspicua vel centrali, vesiculari, alba. Cum typo ibidem. Peridio globosa, mutua pressione angulosa basi in pedunculum brevem producta. — Var. **didermoides** Rost. l. c. fig. 151: peridiis irregulariter angulosis, applanatis, $\frac{1}{3}$ - $\frac{3}{4}$ mm. diam., griseis, levibus, gregariis, hypothallo ochraceo vel carneo-rufa, valde evoluta insidentibus; columella varie evoluta, basi carneo-rufa. In iisdem locis ac typus.

18. **Chondrioderma stromateum** (Link) Rost. Mon. App. p. 18, *Phy-sarum stromateum* Link Handb. III, p. 409, *Chondr. spumarioides* Rost. Mon. p. 173 p. p., fig. 143, 145, 151, Cooke Myx. p. 38, p. p. — Peridiis irregulariter angulosis, applanatis, $\frac{1}{3}$ - $\frac{3}{4}$ mm. diam., stipitatis; hypothallo stromateo, valde evoluta insidentibus; superficie levi; capillitio ut in *Ch. spumaroide*; sporis violaceis, aculeatis, 9-11 μ . diam.

Hab. in caulibus putrescentibus prope Berlin Germaniæ (Link).

19. **Chondrioderma affine** Rost. Mon. App. p. 18. — Peridiis irregulariter angularibus applanatis, griseo-albis, cum superficie levi, parva, in communi hypothallo dense confertis; columella raro tantum apparente, irregulari, parva, alba; structura capillitii ut in præcedentibus, sed cum floccis obscurioribus, sæpe munitis protuberantiis fusiformibus subviolaceis; sporis subviolaceis, dense aculeatis, 10-14 μ . diam.

Hab. prope Varsaviam Poloniæ (ALEXANDROVICZ), Berlin Germaniæ (CIENKOWSKI) et Paris Galliæ (ROUSSEL).

20. **Chondrioderma simplex** Schroet. Krypt. Flora Schles. Pilze p. 123. — Peridiis sphaeroideis leniter applanatis, discretis simplicibus, rigidis, fragilibus, læte castaneis; columella nulla; tubulis capillitii radiatim effusis, repetito dichotomis, violaceis; sporis 7-9 μ . diam., læte violaceis levibus.

Hab. in truncis vetustis prope Waldenburg Silesiæ.

21. **Chondrioderma mutabile** Schroet. Krypt. Flora Schles. Pilze p. 123. — Peridiis sessilibus, difformibus, partim hemisphærico-applanatis, partim elongatis, curvis, reniformibus, semicircularibus etc., 1-3 mm. longis, 1 mm. latis, duris, fragilibus, læte griseo-brunneis; columella valde evoluta, pro peridii forma nunc elongata et curva, infra coarctata, læte rufo-brunnea; tubulis capillitio tenuibus, violaceis, hinc inde noduloso-incrassatis; sporis globosis, 11-14 μ . d., atro-violaceis, muriculatis.

Hab. in ligno putri prope Oppelen Silesiæ.

Subg. 3. Diderma Rost. Mon. p. 177.

Tunica peridii duplex, exterior crusta calcarea tecta, ab interiori, calce destituta et iridescenti, discreta.

22. **Chondrioderma testaceum** (Schr.) Rost. Mon. pag. 179, Schroet. 1274
 Krypt. Fl. Schles. Pilze p. 135, *Reticularia sphaeroidalis* var. 2
 Bull., tab. 446, fig. 2 D, *Didymium testaceum* Schrad. pag. 25,
 tab. V, fig. 1-2, *Diderma testaceum* Persoon Syn. p. 166, *Cio-*
onium testaceum Spreng. Syst. IV, pag. 529, *Diderma Marie*
Wilsoni Peck in 26 Rep. p. 74. — Peridiis confertis, sessilibus,
 hemisphæricis, membrana exteriori incarnata vel demum albida,
 interiori violacea; capillitio obscure violaceo, tenui, non incrassa-
 to; sporis fusco-atris, 9-10 μ . diam.

Hab. ad caules, folia decidua etc. passim in Suecia, Germania,
 Fennia, Hungaria et S. Francisco Californiæ.

23. **Chondrioderma vaccinum** (Dur. et Mont.) Rost. Mon. p. 180, *Di-* 1275
derma vaccinum Dur. et M. Fl. Alg. p. 407, t. 22 bis, f. 1 et Mont.
 Syll. n. 1071. — Sessile, adnatum, orbiculare; peridio exteriori
 crasso, fulvo, interiori, tenuissimo evanescente; floccis hyalinis, de-
 licatis; sporis pallide brunneo-violaceis, 10-11 μ . diam., asperulis.

Hab. in ramis Opuntiae dejectis apud Alger et Bir-Khadem
 (DURIEU).

24. **Chondrioderma sublateritium** (B. et Br.) Rost. App. p. 19, *Di-* 1276
derma sublateritium B. et Br. Fungi of Ceylon II, n. 742. —
 Congestum, collabens, deplanatum, glaberrimum; peridio exte-
 riore pallide lateritio, intus candido, furfuraceo, interiore cinereo; co-
 lumella plana, carnea; capillitio e floccis pallidis in reticulum
 laxum conjunctis formato; sporis dilute violaceis, levibus, 8-10
 μ . diam.

Hab. in foliis putrescentibus, Peradenya in insula Ceylon. —
 Affine *C. testaceo*.

25. **Chondrioderma cubense** (B. et C.) Rost. Mon. App. p. 19, *Di-* 1277
derma cubense B. et C. — Adnatum, irregulare; peridio globoso
 vel ovoideo vel angulari, valde applanato, exteriore crasso fragili
 albo, interiore obsoleto; columella umbrina; capillitio e floccis laxis,
 albescentibus vel violaceis in reticulum solutum conjunctis; sporis
 pallide violaceis, levibus, 7,5 μ . diam.

Hab. in foliis putrescentibus in Cuba et Carolina (RAVENEL). —
Ch. diffirmi nonnullis notis accedens, sed tunica interna exter-

næ adnata, columella formæ peridii similis at non globosa et sporis non umbricis distinctum.

26. **Chondrioderma globosum** (Pers.) Rost. Mon. p. 180 fig. 138, Cooke Myx. Brit. p. 39, f. 138, Schroet. Krypt. Fl. Schles. Pilze p. 124, *Mucilago* 7, Mich. t. 96, f. 6, *Lycogala* Hall. n. 2143, *Reticularia sphaeroidalis* Bull. 446, f. 2, *Diderma globosum* Pers. Disp. t. 1 f. 4, 5, *Didymium candidum* Schrad. Nov. Gen. 25, *Didymium globosum* Chev. Fl. Par. t. 9, f. 28, *Physarum sphaeroides* Chev. Fl. Par. 339, *Cionium globosum* Spr. IV, 529. — Peridiis globulosis, basi angusta vel valde evoluta, calce repletis, hypothallo albo-calcigero insidentibus, tunica externa crustacea, calceo-alba, interna vero subcinerea vel nitide iridescente; columella angusta, sæpe globulosa vel ellipsoidea calceo-albescente; capillitio nitide violaceo, in rete connexo; sporis pallide violaceis, leviter spinulosis, 8 μ . diam.

Hab. in foliis emortuis in Gallia, Belgio, Italia et Germania nec non in Amer. bor.

27. **Chondrioderma similans** Rost. App. p. 20. — Peridiis sphaericis, angusta basi, hypothallo bene evoluta valde in calcem mutata, creteo-albo adnatis; pariete externo crustoso, creteo-albo, interno cinereo, aut pulchre versicolori; columella ordinarie valde parva, sphaerica aut conica, creteo-alba; capillitio pullo, fusco-violaceo, in densum reticulum juncto, in nodis triangulariter protuberante; sporis subviolaceis, valde aculeosis, 12,5 μ . diam.

Hab. Kolo Wiedna (LOUKA).

28. **Chondrioderma calcareum** (Link) Rost. Mon. pag. 129, Schroet. Krypt. Fl. Schles. Pilze pag. 124, *Leocarpus calcareus* Link. Obs. I, pag. 23, *Diderma liceoides* Fr. Syst. III, pag. 107, *Diderma deplanatum* Fuck. Symb. Myc. pag. 341. — Peridiis sessilibus inter figuram ovatam oblongamque curvatam variis, e basi depressa convexiusculis, humectis, hyalinis, glaucescentibus, siccis opacis, testaceis, candidis, fragilissimis, demum irregulariter rumpentibus basimque impressam fuscam relinquentibus; sporis 9-11 μ . diam. compactis atris floccos parcos obstruentibus.

Hab. ad caules plantarum exsiccatos in Germania.

29. **Chondrioderma Sauteri** Rost. Mon. p. 181. — Peridiis sessilibus, irregulariter ellipsoideis, applanatis, sanguineo-lacteis, nitidis, pariete interiori lacteo-subfusco opaco, sine columella; capillitio cum floccis fasciculatis sed in reticula non junctis; sporis pallide violaceis, verrulosis, 8-12 μ . diam.

Hab. in Tyrolia (SAUTER).

30. **Chondrioderma difforme** (Pers.) Rost. Mon. p. 177, f. 137, 164, 165, 1282
 Pat. Tab. An. Fung. p. 79, fig. 184, Schroet. Krypt. Fl. Schles.
 Pilze pag. 124, Cooke Myx. Brit. pag. 39, fig. 137, 164, 165,
Reticularia angulata Pers. in Gmel. p. 1472, *Diderma difforme*
 Pers. Disp. p. 9, Icon. Pict. t. 12, f. 3-5, Nees f. 105, *Licea cæsia*
 Schum. Saell. 1500, *Physarum difforme* Link. Dis. I, 27, *Amphi-*
sporium versicolor Fr. Gast. 19, *Licea alba* Nees in Kze. Myk.
 Hft. II, 66, *Lycogala minutum* Grev. S. C. Fl. t. 40, *Reticularia*
pusilla Fr. Orb. Vet. I, 147, *Diderma cyanescens* Fr. S. M. III,
 109, Eng. Fl. V, p. 312, Cooke Hdbk. n. 1115, *Physarum cæsium*
 Fr. S. M. III, 147, *Physarum album* Fr. S. M. III, 147, Letell.
 t. 710, f. 4, Cooke Hdbk. n. 1140, *Didymium difforme* Duby. Bot.
 Gall. II, 858, *Diderma nilens* Klotzsch. in Hook. Herb., Eng. Fl.
 V, p. 312, Cooke Hdbk. n. 1113, *Diderma Neesii* Corda Ic. II, f. 58,
Leocarpus cyanescens Fr. S. V. S. 450, *Leocarpus nilens* Fr. S.
 V. S. 450, *Diderma Libertianum* Fres. Beit. t. IV, f. 16-27, *Di-*
didymium Libertianum De Bary Mycetozoa. — Peridiis sparsis v. se-
 riatim dispositis, sessilibus, forma variis, applanato-rotundatis, elon-
 gatis, oblongatis, flexuosis, subinde confluentibus, membrana exte-
 riori crustacea, cretacea, interiori vulgo opaca, cyanescente; ca-
 pillitio nullo vel obsoleto; columella nulla; sporis atris, levibus,
 10-12 μ . diam.

Hab. supra corpora varia, præcipue herbas vivas vel emortuas
 in tota fere Europa et Queenslandia.

Subg. 4. Leangium Rost. Mon. p. 182.

Tunica peridii simplex, crustacea, a massa sporacea et capillitio facile sepa-
 rabilis. Capillitium sæpe strato sporarum polygonalium, applanatarum, an-
 gularium tectum. Peridium sæpe stellatim ruptum.

31. **Chondrioderma ochraceum** Schroet. Krypt. Flora Schles. Pilze 1283
 p. 124. — Peridiis sessilibus, inæqualibus, globosis vel reniformi-
 bus vel semicircularibus etc., 1-2 mm. longis, 1 mm. crassis, dense
 gregariis, tunica peridii exteriori ochraceo-brunnea inæqualiter
 squamuloso-recedente, anteriori tenui achroma; columella nulla;
 capillitio valde evoluto; tubulis 2-3 μ . crassis, violaceis, levibus
 rectis vel flexuosis pluries anastomosantibus et hinc inde dense
 reticulatis; sporis globosis, 9-11 μ . diam., atro-violaceis, indistin-
 cte punctulatus.

Hab. in Hepaticis, prope Hirschberg Silesiæ.

32. **Chondrioderma radiatum** (Linn.) Rostaf. Sluzowc. p. 182, f. 155, 156, 152, 153, 170, Cooke Myx. p. 40, fig. 152, 153, 155, 156, 170, Schroet. Krypt. Fl. Schles. Pilze p. 125, *Lycoperdon radiatum* Linn. Sp. 1654, *Didymium stellare* Schrad. t. 5, f. 3-4, *Diderma stellare* Pers. Syn. p. 164, *Diderma umbilicatum* Pers. Syn. p. 165, Eng. Fl. V, 310, Cooke Hdbk. n. 1105, *Diderma crassipes* Schum. Saell. p. 1421, *Reticularia umbilicata* Poir. Ency. *Didymium Geaster* Link Diss. II. p. 42, *Leangium stellare* Link Diss. II, p. 42, *Cionium stellare* Spr. Sys. IV, 529, *Cionium umbilicatum* Spr. Sys. IV, 529, *Leangium umbilicatum* Rabh. Fl. Crypt. 285, *Didymium complanatum* Fekl. Sym. Myc. 341, *Diderma Carmichaelianum* Berk. Engl. Fl. V, p. 34, *Diderma umbilicatum* Peck. — Peridiis sessilibus vel breviter stipitatis, subrotundis vel lenticularibus, subtus umbilicatis, in lacinias 4-8 inæquales, reflexas dehiscentibus, fuscescentibus vel fuscescente albidis; stipite stricto, sursum incrassato, brevissimo vel fere nullo; floccis capillitii simplicibus vel fasciculatis; columella sphæroidea vel ovoidea, majuscula, subrufescente vel albida; sporis violaceo-seu fusco-atris, spinulosis, 9-12 μ . diam.

Hab. in cortice Pini etc. in tota fere Europa et Am. bor.

33. **Chondrioderma floriforme** (Bull.) Rost. Mon. p. 184, Pat. Tab. An. Fung. p. 79, f. 185, Cooke Myx. p. 41, *Sphaerocarpus floriformis* Bull. t. 371, *Stemonitis floriformis* Gmel. Syst. 1469, *Lycoperdon floriforme* With. Arr. IV, 379, *Reticularia floriformis* Poir. Ency. *Didymium floriforme* Schrad. N. G. 25, *Diderma floriforme* Pers. Syn. 164, Fr. S. M. III, p. 99, Berk. Eng. Fl. V, 310, Cooke Hdbk. n. 1105, *Diderma spurium* Schum. Saell. 1422, *Leangium floriforme* Link. Diss. t. III, *Leangium lepidotum* Ditm. t. 21, *Cionium lepidotum* Spr. Sys. IV, 529, *Cionium floriforme* Spr. Sys. IV, 529, *Diderma lepidotum* Fr. S. M. III, 100, *Diderma concinnum* Berk. et Curtis in Grevillea 1873, n. 343. — Peridiis globosis, stipitatis, stipite elongato præditis, in hypothallo valde evolutis stipatis, nitide brunneis, maturitate stellatim ruptis, basi irregulariter scissis; columella primum ovata, stipitata, nitide brunnea; capillitio ramis violaceis in rete connexis formato, nodulis numerosis prædito; sporis pallide violaceis, raro spinulosis, 10-12 μ . diam.

Hab. in truncis emortuis in Gallia, Germania, Britannia et Carolina inferiori.

34. **Chondrioderma Ærstedtii** Rost. Mon. p. 154, fig. 154, 157, Cooke

Myx. p. 41, fig. 154, 157, Berk. et Br. Ann. Nat. Hist. 1853 et in Grevillea V, p. 12. — Peridiis stipitatis, brunneo-albis, stipite piriformi, concolori, columella carentibus, maturitate in lacinias irregulares 4-6 stellatim ruptis, verrucis fragilibus, nitidis ornatis; capillitio e floccis violaceis, in rete laxum contextis formato; sporis nitide violaceis, delicatis, parce spinulosis, 11-13 μ . diam.

Hab. in corticibus in Britannia.

35. **Chondrioderma Stahlia** Rost. Mon. p. 185, fig. 168. — Peridiis 1287
sphaericis, subtus parum applanatis, aut opacis, subfusce-albis aut nitidis furvis; post maturitatem, sive rotundo foramine in medio, sive rima oblonga, sive tandem irregulariter dehiscentibus, truncatis, cum stipite fusco, nitido, omnino sine columella; capillitio cum floccis simplicibus, aut sursum pluries diffluentibus, sed in reticulum non junctis; sporis pallide violaceis, leviter aculeosis, 9 μ . diam.

Hab. prope Strassburg Germaniæ.

36. **Chondrioderma lucidum** (B. et Br.) Cooke Myc. Gr. Brit. p. 42, *Di-* 1288
derma lucidum B. et Br. Ann. N. Hist. n. 938, t. 15, fig. 9, Cooke Handb. n. 1110. — Peridiis subglobosis, sessilibus, sparsis vel stipatis, stellatim irregulariterque ruptis, nitide rufo-luteis, intus luteis; capillitio brunneo, lutescente; sporis globosis, violaceo-atris, 12 μ . diam., minute echinulatis.

Hab. in muscis et in Jungermannia quadam in Britannia.

37. **Chondrioderma Trevelyani** (Grev.) Rost. Mon. p. 182, fig. 161- 1289
163, Cooke Myx. p. 40, *Leangium Trevelyani* Grev. Sc. Crypt. Fl. t. 132, *Cionium Trevelyani* Spr. Sys. IV, 529, *Diderma Trevelyani* Fr. S. M. III, 105, Eng. Fl. V, 311, Cooke Handb. n. 1111, *Polyschismium Trevelyani* Corda Ic. V, p. 20. — Peridiis ovoideis vel globosis, sessilibus, in lacinias acutas, subreflexas, lineares, regulares, numerosas stellatim ruptis; columella minutissima, globosa, capillitio? sporis?

Hab. in Bryo ligulato in Britannia, Germania et Bohemia — Sec. Cooke (Cfr. App. Myx. Brit.) species hæc excludenda et verisimiliter *C. radiato* adjungenda.

38. **Chondrioderma crustaceum** Peck. in 26 Rep. p. 74. — Effusum, 1290
circumambiens; peridiis stipatis, sessilibus, subglobosis, levibus, albis, extus crustaceis, intus delicate cinereis; columella nulla; sporis globosis, atris, 12 μ . diam.

Hab. in lignis putridis et in foliis Thujae, Memphis Americae borealis.

Species dubiæ ab auctoribus ad *Diderma* relatæ.

39. **Diderma albescens** Phill. in Grevillea V, p. 114, tab. 87, fig. 3, *a, f.* — Sessile, sphaericum; peridiis gregariis vel sparsis; peridio externo, irregulariter rupto, albido, interno obsoleto; columella alba; floccis copiosis, purpureo-atris; sporis 8 μ . diam.

Hab. in cortice Pini, Blue Canon Amer. bor. (HARKN).

40. **Diderma brunneolum** Phill. in Grevillea V, p. 114, tab. 87, fig. 4, *a, f.* — Globosum, sessile, sparsum, rufo-brunneum; peridio externo rigido, fragili irregulariter erumpente, peridio interno albo, evanescente; columella nulla, floccis albis; sporis fuligineis, 12 μ . diam.

Hab. in cortice Quercus, S. Francisco Californiæ (HARKN).

41. **Diderma geasterodes** Phill. in Grevillea V, p. 113, tab. 87, fig. 1, *a, f.* — Pallide rufescens, stipitatum, sphaeroideum, in lacinias inæquales ruptum; peridio interno obsoleto; stipite valido; columella nulla, floccis fuscis; sporis purpureo-nigris, levibus, 15 μ . diam.

Hab. in corticibus et muscis, Blue Canon Amer. bor.

42. **Diderma laciniatum** Phill. in Grevillea V, p. 113, t. 87, fig. 2, *a, b, c, d, e, f.* — Subsessile, sparsum, sphaeroideum, rufo-brunneum; peridio in lacinias irregulariter rupto; peridio interno obsoleto; floccis et sporis purpureo-brunneis, 13 μ . diam.

Hab. in ligno putri, S. Francisco Californiæ (HARKNESS).

43. **Diderma ramosum** Fr. Syst. Myc. III, p. 105, *Spumaria ramosa* Schum. Saell. 2, pag. 195, *Leocarpus ramosus* Fr. S. V. S. p. 450. — Conglomeratum, atro-fuscum; peridiis congestis, rotundatis, subsessilibus, nigris; sporis purpureo-fuscis.

Hab. ad truncos putridos quercinos in Sellandia et Dania — Observatur primitus mucilago citrina ramosa, ramulis complanatis, basi confluentibus; peridia crustaceo-cohærentia. Insigne, sed vivum plenius describendum. Verisimiliter ad *Leocarpum vernicosum* spectat.

44. **Diderma stipitatum** Fr. Syst. Myc. III, p. 104, *Reticularia stipitata* Bull. Champ. pag. 89, t. 380, f. 3, Dec. fr. 2. p. 258, *Physarum* Chev. par. p. 137, *Diderma ramosum* Pers. syn. p. 166 non Schum. *Didymium ramosum* Duby gall. II, p. 859. — Peridiis subglobosis, cinereo-nigricantibus, intus loculosis?; stipitibus ramosis; sporis nigris.

Hab. ad ligna putrida Galliæ. — Habitus generis et omnino tribus, ceterum minus cognitum; a Bulliardo tantum observatum;

An vere perenne sit, dubitatur. Primo album, mox luteum, demum cinereum nigrescens; peridia minuta, ovoidea; stipites evidenter, fasciculati, hypothallo membranaceo albo; flocci reticulati, albi, nec alia adesse videntur locula. Fr. l. c. Sec. Rost. generi *Bulliardæ* adscribendum.

DIDYMIUM Schrad. Nova Pl. gen. I, Rost. Mon. p. 110. (Etym. *didymos* duplex). — Peridia sessilia vel stipitata, irregulariter dehiscencia, membrana simplici vel duplici, exteriori crystallis calcareis dispersis vel in crustulam separabilem adglutinatiss tecta.

Clavis analytica specierum.

A) Tunica simplex vel duplex; columella nulla; plasmodiocarpa.

D. dubium. Plasmodiocarpa tunica duplici; capillitio cellis coloratis.

D. Serpula. Plasmodiocarpa tunica simplici; capillitio persistens, cellulis latis coloratis prædita.

B) Tunica simplex vel duplex; columella in formis typicis evoluta; peridia vulgo simplicia, raro plasmodiocarpa.

I. Peridia vulgo columella prædita, sed si caret, stipes est demum niger vel brunneo-niger.

† Peridia columella carentia.

D. Clavus. Columella nulla; stipes brevis.

†† Peridia columella prædita.

* Columella multis peridiis communis.

D. physaroides. Columella pseudocellis granulis calcareis fœtis prædita.

** Quodque peridium columella præditum.

D. farinaceum. Columella hemisphærica, copiose cellulosa; cellulis granulis calcareis minutis vel massulis calcareis, repletis.

D. microcarpon. Columella globosa, copiose cellulosa, cellis crystallis minutis calcareis fœtis.

II. Columella vulgo niveo-alba, raro lutescente vel carnea, stipite simili.

† Peridia tunica duplici instructa.

D. præcox. Peridia irregulariter hemisphærica.

†† Peridia tunica simplici instructa.

* Peridium sessile.

D. crustaceum. Sporæ distincte spinulosæ, latæ; columella vulgo colorata; capillitio fasciculato.

D. effusum. Sporæ fere leves, parvæ; columella vulgo niveo-alba; capillitium in rete contextum.

* Peridium stipitatum.

† Columella globosa.

D. squamulosum. Tunica inferior peridii columellæ levi satis adhærens; capillitium e floccis simplicibus formatum.

D. Fuckelianum. Tunica inferior peridii columellæ convexæ non adhærens;

columella appendiculis asperis, a quibus fasciculi floccorum capillitii oriuntur, prædita.

†† Columella discoidea vel apice arcuata.

D. macrospermum. Capillitium hyalinum.

D. discoideum. Capillitium brunneo-coloratum.

Species incertæ sedis.

<i>D. commutabile.</i>	<i>D. Ravenelii.</i>
<i>D. dædaleum.</i>	<i>D. platypus.</i>
<i>D. granuliferum.</i>	<i>D. erythrinum.</i>
<i>D. sinapium.</i>	<i>D. fulvipes.</i>
<i>D. australe.</i>	<i>D. neglectum.</i>
<i>D. proximum.</i>	<i>D. pruinatum.</i>
<i>D. eximium.</i>	<i>D. radiatum.</i>
<i>D. pertusum.</i>	<i>D. Sowerbyi.</i>
<i>D. humile.</i>	<i>D. versipelle.</i>
<i>D. bulbiliosum.</i>	<i>D. Weinmannii.</i>
<i>D. angulatum.</i>	<i>D. dubium.</i>
<i>D. glaucum.</i>	

Subg. 1. **Serpularia** Rost. Mon. p. 151.

Plasmodiocarpum uni-vel bitunicatum.

1. **Didymium Serpula** Fr. Syst. Myc. III, p. 126, Eng. Fl. V, p. 314, B. et Br. Ann. Nat. Hist. n. 1035, Cooke Handb. n. 1134, Schroet. Krypt. Fl. Schles. Pilze p. 121, *Didymium complanatum* (Batsch) Rost. Sluzowc. p. 151, f. 166, 180, Myx. Brit. p. 30, f. 166, 180, *Lycoperdon complanatum* Batsch. t. 170, *Physarum confluens* Fuck. Syn. Myc. p. 342, non Pers. — Peridiis difformibus (plasmodiocarpis), deplanatis, elongatis, venoso-repentibus, flexuosis vel reticulatim junctis, plumbeis, crystallis parvis cinereo-albis tectis; floccis capillitii tenellis, in rete densum junctis; sporis sublevibus, atris, 7–8 μ . diam.

Hab. in foliis dejectis et in lignis putridis in tota fere Europa.

2. **Didymium dubium** Rost. Mon. p. 153. — Plasmodiis pulvinatis, arcuatis, sparsis, niveis, stellatis, crystallis in superficie conglomeratis præditis, in acervulos congestis; pariete externo ab interno squamis irregularibus decedente; capillitio e floccis rigidis, solidis, raro diffluentibus, reticulum solutum efformantibus, protuberantiis spinosis, hamatis præditis formato; sporis subviolaceis, vix verruculosis, 10–11 μ . diam.

Hab. in Bohemia (Opiz).

Subg. 2. **Cionium** Rost. Mon. p. 153.

Peridia unitunicata, columella subinde nulla, stipes niger, raro rubiginosus.

3. **Didymium Clavus** (Alb. et Schw.) Rost. Sluzowc. pag. 153, Cooke 1299
Myx. Brit. pag. 31, Schroet. Krypt. Fl. Schles. p. 171, *Reticularia hemisphærica* Bull. t. 446, f. 2, *Physarum Clavus* A. et S. t. 2, f. 2, *Didymium melanopus* β . *Clavus* Fr. Syst. Myc. III, p. 114. B. et Br. Ann. N. H. n. 110, Cooke Handb. n. 1118, β . *Didymium hemisphæricum* Wallr. Fl. Germ. 2192. — Peridiis stipitatis, pileiformibus, applanatis, convexis, basi planis, cinereo-albis; stipite brevi, nitente, erecto, fusco-atro vel atro; floccis capillitii simplicibus, raro furcatis, fusiformibus, fuscis, utroque apice incoloribus; sporis levibus fusco-atris, 6-8 μ . diam.

Hab. in variis substantiis in Gallia, Germania, Britannia, Belgio in insula Ceylon Indost. et Carolina Syp. Amer. bor.

4. **Didymium commutabile** B. et Br. Fungi of Ceyl. n. 746, Rost. 1300
App. p. 21. — Stipite sursum attenuato, albo, subtiliter pulverulento, demum pallescente levi vel substriato tortoque; peridio subtus cupulæformi, utrinque farinoso, demum circumscisso; capillitio pallide violascente, floccis simplicibus; sporis pallide violaceis, glabris, 6 μ . diam.

Hab. in substantiis herbaceis putrescentibus in insula Ceylon. — Species minuta in forma patellæ inversæ, stipite valde tenui, plicato, et contorto suffulta, cum superficie alba, farinacea. Capillitii flocci subviolacei, recti, in basibus acuti, et ibi tantum diffluentes, in solum reticulum juncti.

Subg. 3. **Acioniscium** Rost. Mon. p. 159.

Peridia uni-vel bi tunicata: columella niveo-alba, vel brunneo-alba; stipes cum adest, concolor.

5. **Didymium squamulosum** (Alb. et Schw.) Fr. Syst. myc. III, p. 118. 1301
Rost. Mon. p. 159, fig. 148, Cooke Myx. p. 33, f. 143. Schroet. Krypt. Fl. Schles. pag. 127, *Reticularia hemisphærica* Bull. p. 93, *Diderma squamulosum* B. et S. tab. 4, fig. 5, *Didymium globosum* v. *stipitatum* Schwarz. Ac. Holm. p. 114, *Licea stipitata* DC. Fl. Fr. n. 670, *Tubulina pedicellata* Poir. Ency. V, p. 373, *Cionium farinaceum* Nees. f. 106 b. *Cionium squamulosum* Spr. Sys. IV, 528, *Didymium herbarum* Fr. S. M. III, 120, *Didymium leucopus* Fr. S. M. III, 121, Cooke Hdbk. n. 1127, *Didymium costatum* Fr. S. M. III, 118, *Physarum liceoides* Duby

Bot. Gall. II, 864, *Didymium filamentosum* Wallr. Fl. Ger. n. 2187, *Didymium neglectum* B. et Br. Cay. Fungi n. 747, *Didymium australe* Berk. Hdbk. Flor. Nov. Zeal. p. 191. — Peridiis stipitatis, hemisphæricis, basi applanatis et umbilicatis, superne demum frustulatim rumpentibus, 1 mm. latis; stipite peridium intras ibique in columellam sphæroideam, levem, niveam expanso longitudinaliter leviter striato, niveo, peridium æquante; floccis capillitii tenellis, hyalinis, e columella surgentibus, angulis valde acutis ramosis; sporis levibus, fusco-atris, 8-10 μ . diam.

Hab. ad folia emortua et in lignis putrescentibus, in Suecia, Germania Italia, Britannia, Gallia Belgio, et California, Ceylon et Nova Zelandia. — Var. α . **genuinum**. Peridio 1 mm. lat., hemisphærico, basi applanato et umbilicato; stipite peridium longitudine æquante, leniter longitudinaliter striato; columella distincta, globosa, niveo-alba, membrana superiori peridii maturitate irregulariter rupta, squamis ovoideis numerosis prædita, floccis capillitii hyalinis. — β . **leucopus**: *Didymium leucopus* Fr. Syst. Myc. III, p. 121: peridiis sphæroideis 0,3-0,5 mm. latis, subtus leviter vel vix umbilicatis; stipite brevi, rigido, longitudinaliter valde striato; membrana peridii maturitate non rupta. — γ . **costatum**: *Didymium costatum* Fr. Syst. Myc. III, pag. 118: peridiis irregulariter hemisphæricis vel lenticulariter applanatis, non rumpentibus, squamulis simplicibus; stipite brevi, valde plicato, basi lato; membrana peridii maturitate non rupta; floccis capillitii hyalinis. — δ . Peridii irregulariter venosis (plasmodiocarpis), planis, columella stipiteque destitutis. Cum typo ibidem.

6. **Didymium effusum** (Link) Fr. Syst. myc. III, p. 124, Rost. Mon. p. 163, *Diderma effusum* Link Obs. II, p. 42, *Diderma globosum* B. Engl. Fl. n. 9, p. 312. — Peridiis sparsis vel gregariis, sessilibus, irregulariter hemisphæricis, applanatis; columella hemisphærica, nivea vel albo-flava; floccis capillitii tenerrimis, in reticulum densum connexis, incoloribus, protuberantiis numerosis, minutis præditis; sporis sublevibus, fusco-atris, 10-11 μ . diam.

Hab. ad folia delapsa arborum frondosarum præcipue Betulæ in Fennia, Suecia, Britannia, Germania et Peradenya Ceylon.

7. **Didymium crustaceum** Fr. Syst. Myc. III, pag. 124, Rost. Mon. Add. p. 22, *Did. complanatum* Schrad. Nov. Pl. Gen. pag. 24, tab. 5, fig. 5, Fr. Syst. Myc. III, p. 125, *Did. confluens* Rost. Mon. pag. 164, Schroet. Krypt. Fl. Schles. Pilze p. 122, — Peridiis sessilibus, nunc sparsis hemisphæricis, nunc densissime con-

gestis hypothalloe communi, bene evoluto insidentibus, hemisphaericis reniformibus vel e pressione mutua angulatis; columella distincta, albido-vel incarnato-flava; floccis capillitii e columella fasciculatim surgentibus, tenellis, angulis valde acutis furcatis, dilute violaceo-fuscis; sporis sphaeroideis, valde spinulosis, violaceo-sive fusco-atris, diam. 11-15 μ .

Hab. supra truncos Alni incanae, ad terram, ramulos et folia decidua putrida in Fennia Italia Gallia et Rossia. — Var. **obducens** Karst. in Not. Sallsk pro Fann. et Fl. Fenn. Föhr. IX, 1880, p. 356: peridiis irregularibus (plasmodiocarpis), applanatis, depressis, sæpe umbilicatis, subtus concavis, solitariis vel gregariis, interdum densissime stipatis; stipitibus brevibus vel brevissimis, irregularibus, inferne latioribus, ex hypothallo communi explicatis. Cum typo ibidem.

8. **Didymium macrospermum** Rost. Mon. pag. 166, Schroet. Krypt. 1304 Fl. Schles Pilz. p. 122, *Trichia alata?* Trentep. Obs. bot. p. 128, *Didym. costatum* Fuckel. Symb. I, Nach. p. 339, *Ph. alatum* Fr. Syst. Mycol. III, p. 132. — Peridiis sphaericis aut hemisphaericis, valde applanatis, subtus umbilicatis, griseis, stipitatis; stipite plerumque peridio longiori, in distinctum discoideum hypothallum basi dilatato, in superiori parte angustiori, in tota longitudine valde plicato, niveo aut flavo-albo; columella seu continuatione stipitis valde versiformi, jam discoidea, jam malleolosa aut tandem cum floccis deorsum arcuate substrictis; membrana peridii sine colore, aut leviter subfusca; capillitio e floccis simplicibus raro sub angulo acuto diffluentibus formato, incolore aut subfusco; sporis subviolaceis, valde aculeosis, 12-13 μ . diam.

Hab. ad truncos Germaniæ. — Gregarium; stipes capitulo triplo et ultra longior, superne attenuatus, angulatus, angulis membranaceis pellucidis; peridium tenue, dehiscendo ad stipitem rumpens et fere totum evanescens, una alterave lacinia tantum remanente; filamenta nivea, non raro cum pulvere fusco-rubente excedunt.

9. **Didymium discoideum** Rost. Mon. p. 162. — Peridiis discoideis 1305 fere sessilibus, umbilicatis; stipite vix apparente ob brevitatem, in umbilico peridii occultato, basi in circularem hypothallum dilatato; columella jam discoidea, jam fere hemisphaerica, pariter ac stipes flavo-gilva; inferiore membrana parietis peridii columellæ leviter adnata, violacea; superiore maculosa, venis pellucidis, signata, post maturitatem adeptam in squamulas simplices dissi-

liente; capillitio e floccis flexuosis, raro diffluentibus badiis, in utroque fine sine colore formato; sporis valde aculeosis, e violaceo nigricantibus, 11-13 μ . diam.

Hab. in Rhenogovia (FUCKEL).

10. **Didymium præcox** De Bary in Rab. F. E. n. 367, Rost. Mon. p. 163. — Peridiis irregulariter hemisphæricis, duplici pariete; pariete exteriori albo valde rugoso post maturitatem adeptam in simplices squamulas dissilente sine colore, minimis crystallis in forma stellæ tecto; pariete exteriori plumbeo-griseo, rigido, contexto parvis irregularibus granis calcis, post decalcationem flavo-gilvo, rigido; stipite plerumque brevi, flavo-gilvo, striis oblongis delicate exarato, intra peridium in columellam irregulariter sphæricam, sæpe applanatam, flavo-gilvam prolongato; capillitio e floccis tenuissimis, solidis, sine colore, aliquoties violaceis, protuberantiis multis irregularibus sphæricis præditis, sub angulo acuto diffluentibus et fibris transversis, in reticulum se jungentibus constante; sporis subviolaceis, membrana rigidissima, raro brevibus aculeis munita, 8-9 μ . diam.

Hab. prope Freiburg Germaniæ.

11. **Didymium Fuckelianum** Rost. in Fuck. Symb. Myc. App. II, p. 78, Mon. p. 161, *Didym. squamulosum* Fuck. S. M. p. 341 (non A. et S.). — Peridiis hemisphæricis, subtus umbilicatis, stipitatis; stipite subcandido in gilvum aut subfuscum colorem vertente, fortiter oblonge plicato; pariete peridii post decalcationem exiguorum crystallorum in forma stellarum, fusce aut violacee maculate; maculis in partes dissimetricas, venis sine colore divis; stipite intra peridium, columellam distinctissimam clavatam et applanatam subfuscam formante; inferiore parte peridii ei non adhærente, plurimas vero et distinctas protuberantias formante; capillitio violaceo, multis deformibus protuberantis munito; sporis pallide violaceis, delicate verruculosis, 9-11 μ . diam.

Hab. in ramis emortuis adhuc foliosis Pini in Rhenogovia (FUCKEL).

12. **Didymium proximum** B. et C. in Grev. 1873, n. 245, Rost. Mon. App. p. 33, *Didymium pusillum* B. et C. in Grevillea 1863, n. 847. Peridio nutante, globoso, farinaceo, stipite sursum attenuato, luteo; columella nulla, floccis albis parvis; sporis pallide violaceis levibus 7-9 μ . diam.

Hab. in caulibus herbaceis et in foliis emortuis Pini in Carolina inferiore. — Totus fungus circiter 1 mm. altus. Peridia sphæ-

rica, subtus leviter umbilicata, stipitata; stipites recti, rigidi, ferruginosi, aut ferruginoso-fusci, in interiori peridio in columellam porretti; columella versiformis, mediocris; capillitii flocci non colorati, in solum reticulum juncti. Rost. l. c.

3. **Didymium farinaceum** Schrad. Nov. Plant. I, gen. t. 3, f. 6, Rost. 1309
 Mon. pag. 154, fig. 128, 171, 174, Cooke Myx. pag. 31, fig. 128, 171, 174, Schroet. Krypt. Fl. Schles. pag. 121, *Sphærocephalus niger* Hall. tab. 1, fig. 2, *Trichia* Hall. n. 2160, tab. 48, f. 2, *Mucor sphærocephalus* Batsch p. 157, *Clathrus sphærocephalus* Rehl. *Trichia globosa* Vill. Fl. Dauph. 1061, *Reticularia hemisphærica* Bull. t. 446, f. 1, *Trichia compressa* Trent. p. 229, *Trichia sphærica* Trent. p. 230, *Trichia depressa* Trent. 231, *Physarum melanospermum* Pers. Disp. p. 8, Eng. Fl. V, 313, Cooke Handb. n. 1123, Fungi Brit. II, 521, Rost. Mon. p. 155, *Trichia sphærocephala* Sow. t. 240, *Trichia farinacea* Poir. Ency. VIII, 53, *Physarum farinaceum* Pers. Syn. 174, *Physarum cinerascens* Schum. Saell. 1426, *Physarum depressum* Schum. Saell. 1439, *Physarum globosum* Schum. Saell. 1442, *Physarum Oxycanthæ* Schum. Saell. 1427, *Physarum Clavus* Link Dis. I, 27, *Physarum sinuosum* Link Dis. I, 27, *Physarum capitatum* Link Dis. I, 27, *Diderma muscicola* Link Dis. I, 27, *Didymium capitatum* Link Dis. III, 27, *Didymium lobatum* Nees f. 104, Cooke Handb. n. 1129, *Didymium physarioides* Klotsch., *Strongylium minor* Fr. Gast pag. 9, *Physarum melanopus* Fr. Gast. p. 23, *Cionium lobatum* Spr. Sys. IV, 529, *Didymium marginatum* Fr. Syst. Myc. III, p. 116, *Didymium melanopus* Fr. Syst. Myc. III, 114, Berk. Ann. N. H. n. 382, Cooke Handb. n. 1118, *Didymium hemisphæricum* Fr. Syst. Myc. III, pag. 115, *Physarum nigrum* Fr. Sys. Myc. III, pag. 146, B. et Br. Ann. N. H. n. 1598, Grevillea V, p. 12, *Cionium farinaceum* Link. Handb. III, 416, *Didymium filamentosum* Wallr. 2187. — Peridiis stipitatis, hemisphæricis vel paululum applanatis, subtus umbilicatis, cinereo-albis, calce destitutis, nigris et nitidis; stipite rigido, nitente, atro, raro ferrugineo-fusco, brevi (ut plurimum peridium æquante); floccis capillitii simplicibus, repentibus, atro-fuscis; columella hemisphærica, atra, cellulis multis granula calcaria includentibus, composita; sporis sphæroideis, spinulosis, fusciscentibus, 10-12 μ . diam.

Hab. in ligno cortice, foliis et muscis putrescentibus in tota fere Europa et Amer. bor. — Variæ formæ distinguuntur. (Cfr.

Rost. et Cooke ll. cc.). α . **genuinum** stipite atro, nitente, peridii longitudine. — α^1 **rufipes** stipite rufo. — β . **elongatum** stipite peridii triplo longiore. — γ . **sessile** stipite brevi. — γ^1 **confluens** peridiis seriatim confluentibus. — δ . **nigrum** peridiis calce destitutis, atris, nitidis.

14. **Didymium microcarpum** (Fr.) Rost. Mon. pag. 156, fig. 133, 177, Cooke Myx. Gr. Br. p. 32, f. 133, 177, *Lycoperdon stipitatum* Retz. Vet. Ac. Handl., *Trichia hemisphaerica* Trent. p. 228, *Physarum nigripes* Link Diss. I, 27, Ditm. t. 42, *Trichia alba* Purst. Mid. Fl. III, 1113, *Cionium xanthopus* Ditm. t. 43, *Cionium Iridis* Ditm. t. 7, Nees f. 106, *Physarum microcarpum* Fr. Gast. p. 23, *Didymium lobatum* β . *stipitatum* Somm. Fl. Lapp. 210, *Didymium nigripes* Fr. Syst. Myc. III, p. 119, Eng. Fl. V, 313, Cooke Handb. n. 1124, *Didymium xanthopus* Fr. S. M. III, p. 120, Berk. Ann. N. H. n. 111, Cooke Handb. n. 1126, Pat. Tab. An. Fung. p. 78, f. 183, *Didymium Iridis* Fr. Syst. Myc. III, 120, *Didymium microcephalum* Chev. Byss. f. 11, *Didymium melanopus* Wallr. Fl. Germ. 2184, *Didymium Wallrothii* Rabh. Fl. Crypt. 2289, *Didymium porphyropus* DR. et M. Fl. Alg. 409, *Didymium megalosporum* B. et C. in Grev. n. 318. — Peridiis stipitatis, sphaeroideis, crystallis tectis, niveis, umbilicatis; stipite stricto, striato, nigro et nitido, aut ferruginascente flavo, peridii duplo longiore; floccis capillitii raro ramosis, reticulatim junctis; columella sphaeroidea, cellulis, crystallis calcareis parvis repletis, multis composita; sporis sublevibus, fusco-atris, 5-6 μ . diam.

Hab. in ligno foliis et muscis putrescentibus in tota fere Europa in Amer. bor. et Africa austr.

15. **Didymium physaroides** (Pers.) Fr. Gast. p. 21, Rost. Mon. p. 153, fig. 147, 175, Cooke Myx. p. 33, f. 143, 175, Schroet. Krypt. Fl. Schles. p. 122, *Spumaria physar.* Pers. Syn. p. 163. — Peridiis conglomeratis vel fasciculatis, forma variis, rotundatis vel oblongatis, sessilibus vel brevissime stipitatis, albidis, calce destitutis nigris; floccis capillitii firmulis, simplicibus, raro ramosis, protuberantiis numerosis, fusiformibus, violaceo-atris instructis; columella communi; sporis episporio crasso, spinuloso, violaceo-atris 12-14 μ . diam.

Hab. ad ligna et muscos in silvis acerosis in Germania, Suecia, Britannia, Carol. inf. et Afr. austr.

Species incerti subgeneris.

16. **Didymium angulatum** Peck 31 Rep. pag. 41. — Peridiis delicatis,

subglobosis, albescentibus, extus granulis minutis et crystallis calcareis numerosis, pulverulentis; stipite brevi, albescente; columella subglobosa, pallida vel pallide lutea; capillitio sparso, delicato, albescente vel pallide colorato; sporis irregularibus, angulosis, atris, 9-12 μ . long.

Hab. in foliis emortuis in montibus Adirondak Amer. bor.

17. **Didymium dædaleum** B. et Br. Ann. Nat. Hist. n. 3857. Cooke 1313
Handb. n. 1131 et Myx. p. 35. — Peridiis connatis, sinuosis, massas dædaloideas stipite concolores, pulvi alba adpersas, formantibus; stipitibus e rufo-brunneo aurantiacis, connatis; capillitio albo latitudine vario; sporis violaceo-atris, globosis, levibus.

Hab. in Cucumere quodam in Britannia.

18. **Didymium eximium** Peck 31 Rep. pag. 41. — Peridiis subglobo- 1314
sis, inferne vix umbilicatis, albescentibus vel subcinereis, granulis numerosis furfuraceis; stipite gracili, erecto, æquali, pallide vel subrufescente, basi nigricante; columella orbiculari, discoidea, pallide lutescente vel pallida; capillitio albido; sporis globosis, levibus, nigrescentibus, 9-10 μ . diam.

Hab. in foliis emortuis in montanis Adirondack Amer. bor.

19. **Didymium glaucum** Phillips in Grev. V, p. 114, t. 88, f. 6 a, e. — 1315
Applanato-sessile, contiguum, globoso-depressum vel elongatum, glauco-cinereum, squamosum; columella nulla; floccis albis; sporis minutis, asperulis, atro-nigris, 10 μ . diam.

Hab. in ramulis emortuis, S. Francisco Californiæ (HARKN).

20. **Didymium granuliferum** Phill. in Grev. V, p. 114, t. 88, f. 1, a, f. 1316
— Applanato, sessile, contiguum, subglobosum; peridio granulis sordide cinereis adperso; columella minuta, floccis copiosis, atris; sporis 22-25 μ . latis.

Hab. in caulibus herbaceis Blue Canon, Pacific Railway in America boreali (HARKN).

21. **Didymium pertusum** Berk. Engl. Fl. V, pag. 313, Cooke Handb. 1317
n. 1125, et Myx. pag. 35. — Sparsum; peridiis albis, farinosis, depresso-globosis, profunde vel anguste umbilicatis; stipite sursum attenuato, rufo; columella centrali alba; capillitio nigrescente; sporis atris.

Hab. in caulibus herbaceis in Britannia.

22. **Didymium Ravenelii** Berk. et Curtis in Grevillea 1873, n. 346. 1318
Peridio globoso, umbrino, squamis vel particulis minutis vestito; stipite subæquali, levi, brunneo, floccis sporisque nigris.

Hab. in Carolina superiori (RAVENEL).

23. **Didymium sinapinum** Cooke Brit. Myx. p. 33, fig. 235. — Peridiis clavatis vel cylindraceis, basi attenuatis, hypothallo membranaceo adnatis, subinde solitariis, sæpius in acervulos collectis, inferne atris, sursum pruinosis et sulphureo-luteis pulvere sinapina adpersis, columella non conspicua; capillitio mediocri, e ramulis, tenuibus formato, subinde nullo, squamis peridii granulis calcareis luteis præditis; sporis violaceis 7,5 levibus.

Hab. in foliis emortuis in Britannia.

Species incertæ.

24. **Didymium australe** Berk. Fl. new Zeal. p. 191. — Peridio subgloboso fragili, farinaceo, stipite brevissimo nigrescente, columella pallida, floccis crispis; sporis majoribus atris, 9 μ . diam.

Hab. in pag. inf. foliorum Lomariæ Colensoi in Nova Zelandia (COLENZO). — Affine *D. farinaceo*, floccis crassioribus, crispis, sporisque majoribus differt.

25. **Didymium bulbillosum** B. et Br. Fungi of Ceyl. n. 753. — Stipite conico, albo, levi, basi bulbilloso; peridio globoso, farinaceo; sporis floccisque nigris, conglomeratis.

Hab. in foliis emortuis Peradenya Ceylon.

26. **Didymium erythrinum** Berk. in Grev. 1874, n. 344. — Stipite æquali, cinnabarino; peridio globoso, stipite concolori; floccis albis; sporis atris.

Hab. in ligno pineo in Amer. bor.

27. **Didymium fulvipes** Fr. Stirp. Femsj. p. 83, Symb. Gast. p. 24. — Stipitibus complanatis sulcatis miniato-fulvis, peridiis globosis griseo-villosis; sporis fuliginosis.

Hab. in ligno Betulæ carie pæne consumato in Suecia. — Hypothallus, si præsens, et stipes omnino ejusdem indolis ac in *Trichia rubiformi*, maxime inæqualis, complanatus, subconfluens, longitudinaliter sulcato-rugosus, 2 mm. et ultra longus; peridia globosa v. parum depressa, obtusa, sæpe coalita, nigricantia, sed villo delicatissimo griseo vestita; columella nulla; flocci fusci.

28. **Didymium humile** Hanzlinszky Ein neue Myxog. typus in Just. bot. Jahresb. 1872, p. 155. — Peridiis applanatis, griseis, pruinosis, apice minute, subtus profunde umbilicatis; stipite cylindrico, brunneo, brevi; capillitio brunneo, ex tubulis levibus, simplicibus, tortuosis composito; sporis brunneis, 6-7 μ . diam.

Hab. in Hungaria.

29. **Didymium neglectum** B. et Br. Fungi of Ceylon n. 747. — Sti-

pite pallido, sursum attenuato, sulcato; peridio subgloboso, umbilicato, albo-farinaceo; columella concolori; floccis albis; sporis atris 8 μ . diam.

Hab. in corticibus, Peradenya Ceylon. — Affine *D. squamuloso*.

0. **Didymium platypus** (Bisch.) Hanzl. Ein neue Myxog. typus in 1326
Just Bot. Jahresbericht 1877, p. 155, *Agaricus platypus* Bischoff
sec. Hanzl. — Griseo-album, pruinosum; peridiis sparsis, supra
convexis, subtus profunde umbilicatis; stipite cylindrico, apice di-
sciformi dilatato; sporis globosis, 8 μ . diam., nigricantibus, levi-
bus; capillitio parco, ex tubulis reticulato-connexis, atris, formato;
columella nulla.

Hab. in caulibus putridis plantarum in Hungaria.

1. **Didymium pruinoseum** B. et C. Cub. Fungi n. 530. — Hypothallo 1327
obsoleto; stipite curto, deorsum nigro-costato; peridio hemisphæ-
rico, umbilicato, albo, particulis candidis pruinoso; capillitio candi-
do; sporis atris; columella nulla.

Hab. in culmis putrescentibus nonnullarum Monocotyledona-
rum in insula Cuba.

2. **Didymium radiatum** B. et C. Cub. Fungi n. 529. — Hypothallo 1328
orbiculari radiato-costato stipiteque sulcato, sursum attenuato, pal-
lide cinereis; peridio lentiformi nec umbilicato, pruinoso-nigro;
floccis fuligineis.

Hab. in foliis graminum in insula Cuba. — Sporæ non per-
fecte evolutæ.

3. **Didymium Sowerbyi** Berk. Engl. Fl. V, pag. 213, Sow. tab. 412, 1329
fig. 3, Cooke Handb. n. 1128. — Subfasciculatum; peridio globoso,
obscure griseo, umbilicato; stipite gracili, columella alba.

Hab. in bulbo putri, London Britannia. — Sec. cl. Cooke (Myx.
p. 35) est species vix cognita et potius omittenda.

4. **Didymium versipille** Fr. Syst. Myc. II, p. 117. — Peridio lenti- 1330
culari, basi umbilicato, primo albido-pruinoso, dein castaneo-nitido;
stipite conico, rugoso, fulvo-pallido; columella fusca; sporis fuli-
ginoso-atris.

Hab. rarissime ad stipulas etc. in Suecia. — Videtur inter spe-
cies maxime insignes; stipes 2 mm. longus, conicus, rugosus, fulvo-
pallens, venis exsiccatis, Mesentericæ insidens; peridium leviter tan-
tum depressum, sed umbilicatum, vere membranaceum, primo al-
bido-pruinosem, dein prorsus denudatum et nitens! et, quod valde
singulare, longitudinaliter rima fissum bivalve, quale in Fl. Dan.

t. 776, f. 4 sistitur; columella omnino ut in *Lepidod. tigrino* a Schradero pingitur, magna, globosa, fusca.

35. **Didymium Weinmanni** Fr. Syst. Myc. II, p. 121. — Peridio turbinato fragillime cinereo-farinaceo, stipite brevi, levi luteo; columella nulla; sporis nigricantibus.

Hab. supra caules vivos herbarum, in Rossia (WEINMANN). — Specie minuta, pulchella, valde gregaria et seriatim plerumque nascens; stipes persistens, æqualis, basi explanatus; peridium membranaceum, oblongum v. piriforme, farina cinerea conspersum, evacuatum capillitio evanido dimidiatum persistit, membranaceum, leve; columellam videre non contigit.

Species excludendæ.

Didymium trichodes Link Diss. 2, pag. 42, *Diderma trich.* Fr. Syst. Myc. II, p. 108. Est *Pezizæ* (Lachn.) *Lonicere* adscribendum.

Didymium parietinum Schr. N. Pl. gen. p. 24, t. 6, fig. 1. Idem est ac *Licea bicolor* Persoon, *Tubulina bicolor* Poir., *Lycogala parietinum* Fr. *Licea sulphurea* Wallr., *Licea pannorum* Wallr. et omnes species hæc ab *Anixia truncigena* non separandæ (Cfr. Sacc. Syll. I, p. 35).

LEPIDODERMA De Bary in Rost. Mon. p. 187, Cooke Myx. p. 43, Schroet. Krypt. Fl. Schles. p. 122 (Etym. *lep̄is* squama et *derma* pellis). — Peridia sessilia vel stipitata, subinde irregularia (plasmodiocarpa), tunica simplici squamis numerosis, latis, liberis vel in caveis lenticularibus membranæ inclusis, pro maxima parte calcem continentibus tecta.

1. **Lepidoderma tigrinum** (Schr.) Rost. Sluzowc. p. 187, f. 159, 160, Cooke Myx. p. 44, f. 159, 160, Schroet. Krypt. Fl. Schles. Pilze p. 123, *Didymium tigrinum* Schr. t. 6, f. 2-3, B. et Br. N. H. n. 383, Cooke Handb. n. 1121, *Physarum tigrinum* Pers. Syn. 174, Fl. Dan. t. 1434, f. 2, *Physarum squamulosum* Pers. Syn. 174, *Trichia tigrina* Poir. Ency. VIII, 53, *Trichia squamulosa* Poir. Ency. VIII, 53, *Cionium tigrinum* Link Handb. III, 410, *Didymium rufipes* Fr. Syst. Myc. III, p. 116, *Leangium squamulosum* Fr. Stirp. Femsj. p. 13, *Diderma citrinum* Berk. Eng. Fl. p. 310, *Didymium leoninum* B. et Br. Ceyl. Fungi II, 750. — Peridiis stipitatis hemisphæricis subtus valde umbilicatis, atris, squamulis vitreo-stramineis variegatis, majusculis; stipite rigido, crassiusculo, aut longiusculo et æquali, aut brevi inferneque leviter incrassato; columella hemisphærica vel fere globosa, fusca; floccis capillitii simplicibus, æqualibus (absque protuberantiis), fusco- v. violaceo-atris;

sporis sphaeroideis, violaceo- v. fusco-atris, valde spinulosis, 10-12 μ . diam.

Hab. ad truncos Abietum prostratos, in Suecia Britannia, Germania Fennia et in insula Ceylon.

2. **Lepidoderma Carestianum** (Rab.) Rost. Mon. p. 188, *Reticularia* 1333
Carestiana Rabenh. in ms. et Fung. Eur. exsicc. n. 436. — Acervulis effusis; peridio membranaceo, fragili, cinereo, furfura alba tecto; floccis brunneo-cinereis, pallidis vertice rotundatis vel truncatis, peridio adnatis; sporis sphaeroideis, umbrinis, episporio valde aculeato, 14-15 μ . diam.

Hab. in ramis emortuis in Valsesia Ital. bor. (CARESTIA) et in Belgio (LAMBOTTE). — Plasmodia placentosa, elongata, valde applanata, squamulis multis fere se invicem tangentibus, magnis, lenticularibus, ravis contexta. Capillitium sine colore cum floccis delicatis in reticulum junctis.

3. **Lepidoderma Chailletii** Rost. Mon. p. 189. — Peridiis hemisphaericis, lata basi substrato aut hypothallo adnatis, nigro-violaceis, multis margaritaceo-fuscis protuberantiis tectis; columella valde parva, subfusca; capillitii floccis subviolaceis, densum reticulum formantibus; sporis subviolaceis, aculeosis, 10-12 μ . diam.

Hab. in Gallia (CHAILLET) et prope Hanenstein (OPIZ).

Fam. 4. Spumariaceæ Rost.

Peridia cylindracea, obtusa, discreta vel fruticulose juncta, æthaliaque sistencia, columella centrali instructa. Flocci violacei seu fusci, calce destituti, latera peridii radiatim potentes, reticulatim conjuncti.

DIACHÆA Fries Syst. Orb. Veg. I, p. 143 (Etym. *diacheo* diffundo Rost. Mon. p. 190, Cooke Myx. p. 44, Schroet. Krypt. Fl. Schles. p. 120). — Peridium stipitatum; stipes intra peridium in columellam productus et cum ea granulis minutis calcareis repletus. Capillitium e floccis columellæ et parietibus peridii affixis dense reticulatim contextis, sursum delicatis formatum.

1. **Diachæa leucopoda** (Bull.) Rost. Mon. p. 191, f. 158, 172, 175, Cooke 1335
 Myx. p. 44, Schroet. Krypt. Fl. Schles. Pilze p. 120, *Trichia leucopoda* Bull. t. 502, f. 2, *Stemonitis elegans* Trent. in Roth. Cat. 220, *Stemonitis leucostyla* Pers. Syn. 186, *Stemonitis leucopoda* DC. Fl. Fr. II, 257, *Diachæa elegans* Fr. Stirp. Femsj, p. 84, Fr. Syst. Myc. III, p. 156, Berk. Ann. N. H. n. 112, Cooke Handb. n. 1154, fig. 131. — Peridiis cylindricis, obtusis, stipitatis; stipite brevi,

basi incrassato, albo-niveo, intra peridium in columellam cylindricam, obtusam verticem peridii non attingentem niveo-albam productum; floccis albidis, tenuibus; sporis opacis, violaceis, iridescentibus, 6-8 μ . diam.

Hab. in foliis emortuis etc. in tota fere Europa et in Amer. bor. et Austr. — Species perpulchra! Mycelium repens, vermiculare, reticulato-ramulosum, late effusum, primo mucedineum dein granulis calcareis, subsphæricis, hyalinis compositum, hinc inde per anastomoses stipites emittens; peridia cylindræa, utrinque rotundata, cortice atro, luce refracta iridescente, facile rupto ac frustulatin secedente tecta; columella ut stipes et mycelium alba calcarea, apicem fere peridii attingens; sporæ globosæ leves, roseo-fuliginæe subinde 10 μ . attingentes.

2. **Diachæa splendens** Peck in 30 Rep. pag. 50, tab. II, fig. 1-4. — Peridiis cæruleo-chalybeis vel violaceis, delicatis, globosis, subpersistentibus, irregulariter ruptis; floccis delicatis, coloratis; stipite albo, vix penetrante; sporis coacervatis atris, globosis, rugulosis, 7-10 μ . diam.

Hab. in foliis et ramulis emortuis, North Greenbush in Amer. boreali. — Peridiis globosis et sporis verrucosis mox dignoscenda. A *D. leucopoda* cui affinis peridio globoso distincta.

3. **Diachæa subsessilis** Peck 31 Rep. p. 126. — Peridiis gregariis subglobosis, vel sessilibus vel stipite albo brevissimo præditis; tunicis delicatis, iridescentibus; columella obsoleta; capillitio et sporis violaceo-brunneis; sporis globosis, rugosis, 10-12 μ . diam.

Hab. in foliis emortuis in montibus Adirondack Amer. bor.

SPUMARIA Pers. Syn. Fung. pag. 162, Rost. Mon. pag. 191, Cooke Myx. pag. 45, Schroet. Krypt. Fl. Schles. pag. 120 (Etym. a *spuma*). — *Æthalia* ramosa, dense stipata, numerosa, cortice communi, cretaceo cincta. Peridia crystallis calcareis, minutis tecta, columella centrali, inani. Capillitium columellæ et parietibus peridii adfixum, reticulatum.

1. **Spumaria alba** (Bull.) DC. Fl. Fr. II, p. 261, Fr. S. M. III, p. 25, Cooke Handb. n. 1103, Rost. Mon. p. 191, fig. 158, 172, 175, Pat. Tab. Am. Fung. pag. 80, fig. 186, Cooke Myx. pag. 45, fig. 158, 172, 175, Schroet. Krypt. Fl. Schles. Pilze pag. 120, *Mucilago* 2, Mich. tab. 96, fig. 2, *Mucorri* Gled. Meth. pag. 160, *Mucilago crustacea alba* Batt. tab. 40, f. 9 H. I., *Mucilago* Hall. n. 2129, *Byssus bombycina* Retz. V. Handl. 251, *Mucilago filamentosa*

Bonamy. t. 3, *Reticularia alba* Bull. t. 326, *Spumaria mucilago* Pers. Disp. t. I, f. a b c, *Reticularia ovata* var. With. Arr. IV, 1978, *Spumaria cornuta* Schum, Saell. 1415, Fl. Dan. t. 1978, f. 1, *Spumaria alba* DC. Fl. Fr. II, 261, Fr. S. M. III, 25, Eng. Fl. V, 310, Cooke Hdbk. n. 1108, *Spumaria alba*, α . *laminosa*, β . *cornuta* Fr. S. M. III, 95, *Didymium spumarioides* Fr, S. M. III, 121, *Diderma spumariceforme* Wallr. Fl. Germ. 2208. — *Æthaliis* albescenti-griseis, 2-6 cm. longis, 2-3 cm. latis, spongiosis; columella inani, cylindracea, ramosa, apicem peridii non attingente; floccis capillitii crassiusculis, reticulatim junctis, in nodulis valde incrassatis; sporis spinulosis vel cæsio-atris, 10 μ . diam.

Hab. in terra graminosa ad stipites culmos, caules, ramulos nec non muscos in Germania, Gallia Fennia, Britannia, Italia, Hungaria, Belgio et Amer. bor.

Species incerta.

2. *Spumaria Micheneri* Berk. in Grev. 1873, n. 341. — Effusa, reticulata, gilva; sporis globosis, magnis, levibus, 10-13 μ . diam. 1339

Hab. in ligno putri, Pennsylvania.

Ordo III. **Amaurocheteæ** Rost.

Peridia discreta aut coalita (æthalia), calce destituta. Sporæ fusco- sive violaceo-atræ, raro subcinnamomeæ. Capillitium et columella colore sporarum.

Fam. I. **Echinosteliaceæ** Rost.

Peridia stipitata, columella carentia. Capillitium apice peridii oriens, in rete densum connexum.

ECHINOSTELIUM De Bary in Rost. Mon. p. 215, Cooke Myx. p. 53 (Etym. *echinos* echinus et *steleon* manubrium, stipes). — Flocci capillitii arcuati, apice peridiis orientes, ramis numerosis lateralibus, acute terminatis, liberis præditi.

1. *Echinostelium minutum* De Bary in Rost. Mon. p. 215, f. 98. — 1340
Peridiis globosis, nudis, albidis, discretis stipitatis, floccis arcuatis, apice peridii orientibus ramis nonnullis apice acutis, liberis præditi; sporis coloratis, 7-8 μ . diam.

Hab. in Frankfurt am Mein Germaniæ.

Fam. 2. **Stemonitaceæ** Rost.

Peridia discreta, membrana simplici tenerrima, fugacissima, stipite setaceo in columellam porrecto. Capillitium e floccis numerosis, anastomosantibus reticulatum, columellæ innatum.

LAMPRODERMA Rost. Vers. Syst. Mycet. p. 7, Mon. p. 202, Cooke Myx. p. 49, Schroet. Krypt. Fl. Schles. Pilze p. 118 (Etym. *lampros* lucidus et *derma* pellis). — *Peridia* stipitata, globosa vel ellipsoidea columella aut cylindracea aut apice inflata vel clavata, vix peridium dimidium longitudine attingente, membrana metallica, nitida, hinc inde incrassata, basi cupulari persistente. Floccis capillitii e columella fasciculatim assurgentes, vulgo regulariter furcati vel in reticulum intricatum connexi.

1. **Lamproderma Hookeri** (Berk.) Rost. Mon. App. p. 24, *Diderma Hookeri* Berk. Fl. new Zeal. p. 191, tab. CV, fig. 12. — Rufum; stipite brevi, crasso, sursum angustiore; peridio globoso sursum evanescente, deorsum subcircumscisso, interiore tenerrimò hyalino. exteriore membranaceo; capillitio subhyalino; sporis violaceis, globosis vel polyædris, delicate aculeatis 14–15 μ . diam.

Hab. in fronde *Hymenophylli* in silvis borealibus Novæ Zelandiæ (COLENZO). — *Physaro* accedit, sed columella distinctissima adest. *Peridia* sphaerica, cupreo-metallica, stipitata; stipite compacti, versus verticem leviter angustiores et furvi, in basi clariores, longitudinis peridii; capillitium videtur albidum, sed sub microscopio violaceo-albidius, cum tubulis in basi largioribus, postea angustioribus, æque angustis, parum diffluentibus, in solum reticulum junctis.

2. **Lamproderma physaroides** (Alb. et Schw.) Rost. Sluzowc. p. 202, fig. 55, 59, 62, Pat. Tab. An. Fung. pag. 81, fig. 188, Cooke Myx. pag. 49, fig. 55, 59, 62, Schroet. Krypt. Fl. Schles. Pilze pag. 118, *Stemonitis physarioides* A. et S. Consp. tab. 11, fig. 8 (1805); B. et Br. Ann. N. Hist. n. 386, Cooke Handbk. n. 1161. — *Peridiis* stipitatis, sphaeroideis, argenteo-micantibus; stipite subulato, basi in hypothallum tenuem, circularem expanso, peridium intrante inque columellam inflatam, clavatam, longitudinem ejusdem dimidiam haud attingentem porrecto, atro opaco; floccis capillitii e columella enatis, ramis transversalibus reticulatim junctis, violaceo-subfuscis; sporis spinulosis, violaceo-fuscis, 12–14 μ . diam.

Hab. in truncis et muscis in Britannia, Germania, Belgio, Italia, Gallia, Amer. bor.

3. **Lamproderma Schimper** Rost. Mon. p. 203. — Peridiis sphaericis, 1343
pariete e viridi nigricante, aut subrubro-metallico præditis; stipite nigro, nitido, rigido, subulato, intus peridii in columellam obovatam vix mediam peridii altitudinem attingentem porrecto; capillitio cum floccis furvis, ex columella exeuntibus, initio simplicibus ulterius semper magis diffluentibus, et ramis transversis se jugentibus in reticulum valde compactum versus superficiem peridii; sporis sordide-violaceis, exacte aculeosis, 10-11 μ . diam.

Hab. in Alsatia (SCHIMPER).

4. **Lamproderma echinulatum** (Berk.) Rost. Mon. App. p. 25, *Stemonitis echinulata* Berk. Fl. Tasm. p. 268. — Peridio globoso columbino-chalybeo; stipite valido aterrimo sursum attenuato, semipenetrante; capillitio pallido globoso; sporis magnis, crasse rigideque echinulatis, 16-20 μ . 1344

Hab. inter muscos Tasmaniæ (ARCHER). — Sphaericum, cœruleo metallicum; stipites nigri, rigidi, cylindrici rarius subulati versus verticem; columella magna, rigida, cylindrica, in vertice globosa, $\frac{2}{3}$ altitudinis peridii attingens; flocci capillitii lati furvi, in densum reticulum junctis, in nodis conspicue triangulariter dilatate.

5. **Lamproderma columbinum** (Pers.) Rost. Sluzowc. p. 203, fig. 61, 1345
Schroet. Krypt. Fl. Schles. Pilze pag. 119, *Mucor violaceus* Leers Fl. Herb. n. 1128, *Trichia violacea* Hoffm. Veg. Crypt. pag. 5, tab. II, fig. 1, *Physarum columbinum* Persoon Syst. pag. 173, *Trichia columbina* Poir. En. n. 17, *Physarum salicinum* Schum. Fl. Saell. n. 1141, *Physarum bryophilum* Fries Syst. Myc. III, p. 135, *Physarum bryophilum* β . *melanocephalum* Corda Ic. I, pag. 22, tab. IV, fig. 287. — Peridiis stipitatis, sphaeroideis vel obovoideis, metallicis, nitidis, cœruleo-vel violaceo-vel viridi-aeneis, minutis; stipite sursum attenuato vel subæquali, ruguloso, atro vel purpureo, nitidulo, 1 mm. long. vel ultra, intra peridium in columellam cylindraceam apiceque conoideo-attenuatam, medium attingentem vel longiorem porrecto; floccis capillitii e columella enatis, subfuscis; sporis sphaeroideis v. subellipsoideis, spinulosis, atro-fuscis, 12-15 μ . diam.

Hab. in ligno putri rarissime in Muscis et Jungernaniis in Suecia, Fennia, Lapponia, Hungaria, Germania, Bohemia, Belgio et in America boreali.

6. **Lamproderma iridescens** (Berk.) Rost. Mon. App. p. 25, *Physarum* 1346

iridescens Berk. Hook. Journ. 1851, p. 20. — Confertum, sessile vel spurie stipitatum; peridiis globosis, columbino-chalybeis, tennerrimis; floccis albis; sporis subviolaceis, fere levibus, episporio rigido, 13-14 μ . diam.

Hab. in Jungermanniis, Labassère Galliæ merid. — Peridia spherica, cœruleo-metallica, fere sessilia, aut elata, tenuissimis, crassis stipitibus fulta; columella magna, globoso-conica cum larga basi, $1\frac{1}{2}$ altitudinis peridii attingens; capillitii tubuli crassi, æque angusti, non colorati, in valde solutum reticulum juncti.

7. **Lamproderma Fuckelianum** Rost. Mon. p. 207. — Peridiis exacte sphaericis, fere sessilibus, subrubro-metallicis, subtus leviter umbilicatis; stipite ob brevitatem fere inconspicuo, intra peridium in columellam porrecto; columella mediam peridii altitudinem non attingente, conica; floccis capillitii laxè diffluentibus, ramis transversis in reticulum solutum conjunctis; sporis pallide violaceis, 8-9 μ . diam. superficie costulis in reticulum conjunctis notatis.

Hab. in Rhenovia (FUCKEL).

8. **Lamproderma Sauteri** Rost. Mon. pag. 205. — *L. violaceo* simile, sed in partibus omnibus rigidius; peridiis sphaericis subtus leviter applanatis, 1 mm. latis, varie metallice micantibus; stipitibus nigris, nitidis, subulatis ex communi valde evoluto, rigido hyphothallo exeuntibus, intra peridium in columellam exacte cylindricam vertice truncatam porrectis; floccis capillitii statim ab initio multifariam diffluentibus densissimum, compactum reticulum formantibus; capillitio, emissis sporis, badio-albido; sporis subviolaceis, valde aculeosis, 12-15 μ . diam.

Hab. prope Salzburg Tyroliae (SAUTER). — Totus fungus 2 mm. altus.

9. **Lamproderma violaceum** (Fr.) Rost. Sluzowc. pag. 204, fig. 64, Cooke Myx. p. 50, fig. 64, *Stemonitis violacea* Fr. Syst. Myc. III, pag. 162, B. et Br. Ann. N. Hist. n. 387, Cooke Hdbk. n. 1162. — Peridiis stipitatis, lenticularibus, subtus umbilicatis, fere 0.5-0.8 mm. altis, chalybeis vel violaceo-cæruleis, metallicis, nitidis; stipite hyphothallo fusciscenti insidente, subulato, nitido, atro, in columellam cylindræam, apice truncatam, dimidium peridii æquantem prolongato; floccis capillitii mox varie furcatis, reticulum densum (sporis dispersis) albidum formantibus; sporis sphaeroideis, spinulosis, fuscis vel fuscidulis, 10 μ . diam.

Hab. supra corticem Betulæ et in caulibus herbarum in Bri-

tannia, Suecia, Fennia et Amer. bor. — Stipes peridium longitudine vulgo æquans.

10. **Lamproderma leucosporum** Rost. Mon. App. p. 26, *Lamproderma* 1350
nigrescens Rost. Mon. p. 205, Schroet. Krypt. Fl. Schles. Pilze pag. 119. — Peridiis sphaericis, circ. $\frac{1}{2}$ mm. diam., varie metallicis; stipitibus nigris, nitidis, subulatis, tenuibus, intra peridium, in columellas exacte cylindricas in vertice truncatas porrectis; floccis capillitii statim ab initio multifariam diffluentibus densissimum, compactum reticulum formantibus; capillitio, sporis emissis, subnigro; sporis pallide violaceis, 8-9 μ . diam. levibus.

Hab. in Rhenogovia (FUCKEL), pr. Rastadt Silesiæ (SCHROETER).

11. **Lamproderma minutum** Rost. Mon. App. p. 26. — Peridiis sphae- 1351
 ricis, $\frac{3}{5}$ mm. diam., leviter metallicis; stipitibus nigris, tenuibus, æque angustis; columella cylindrica, tenui truncata; floccis capillitii non coloratis, raro fasciculatim diffluentibus; fasciculis raro, inter se compactis; sporis violaceis, delicate verruculosis, 6,6 μ . diam.

Hab. prope Paris Galliæ (ROZE).

12. **Lamproderma arcyrionema** Rost. Mon. p. 208. — Peridiis omni- 1352
 no-sphaericis, valde parvis, argenteo-metallicis, stipitatis; stipite recto, subulato, nigro, nitido, communiter in hypothallum delictum e purpureo-nigricantem dilatato, et intra peridium in tenuissimam, cylindricam, truncatam columellam transeunte; capillitio, initio fasciculato, cum floccis rigidis, semper æqualiter crassis, statim e basi arcuate curvatis, diversimode ad invicem implicatis. densum compactum reticulum formantibus; ultimis ramis connatis numquam libere excurrentibus; sporis pallide violaceis, levibus, 6-7 μ . diam.

Hab. in Polonia (ALEXANDROWICZ, NOWAKOWSKI).

13. **Lamproderma arcyrioides** (Somm.) Rost. Sluzowc. pag. 206, 1353
 Schroet. Krypt. Fl. Schles. Pilze p. 119, Cooke Myx. p. 50, *Stemonitis arcyrioides* Somm. Tidsk., Berk. Ann. N. Hist. n. 114, Cooke Hdbk. n. 1163, *Stemonitis chalybea* Pers. in litt., *Stemonitis Carestiae* Ces. et Not., Erb. Cr. Ital. 888, *Stemonitis Morthieri* Fuckl. Exs. n. 1447. — Peridiis stipitatis, sphaeroideis vel ellipsoideis, violaceis vel chalybeis, metallicis, nitentibus; stipite hypothallo insidente, brevissimo vel 1 mm. alto, fusco-atro, nitente, peridium intrante ibique in columellam subcylindræam, apice truncatam transformato; floccis capillitii columella enatis, mox furcatis, arcuatis, flexuosis, albido-fuscis, in rete densum, intrica-

tum connexis; sporis plus minusve spinulosis, violaceo-atris, 12-16 μ . diam.

Hab. in foliis emortuis et in lignis in Germania, Britannia, Fennia, Gallia et Amer. bor. — Huc ducenda est *Stemonitis arcyrioides* Cooke Fungi Brit., ser. I, n. 523. — Var. **irideum** Cooke Myx. Gr. Brit. p. 50. Peridiis, globosis, cæruleis, iridescentibus v. cupreis, stipitatis; stipite diametro peridii duplo longiore, erecto, brunneo, basi in hypothallum expanso, peridium fere medium penetrante, apice truncato; capillitio e floccis gracilibus, radiatis, furcatis, apice liberis, violaceo-brunneis formato; sporis violaceo-brunneis vix levibus, 11-12 μ . diam. In foliis emortuis etc. in Britannia.

14. **Lamproderma nigrescens** Sacc. in Mich. II, p. 262 non Rost. — Late gregarium, totum nigricans; peridiis perfecte sphæricis, non umbilicatis, $\frac{1}{4}$ mm. d., initio lutescentibus dein opace nigris, levibus persistentibus, erectis; stipitibus filiformibus, $\frac{1}{2}$ mm. altis, 40 μ . crassis, atris, hypothallis (ubi manifestis) discretis, minutis, rufescentibus; columella tereti, ad medium peridium evanescente, apice obtusiuscula, floccis ab hoc apice radiatim exeuntibus, dichotome ramosis, filiformibus, fuligineis; sporis globulosis, 9-10 μ . diam. pallide violaceo-fuligineis, minutissime echinulatis.

Hab. in foliis dejectis Buxi, Robiniæ, Pinorum, frustulis ligneis coacervatis etc. Selva Ital. bor. — A *Lampr. physaroide* statura sporisque minoribus, a *Lampr. violaceo* peridio sphærico, atro etc. diversum.

COMATRICA Preuss Hoyer. in Linnæa Bd. 24, ser. 141, Rost. Mon. pag. 197, Cooke Myx. pag. 47, Schroet. Krypt. Fl. Schles. Pilze p. 117 (Etym. a *coma* et *trix*). — Peridia stipitata, cylindracea vel globosa, membrana vulgo fugacissima. Columella sursum attenuata, longitudine dimidium peridium superans. Capillitium e columella enascens. Flocci numerosi, furcati, reticulatim connexi, reticulum tamen nullum superficiale cum pariete peridii parallelum formantes.

1. **Comatricha typhina** (Roth.) Rost. Sluzowc. pag. 198, fig. 46, 47, Cooke Myx. p. 47, f. 46, 67, Schroet. Krypt. Fl. Schles. Pilze p. 118, *Clathroidastrum obscurum* Mich. tab. 94, f. 2, *Mucor capitulo fusco* Scop. Fl. Carn. p. 66, *Mucor stemonitis* Scop. Fl. Carn. p. 493, Schff. t. 296, *Embolus lacteus* Jacq. Musc. I. t. 6, *Clathrus nudus* Fl. Dan. t. 758, *Clathrus pertusus* Batsch. f. 176, *Stemo-*

nitilis typhina Roth. Fl. Germ. I, p. 547, Pers. Obs. I, p. 57, *Stemonitis filicina* Schrk. Fl. Bav., 1782, *Trichia typhoides* Bull. t. 477, f. 2, *Stemonitis typhoides* DC., Fl. Fr. II, p. 257, Cooke Hdbk. n. 1157. *Stemonitis bicolor* Fries. herb., *Stemonitis leucopoda* Fr. Gast. p. 16, *Stemonitis pumila* Corda Ic. V, p. 37. — Peridiis gregariis, stipitatis, cylindraceis, obtusis, subinde ad medium constrictis et subincurvis, tenuissimis; stipite peridio breviori; columella apicem peridii fere attingente; floccis capillitii numerosis, flexuosis, obscure fuscis, ramis numerosis, reticulatim junctis; sporis levibus, fuscis, 4-5,5 μ . diam.

Hab. in ligno putrido in Fennia, Lapponia, Suecia, Germania, Gallia, Italia, Hungaria, Java, Nova Zelandia, Carolina inf. Amer. et Algeria. — Peridia dilute fusca, stipes niger, nitens. Fungillus totus 2,5-4 mm. altus. Variat minor (β . **pumila** Rost.) 2 mm. altit. sporis 5,5-6,5 μ . diam.

2. **Comatricha Friesiana** (De B.) Rost. Sluzowc. p. 199, f. 51, 56, Pat. 1356 Tab. An. Fung. p. 80, f. 187, Cooke Myx. p. 48, f. 51, 56, *Mucor embolus* Linn. Sp. 1185, *Lycogala* Hall 2146? *Stemonitis reticulata* Trent. p. 223? *Stemonitis nigra* Pers. Gmel. Sys. 1467, *Stemonitis atro-fusca* Pers. Disp. p. 11, *Stemonitis atro-fusca*, β . *nigra* Pers. Disp. p. 54, *Stemonitis ovata* Pers. Syn. p. 189, Berk. Eng. Fl. V, p. 317, Cooke Hdbk. n. 1158, *Trichia mucoriformis* Schum. Saell. 1469, *Stemonitis violacea* Schum. Saell. 1491, *Stemonitis nigra* Schum. Saell. 1493, *Stemonitis globosa* Schum. Saell. 1494, *Trichia alba* Sow. t. 259, *Stemonitis obtusata* Fr. Sym. Gast. p. 17, Eng. Fl. V, p. 317, Cooke Hdbk. n. 1159, *Comatricha obtusata* Preuss. Sturm., *Stemonitis Friesiana* De Bary, Rabh. Fung. Eur. n. 568, *Com. nigra* Schroet. Krypt. Fl. Schles. Pilze pag. 118. — Peridiis dispersis, sphæroideis vel ovoideis vel ellipsoideis, erectis, 0,5-1,5 mm. altis; stipite subulato, atro, nitente; columella ad dimidium vel paullo ultra penetrante; floccis capillitii flexuosis, æqualibus, reticulatim junctis, ramis nullibi apicibus liberis; sporis sphæroideis, episporio crasso, levi, violaceofuscis, 8-10 μ . diam.

Hab. in ligno putrido in Germania, Britannia, Belgio, Italia, Suecia, Carolina infer. Amer. bor. — Var. α . **obovata**: peridiis subsphæroideis, 0,5-0,7 mm. altis. Cum typo. — Var. β . **oblonga**: peridiis ellipsoideis vel ovoideis 0,7-1,5 mm. altis. Cum typo.

3. **Comatricha pulchella** (Bab.) Rost. Mon. Suppl. p. 27, Cooke Myx. 1357 p. 49, *Stemonitis pulchella* Bab. Abst. Linn. Soc. Trans., 1839, Berk.

in Ann. et Mag. N. H., p. 431, t. 12, f. 11, Cooke Hdbk. n. 1160, *Stemonitis tenerrima* B. et C. in Grev. 1873, n. 373, *Comatricha Persoonii* Rost. Mon. p. 201 p. p. — Peridiis elongato-ovoideis vel cylindræis, apice obtusis, sursum leniter umbilicatis $\frac{1}{2}$ -1 mm. longis; stipite subulato, atro, $\frac{1}{6}$ - $\frac{1}{2}$ mm. alto, in capillitium tamquam columella penetrante, apicem fere attingente; capillitio floccis arcuatis, flexuosis, in rete densum contextis, extrorsum vix attenuatis.

Hab. in ligno emortuo, in caulibus herbaceis, in filicibus etc. in Suecia, Germania, Britannia, Italia et Carolina Amer. bor.

4. **Comatricha laxa** Rost. Mon. p. 201. — Peridiis sphaericis, vix $\frac{1}{2}$ mm. diam.; stipite rigido, nigro, 1 mm. long. non attingente; columella fere usque ad verticem ascendente, ibique in duas tresve fibras divisa; capillitio e floccis in tota longitudine æqualiter crassis, valde rigidis, reticulum laxè dispersum formantibus constante; ultimis ramis arcuate floccis transversis junctis, nonnullis tum libere excurrentibus et his furcatim divisis; sporis levibus, subviolaceis, 9-10 μ . diam.

Hab. ad Freiburg Germaniæ.

5. **Comatricha affinis** Rost. Mon. p. 102. — Peridiis cylindricis, obtusis, ad 2 mm. altis; stipite ob brevitatem vix distincto; columella fere ad verticem ascendente, ibi in duas quinque fibras scissa; capillitii floccis prope basim multo rigidioribus quam ulterius reticulum valde laxè dispersum formantibus, in punctis divisionum sæpe triangulariter protuberantibus; ultimis ramis floccis arenatis transversis conjunctis, nonnullis tum libere excurrentibus; sporis pallide violaceis verrulosis, 5-6 μ . diam.

Hab. ad Freiburg Germaniæ (DE BARY).

6. **Comatricha æqualis** Peck 31 Rep. p. 42. — Gregaria vel laxè cæspitosa circiter 7 mm. alta, ex hypothallo oriente; peridiis cylindræis, obtusis, fugacibus evanidis; capillitio brunneo vel brunneo-nigrescente, rete intricatum formante; stipite gracili, levi, atro, in capillitium tamquam columella penetrante et vix apicem attingente, parte libera circiter dimidium totius plantulæ æquante; sporis globosis, levibus, atro-violaceis, 8-9 μ . diam.

Hab. in ligno putri, Catskill Amer. bor.

7. **Comatricha macrosperma** Racib. Myx. Crac. p. 8. — Peridiis nudis, stipitatis; stipite in peridiis in columellam elongata; columella apicem versus attenuata, denique in peridii parte superiori evanescente; floccis capillitii e columella quoqueversus ad parietem abeuntibus, ramulis magis magisque tenuibus diffidentibus, ramis

inter se in omnes partes coniungentibus et rete non densum efformantibus; particulis retis superficialis e maculis paucis majoribus minoribusque compositis, e ramulis extremis arcuatim inter se conjunctis præsertim in peridii parte inferiore efformatis; sporis 9,9-12 μ . latis, dilute violaceis, verruculosis.

Hab. in agro Cracoviensi Poloniæ. — Var. **obovata** Rac. l. c.: peridiis obovatis, 0,5-0,75 mm. latis. Cum typo. — Var. **oblonga** Rac. l. c.: peridiis oblongis 0,75-1 mm. longis, 0,3-0,5 mm. latis. Cum typo.

STEMONITIS Gled. Meth. p. 140, Rost. Mon. p. 193 (Etym. *stemon* stamen). — Peridia gregaria, breviter stipitata, cylindracea. Stipites setacei, breves, fistulosi, in columellam longam porrecti. Capillitium a columella radians, laxè reticulatum, ramis floccorum ultimis reticulum superficiale cum pariete peridii parallelum efficientibus.

1. **Stemonitis fusca** Roth. in Mag. f. Botan. p. 26 et Flor. Germ. I, 1362 p. 548, Ehr. Ber. f. 5, Grev. S. C. Fl. t. 170, Corda Ic. II. f. 87, Eng. Fl. V, 317, Cooke Hdbk. 1155, fig. 132, Fung. Britt. II. 522, Rost. Mon. p. 193, f. 40, Cooke Myx. p. 46, f. 40, Schroet. Krypt. Fl. Schles. Pilze p. 107, *Lycoperdon capite cylindracea* Rupp. Jenn. 304, *Clathroidastrum obscurum* Mich. t. 94, f. 1, *Embolus nigerrimus* Hall. t. 1, f. 1, *Clathrus nudus* Linn. Fl. Suec. 1263, *Stemonitis* I. Gled Meth. 141, *Embolus* Hall 2137, t. 48, f. 1, *Tubulifera cremor* Fl. Dan. t. 659, fig. 1, *Tremella typhina* Willd. Fl. Ber. 420, *Mucor araneosus* Jacq. Misc. t. 15, *Trichia nuda* With. Arr. IV, 477, *Stemonitis fusciculata* Pers. Syn. 187, *Stemonitis typhoides* Auct. — Peridiis cæspitosis vel gregariis, stipitatis, hypothallo fusco-atro insidentibus, cylindraceis, obtusis, fuscis, fugacissimis; columella apicem peridii fere attingente; stipite setaceo, filiformi, nigro, nitente, longo; masculis superficialibus capillitii minutis, sporâ minoribus vel paullo latioribus; sporis levibus, 6-9 μ . diam., intense vel subatro-fuscis sub. microsc. dilute fusciscentibus.

Hab. ad truncos putridos in tota Europa et America, in insula Ceylon, Tasmania, Nova Zelandia.

2. **Stemonitis dictyospora** Rost. Mon. p. 195. — Peridiis cylindricis, 1363 obtusis, hypothallo bene evoluto insidentibus; columella verticem peridii attingente; hypothallo, stipitibus, columella, capillitio et innumeris sporis, violaceo-nigris; superficiali reticulo capillitii,

masculis valde parvis, sporâ minoribus aut vix majoribus formato; sporis pallide-violaceis superficie protuberantus fimbriculosus, in formam reticuli conjunctis notatis.

3. **Stemonitis splendens** Rost. Sluzowc. p. 195, Karst. Myc. Fenn. IV, p. 122. — Peridiis cæspitosis, stipitatis, hypothallo fusco-atro insidentibus, cylindræis, obtusis fuscis, fugacissimis; columella apicem peridii fere attingente; stipite filiformi, nigro, nitido, longo; masculis capillitii superficialibus sporâ triplo quadruplove majoribus; sporis levibus, 4-8 μ . diam., intense vel subatro-fuscis.

Hab. supra ligna pinea in Fennia.

4. **Stemonitis ferruginea** Ehrh. Sylv. Berol. p. 20, f. VI, A. B. Rost. Mon. 196, fig. 31-39, 41-44, 50, Cooke Handb. n. 1156, Myx. p. 40 f. 31, 39, 41, 44, 50, Schroet. Krypt. Fl. Schles. Pilze p. 117, *Stemonitis typhina* Willd. Ber. 408, *Clathrus nudus* Bolt. t. 93, f. 1, *Trichia axifera* Bull. t. 447, f. 1, *Stemonitis fasciculata* Pers. Syn. 187, *Stemonitis violacea* Schum. Saell. 1491, *Stemonitis fasciculata* DC. Fl. Fr. II. 256, *Stemonitis decipiens* Nees. Nov. Act. Leop. XVI, 95, *Stemonitis heterospora* Oudem. Ned. Kr. Arch. I, 167. — Peridiis gregariis vel cæspitosis, hypothallo fusco-atro insidentibus, cylindræis, obtusis; columella apicem peridii attingente; stipite setaceo, filiformi, nigro, nitido, longo; superficie capillitii *St. fuscae*; sporis ferrugineo-cinnamomeis, s. micr. dilutissime fuscidulis, 5-7 μ . diam.

Hab. in ligno putrescente in tota fere Europa et America.

5. **Stemonitis fluminensis** Speg. Fungi Arg. Pug. n. 261. — Hypothallo tenuissimo, late effuso, mucedineo, atro subnitente, hinc inde densiuscule in stipites porrecto; stipite erecto, rigidulo, atro-nitente 0,5-1 mm. long., 0,7-0,6 mm. crass., udo levi, sicco ruguloso, subcontorto, apice in peridium intrante atque in columellam apicem peridii non attingentem producto; peridiis diu persistentibus, compactiusculis, atris, teretibus rarius subclavulatis, utrinque rotundatis 0,8-1,2 mm. long., 0,2-0,3 mm. crass., atris, opacis; capillitio columella enato, densiusculo, reticulato, masculis superficialibus semel v. bis diametrum sporarum æquantibus, apice uncinato-incurvis donato; sporis globosis v. subellipticis 5-8 μ . diam. levissimis, granuloso-farctis, fusco-fuligineis.

Hab. ad cortices putrescentes vetustos nec non ad muscos proximis prope Apiahy in Brasilia meridionali, (Cl. Dr. PUIGGARI).

6. **Stemonitis herbatica** Peck 26 Rep. p. 75. — Dense fasciculata 5-7,5 mm. alta; capillitio tenui, cylindræo, udo brunneo, sicci-

tate ferrugineo-brunneo; stipite nigro, ex hypothallo membranaceo oriente et apicem capillitii attingente; sporis globosis 8-9 μ . diam.

Hab. in foliis vivis, in culmis et in herbis, Albany Amer. bor.

— Colore *S. ferrugineæ* proxima sed sporis latioribus distincta.

7. **Stemonitis Morgani** Peck 34 Rep. St. Mus. pag. 43. — Peridiis 1368
stipatis, ex hypothallo valde evoluto orientibus; peridiis cylindraceis, stipite triplo quadruplo longioribus; stipite atro, nitido, in columellam apicem peridii vix attingentem producto; masculis capillitii latis, nodulis subinde crassis subtriangularibus; sporis violaceo-brunneis, globosis, 8 μ . diam., coacervatis ferrugineis.

Hab. in substantiis vegetalium putrescentibus, Pensilvania Am. bor. (W. BARBECK). — Sporis pallidis et masculis latioribus a *S. fusca* distincta, a *S. ferruginea* vero sporis latioribus et coacervatis ferrugineis dignoscenda.

8. **Stemonitis Tubulina** Alb. et Schw. n. 102, Schltdl. berol. 164, 1369
Stem. fusca var. β . Fr. Syst. Myc. III, *Amaurochæte speciosa* Zukal Ein. Pilze Myx. Bact. pag. 5, tab. 15, fig. 3. — *Ætaliis* subrotundis, sessilibus, 3-4 cm. latis, albis dein rubido-vioiaceis; peridiis cylindricis, præter apicem tuberculatum glaberrimis, nitidis; stipitibus fasciculatis, circinnatim undique convergentibus, e basi substrati argentea assurgentibus, floccis coalitis; sporis globosis, 6-7 μ . diam., violaceo-brunneis, levibus, intus punctatis.

Hab. ad Pinos emortuas decorticatas Poloniæ et Germaniæ. — Species hæc sec. Cl. Raciborski (Cfr. Hedw. 1887, p. 111), nec ad *Stemonitidem* nec ad *Amaurochætem* re vera spectat, sed ad novum genus JUNDZILLIA Rac. l. c. adscribenda.

Species incertæ.

9. **Stemonitis cribrarioides** Fr. Syst. Myc. III, p. 163, *Cribraria Lycopodi* Nees in litt. — Peridiis atris, sessilibus, fugacibus, basin excipuliformem exiguam relinquentibus stylidio brevi, centrali instructis. 1370

Hab. ad apices foliorum Lycopodii annotini putrescentes Thuring. pr. Arnstadt Germaniæ (Lucas). — «Valde incerta species».

10. **Stemonitis porphyra** B. et C. in Grevillea 1873, pag. 374, Rost. 1371
Mon. p. 197. — Stipite gracili, nigro; peridio globoso columbino; capillitio porphyro.

Hab. in ligno Pini in Amer. bor.

11. **Stemonitis scintillans** B. et Br. Ceylon Fungi n. 1196. — Peri- 1372

dio globoso, subviridi-cupreo; stipite setiformi, aterrimo, nitidissimo; floccis ramosis sporisque globosis, fuscis, 8 μ . diam.

Hab. in pagina inferiore foliorum emortuorum, Peradenya in insula Ceylon.

ORTHOTRICHIA Wing. Journ. of Mycol. 1886, p. 125 (Etym. *orthos* rectus et *trichia*). — Peridium globosum. Stipes elongatus, intra capillitium in columellam productus et in ramos angulis acutis divaricatos divisus. Rami furcati capillitium e floccis rectis compositum formantes. Rami ultimi angulis acutis ad superficiem peridii collecti et reliquiis membranaceis juncti. Tunica peridii, fragmentis membranaceis nec non annulo stipitis exclusis non manifesta.

1. **Orthotrichia microcephala** Wing. in Journ. of Mycol. 1886, p. 125, cum figura. — Peridiis globosis, magnitudine variis, $\frac{1}{2}$ - $\frac{1}{4}$ μ . diam.; stipite elongato, brunneo vel basi nigrescente, non vel vix translucente, decuplo-trigintuplo peridii diametro longiore, pyramidali undique (parte superiori exclusa) rugoso, superne filamentis levibus non vel tenuiter cincto et in columellam subinde fere obsoletam producto, demum in ramos paucos (subinde duos) ad angulos acutos diviso; ramis pauloties furcatis capillitium e floccis rectis compositum efformantibus; ramis ultimis superficiem peridii attingentibus, apice vix incrassatis et membranulâ collectis; tunica peridii non manifesta; massa sporacea brunnea; sporis pallide violaceis, fere hyalinis, levibus, 7-8 μ . diam.

Hab. in ligno putri, Philadelphia Amer. bor.

Fam. 3. **Raciborskiacee** BERL.

Peridia nuda discreta stipitata. Columella peridio brevior, columellas secundarias apice gerens. Capillitium atro-violaceum; tubi exteriores tenuiores reticulato-convexi, ramulis extimis arcuatim conjunctis.

RACIBORSKIA Berl. *Rostafinskia* Racib. Myx. Cracov. p. 9, non Spezzini (Etym. a cl. RACIBORSKI de Myxomycetibus polonicis meritisimo). — Peridia nuda, globosa, stipitata. Stipes in columellam, cylindraceam, peridio duplo triplove brevior, columellas secundarias, breviores, tenuiores apice gerentem elongatus. Columellae vero in fibras simili modo divisae. Ramuli posteriores inter se in omnes partes conjuncti et rete efformantes, ramuli extremi non liberi sed arcuatim inter se conjuncti.

1. **Raciborskia elegans** (Rac.) Berl. *Rostafinskia elegans* Racib. Myx. 1374
Cracov. p. 10, fig. 5. — Peridiis nudis, globosis, usque 0,5 mm. latis; stipitibus erectis, 1-2 mm. altis, basi crassioribus, deinde subulato-attenuatis, plicatis, nigris; columella peridio duplo triplo-ve breviori, cylindracea, 8-10 μ . lata; capillitio atro-violaceo, tubulis exterioribus magis magisque tenuibus, non liberis; ramulis eius extremis aculeis sparsis ornatis; sporis 9-10 μ . latis, obscure violaceis, aculeatis.

Hab. in horto botanico Cracoviensi Poloniæ.

Fam. 4. **Amaurochaetaceæ** Rost.

Æthalia e peridiis numerosis, elongatis, omnino nudis, in strata propria stipitis composita. Columellæ peridiorum se invicem fruticulose connatæ, e basi æthaliolorum enascentes. Capillitium reticulatum, commune, densum, nullo triangularibus.

AMAUROCHÆTE Rost. Vers. Syst. Mycet. p. 8 (Etym. *a* intens. et *mauros* niger et *chæte* filamentum). — Æthalia forma et magnitudine varia, cortice papyraceo tecta. Columella et capillitium quoque valde varia. Sporæ sphæroideæ typice asperæ.

1. **Amaurochæte atra** Alb. et Schw. Rost. Mon. pag. 210, fig. 67, 1375
Cooke Myx. pag. 52, fig. 67, *Lycoperdon fuliginosum* Sow. tab. 257, *Lycogala atrum* A. et S. Con. t. 3, f. 3, *Dermodium inquinans* Link. Diss. 25, *Strongylium atrum* Link., *Strongylium atrum* Swartz Vet. Handl. 110, *Strongylium majus* Fr. Gast. 9, *Lachnobolus cribrosus* Fr. Orb. Veg. 148, *Reticularia atra* Fr. S. M. III, p. 86, Eng. Fl. V, p. 308, Cooke Hdbk. n. 1099. — Æthalia forma et magnitudine vario, cortice papyraceo tecto; columella et capillitio variis; floccis atris; sporis spinulosis, violaceofuscis, globosis, 14-16 μ . diam.

Hab. ad ligna et cortices arborum coniferarum nec non in terra juxta truncos in Fennia, Suecia, Britannia, Germania, Carol. media Am. bor. — Æthalia 1-5 cm. vel ultra lata et longa.

2. **Amaurochæte minor** Sacc. et Ell. in Mich. II. p. 566. — Effusa, 1376
varia, oblonga, adnato-applanata, margine subnudo, extus argillacea, minutissime punctulata, intus nigricans; floccis filiformibus, parce ramosis et anastomosantibus, dilutissime fuscellis; sporis globosis, 15 μ . diam., fuligineis, minute verruculosi, dein prorsus levibus.

Hab. ad ramulos vivos et mortuos (Cerasi?) in montibus Utah Am. bor. (ELLIS).

Fam. 5. **Brefeldiaceæ** Rost.

Æthaliu e peridiis numerosis, dense stipatis, elongatis, nudis, distincte stratosi compositum. Peridia strati inferioris et medii columellis coalescentibus basi quæ *æthalii* adnatis prædita; ea vero strati medii et superioris capillitio, floccis aequalibus, tenerrimis, e centro radiatim protensis, inter se inque limitibus peridiorum conjunctis composito instructa.

BREFELDIA Rost. Vers. Syst. Mycet. p. 8, Mon. p. 212, Cooke Myx. p. 53, Schroet. Krypt. Fl. Schles. Pilze p. 119 (Etym. a cl. BREFELD).

— *Æthalia nuda*, superficie verrucosa. Flocci capillitii in limitibus peridiorum in vesiculas multicellulares, inanes, magnas connexi.

1. **Brefeldia maxima** (Fr.) Rost. Sluzowc. p. 213, f. 60, 65, 66, 69, 70, Cooke Myx. p. 53, f. 60, 65, 66, 69, 70, Schroet. Krypt. Fl. Schles. Pilze p. 119, *Lycoperdon epidendrum* Sow. 400, f. 2, 3, *Dermodium inquinans* Fr. Gast. 9, *Reticularia maxima* Fr. Syst. Myc. III, p. 85, Eng. Fl. V, 308, Cooke Handb. n. 1097, Fungi Brit. II, 518, *Lycoperdon echiniforme* Sow. t. 400, f. 1, *Licea perreplans* Berk. Gard. Chron. 451, Ann. Nat. Hist., n. 392, Cooke Hdbk. n. 1196. — *Æthaliis* nudis, superficie verrucosis, purpureo-atris, hypothallo bene evoluto, argenteo-micanti insidentibus, 3-6 cm. latis et longis, 5-10 mm. crassis; sporis purpureo-vel brunneo-atris, fusciculis, sphaeroideis, spinulosis, 11-12 μ . diam.

Hab. in truncis fagineis aliarumque arborum in Suecia, Germania, Britannia, Italia, Belgio et Fennia.

Fam. 6. **Enerthenemacæ** Rost.

Peridia stipitata. Stipes in columellam, peridii longitudinem æquantem, porrectus. Columella apice in discum dilatata. Capillitium ex hocce disco enascens.

ENERTHENEMA Bowm. in Linn. Trans. 128, XVI, pag. 151, Rost. Mon. p. 209, Cooke Myx. p. 57 (Etym. *enerthe* ex inferiore parte et *nema* filum).

— Flocci capillitii æquales, raro ramosi, non reticulatim conjuncti, apicibus liberis.

1. **Enerthenema papillatum** (Pers.) Rost. App. p. 28, *Arcyria atra* Schum. Saell. 1487, *Enerthenema elegans* Bowm. Linn. Trans. XVI, p. 151, t. 16, Rost. Mon. pag. 209, fig. 45, 48, 49, 52, 57, Cooke Myx. pag. 51, fig. 45, 48, 49, 52, 57, *Stemonitis mammosa* Fr. Syst. Myc. III. pag. 161, *Stemonitis papillata* Pers. disp. fung. tab. I, fig. 4, Berk. Eng. Fl. V. p. 317. — Peridiis stipitatis, sphaeroideis, nudis, atro-fuscis, superne nitentibus, papilla minuta, nigra

ornalis; stipite sursum attenuato, conoideo, opaco, atro, vulgo peridium æquante; columella conoidea, peridium attingente, apice in capitulum atrum, nitens dilatata; capillitio margine vel basi capituli enato, tubulis æqualibus, parce furcatis, apicibus liberis; sporis violaceo-sive fusciscenti-atris, levibus, 8-10 μ . diam.

Hab. in lignis pineis et abietinis putridis in Britannia, Germania, Fennia et in Car. inf. — Peridia breviter stipitata, globulosa, atra; columella fere ad apicem adscendens, apice repetito-dichotoma; capillitii tubuli filiformes, 3 μ . crassi, fuscii; sporæ globosæ, leves, sæpius 10 μ . diam., fuligineo-violaceæ.

2. **Enerthenema Berkeleyanum** Rost. Mon. Suppl. p. 29, Cooke Myx. 1379 p. 31, *Enerthenema elegans* Berk. et Br. Ann. N. H. n. 388, t. II. f. 7, Cooke Hdbk. n. 1164 (non Bowman). — Habitu *Enerth. eleganti* simile sed sporis 4-12 coacervatis differt; sporis rotundato-delloideis, 13 μ . diam., parte convexa distincte verrucosis, ceterum levibus; floccis ex apice orientibus ut in *En. eleganti* sed minus numerosis.

Hab. in ligno etc. in Britannia.

3. **Enerthenema muscorum** Lév. Ann. Sc. nat. 1863, p. 289. — Gre- 1380 garium, nigrum; stipitibus setaceis, levibus, basi in scutum dilatatis; peridiis levibus, tubulis capillitii parallelis, e stipite vel columella lenticulari orientibus, deorsum liberis, simplicibus, sursum dichotomis vel vage ramosis, inter se nullis anastomosantibus connexis et apicibus monosporis; sporis globosis, fuscis.

Hab. supra radices arborum La Mesa, S. Antonio Novæ Granatæ (LINDIG).

Genus incertæ familiæ

ROSTAFINSKIA Sp. Fungi Arg. Pug. III, p. 27, nec Rac. (Etym. a cl. J. ROSTAF. NSKI, cui genus merito dicatum). — Peridia flexuosa, intricata, in æthaliis forma magnitudineque variis coalita. Stratum centrale sporis et capillitio fætum, superum capillitio sterili, absque granulis calcareis, decorticatum, persistens; inferum hypothallum floccoso-papyraceum formans. Capillitium bene evolutum, granulis calcareis destitutum. Columellæ deficiunt. Sporæ globosæ v. irregulares, coloratæ.

1. **Rostafinskia australis** Speg. Fungi Arg. Pug. III, n. 89. — Æthaliis forma variis crasse pulvinato-effusis, ecorticatis, superficie molli tomentoso-velutinis, primo tenaciuscule gossypino-tomentosis, dein filamentoso-pulverulentis, purpureo-violaceis, v. amœne carneo- 1381

violaceis; tubulis strati intermediis cylindricis, 3-4 μ . crass., ramulosis, continuis, ubique verruculoso-muriculatis, hyalinis v. hyalino-violaceis, strati inferioris sterilibus, cylindricis, septatis, noduloso-ramulosis, crassioribus 5-6 μ . diam., levibus, fuscescentibus; sporis globosis, ovoideis v. difformibus, granuloso-farctis, levibus, pulchre lilacinis, 8-10 $\approx$ 5-6.

Hab. ubique vulgatissima ad truncos putridos, asseres vetustas etc., circa Buenos Aires, Argentina.

Div. II. Lamprosporæ Rost.

Sporæ non violaceæ, sed amœne coloratæ vel incolores.

Sect. 1. Atrichæ Rost.

Peridia capillitio destituta.

Ordo IV. Anemææ Rost.

Peridia aut æthalia columella, capillitio et calce destituta, membrana homogœna, subinde regulariter perforata, absque protuberantiis reticulatis. Sporæ olivaceæ, umbrinæ vel incolores.

Fam. 1. Liceaceæ Rost.

Peridia aut discreta, regularia vel difformia (plasmodiocarpa) aut coalita (æthalia), membrana haud perforata.

LICEA Schrad. Nov. Pl. Gen. 1, p. 16, p. p. Rost. Mon. p. 218, Cooke Myx. p. 54, Schroet. Krypt. Fl. Schles. Pilze p. 102 (Ety. *licium*, filum lanæ contortum). — Peridia discreta solitaria, sessilia difformia (plasmodiocarpa), vel regularia, membrana simplici.

1. **Licea flexuosa** Pers. Syn. Fung. pag. 197, t. I, f. 5 et 6, Fr. Syst. Myc. III. p. 197, Rost. Mon. pag. 218, Schroet. Krypt. Fl. Schles. Pilze p. 102, *Licea Serpula* Fr. Gast. pag. 12, et Syst. Myc. III, p. 197. — Peridiis difformibus (plasmodiocarpis), sparsis, elongatis, flexuosis, subinde fere hemisphæricis, fusco-castaneis, nitentibus; sporis spinulosis, 12-14 μ . diam.

Hab. in ligno putri Pini et ad truncos vetustos in Germania, Fennia et Suecia. — Peridia speciminum fennicorum rotundata circiter 1-1,5 mm. lata vel elongata, majora, olivacea, ut plurimum, præcipue sporis expulsis, cupreo-nitida; sporæ olivaceæ, sub micr. fusciculæ, sphaeroideæ, 10-17 μ . diam.

2. *Licea variabilis* Schrad. Nov. pl. gen. p. 18, tab. 6, fig. 5, 6, *Tu* 1383
bulina variabilis Poir. Enc. VIII, n. 8, Rost. Mon. p. 219. —
 Sparsa; peridiis depressis, variis rufescenti-fuscis; sporis sordide
 flavicantibus.

Hab. ad Pini Abietis truncos et ramos cortice denudatos;
 rarius in fagetis in Suecia et Germania. — Uno eodemque loco he-
 misphærica, ovata, oblonga, flexuosa vel aliter formata diversæque
 magnitudinis. Peridium tenue, fragile, vertice inæqualiter dissiliens,
 duplici membrana compositum, exteriori ad lentem scabriuscula,
 nitore experte; interiore levissima, nitida, glauco-flavescente ob
 pulverem perlucens, quo disperso dilutior et corrugata evadit.

3. *Licea cæspitosa* Peck in Rep. Stat. Mus. N. Y. (?), *Physarum* 1384
cæspitosum Peck 26 Rep. p. 75. — Peridiis aggregatis, stipatis, ses-
 silibus, levibus, brunneis vel brunneo-nigris; sporis sordide ochra-
 ceis, levibus, globosis, 6 μ . diam.

Hab. in ligno putri, Greenbush Amer. bor.

4. *Licea? minima* Fr. Syst. myc. III, p. 199, Karst. Myc. Fenn. IV, 1385
 p. 125. — Peridiis sparsis, hemisphæricis, basi applanatis, irregu-
 lariter laciniatim dehiscentibus, rufescente atris, opacis, vix 1 mm.
 latis; sporis sphæroideis, umbrinis, sub micr. fuscescentibus, spi-
 nulosis, 10-12 μ . diam.

Hab. ad ligna putrida pinea, præcipue asseres, locis humidis
 ad terram in Suecia, Germania et Fennia. — Sec. cl. Rost. ad
Phelonilem subeream Chev. spectat.

5. *Licea antartica* Speg. Fungi Pat. p. 56. — Peridiis sæpius hinc 1386
 inde 5-20-gregariis; rarius solitaris, hypothallo submembranaceo-
 flocculoso, concolori inidentibus, obovatis, 0.5-0.7 mm. diam., ses-
 silibus, murino-fulvescentibus, glabris, levibus, membrana simplici,
 tenui, fulvella, anhistâ, sub lente rugulosa; capillitio parcissimo
 e tubulis exilissimis, 1 μ . crassis, non vel vix ramulosis, laxissime
 papillois, obscure fulvescenti-fuligineis composito; sporis globosis,
 10-11 μ . diam., episporio crassiusculo, minute denseque asperulo
 donatis, e hyalino pallide roseo-fulvescentibus.

Hab. ad truncos cariosos Fagi antarticae in silvis prope
 Punta Arenas in Patagonia.

Species incertæ

6. *Licea brunnea* Preuss Hoyer. n. 275, Schroet. Krypt. Fl. Schles. 1387
 Pilze p. 102. — Gregaria conferta; peridiis papyraceis, ochraceo-
 brunneis, rotundis, subdepressis, irregulariter rumpentibus, super-

ne evanidis (subcircumscissis); sporis globosis, minutis, ochraceis, conglobatis; floccis nullis.

Hab. ad truncos pineos semiputridos in consortio et præcipue in thallo *Cenomyces* Hoyerswerda et in Silesia.

7. **Licea Lindheimeri** Berk. in Grevillea 1873, n. 369. — Effusa, extus nigra, intus rhabarbarina, sublateritia; sporis globosis, 7 μ . diam.

Hab. in corticibus putrescentibus, Texas, Amer. bor. (LINDHEIMER).

8. **Licea perreptans** Berk. Gard. Chron. p. 451, Ann. N. H. n. 392, Cooke Handb. n. 1196, *Lycoperdon echiniforme* Sow. t. 400, fig. 1. — Hypothallo albo, effuso, repente, dein hinc inde conglomerato; peridiis oblongis, plerumque distinctis, primo rufo-brunneis, dein siccis et atris; sporis purpureo-brunneis.

Hab. in Cucumeris forma quadam Rolleston, Staffordshire Britanniae.

9. **Licea rubiformis** Berk. et Curt. F. N. Pac. — Conglomerata, coctinea; peridiis urceolatis, apiculatis, liberis, bai vesiculosa.

Hab. in ligno emortuo in freto Behring.

Species excludendæ.

Licea badia Fr. Syst. III, pag. 198. — Teste Rost. est eadem ac *Phelonitis suberea* Chev., *Licea suberea* Fr., *Licea minima* Fr., *Phelonitis minima* Fr. et potius inter *Perisporiaceas* inquirenda.

Licea Berteroana Mont. Fl. Chil. VIII, p. 20 et Syll. n. 1077. — Ad genus *Preussia* h. e. *Perisporium* spectat.

Licea strobilina Alb. et Schw. Nisk. 109, t. 6, fig. 5, DC. Gall. VI, 100. Duby Gall. IV, 861, Ditmar. in Sturm. Germ. III, t. 20, Nees Syst. f. 101, *Perichæna strobilina* Fr. Syst. III, 190, Grev. cr. tab. 275, est *Æcidium strobilinum* seu *Pleosporopsis strobilina*. Cfr. Syll. Sphærops. p. 693.

TUBULINA Pers. Syn. p. 197, Rost. Mon. p. 219 Schroet. Krypt. Fl. Schles. Pilze p. 102 (Etym. a *tubus*, ob peridia cylindræa). — Peridia cylindræa, fasciculata, hypothallo communi insidentia, membrana simplici.

1. **Tubulina cylindrica** (Bull.) De C. Flor. Franc. II, p. 249, Fl. Fr. n. 671, Rost. Mon. p. 220, Cooke Myx. p. 54, Schroet. Krypt. Fl. Schles. Pilze p. 102, *Tubulifera ceratum* Fl. Dan. t. 659, f. 2, *Tub. arachnoidea* Jacq. Misc. t. 15, *Mucor tubulosus* Retz., *Stemonitis ferruginosa* Batsch. f. 175, *Sphærocarpus cylindricus* Bull. t. 470, f. 3, *Sphærocarpus fragiformis* Bull. t. 384? *Tubifera ferruginosa* Gmel. Sys. 1472, *Tubifera cylindrica* Gmel. Sys. 1472,

Tubifera fragiformis Gmel. Sys. 1472, *Trichia fragiformis* With. Arr. III, 480, *Tubulifera coccinea* Trent. p. 243, *Licea tubulina* Schrad. N. G. 16, *Licea clavata* Schrad. N. G. 18, *Tubulina fragiformis* Pers. Disp. p. 11, Pers. Syn. t. 4, f. 3-4, *Tubulina fallax* Pers. Obs. II, 28, *Tubulina fragiformis*, α . *papillata*, β . *clavata*, γ . *conica*, δ . *coccinea*, ϵ . *operculata* Pers. Obs. II, 29, *Reticularia multcapsula* Sow. t. 179, *Tubulina fragifera* Poir. Ency. VIII, n. 3, *Licea fragiformis* Nees f. 102, Eng. Fl. V, p. 321, Cooke Hdbk. 1194, Fung. Britt. II, 528, *Dermodium fallax* Nees, f. 103, *Licea cylindrica* Fr. Syst. Myc. III, 195, Eng. Fl. V, 391, Cooke Hdbk. n. 1193, *Licea iricolor* Zoll. Flora, p. 300, *Tubulina conglobata* Preuss. Linnæa, 140, *Licea microsperma* B. et C. in Grev. 1873, n. 367. — Peridiis gregariis, ut plurimum fasciculatis, hypothallo plano, dein convexo insidentibus, cylindræis, apice rotundatis, maturis micantibus; sporis verrucosis, ferrugineis vel subumbrinis, 5-6 μ . diam.

Hab. supra lignum Pini et arborum frondosarum in Suecia, Germania, Britannia, Fennia, Belgio, Hoyerswerda, Hungaria, America bor., Australia et in insula Ceylon. — Sec. cl. Schroet. l. c., sporæ 6-8 μ . diam. metiuntur.

2. ***Tubulina stipitata*** (Berk. et Rav.) Rost. Mon. p. 223, *Licea stipitata* B. et Rav. North Am. Fungi n. 551. — Stipite communi 1392
crasso, sulcato; peridiis in caput hemisphæricum conglomeratis; sporis læte umbrinis, cymbiformibus, 4-5 μ . long. delicate verruculosi.

Hab. in ligno emortuo in Carolina infer. — Peridia cylindrica cum vertice globato, hemisphærice coacervata in hypothallo cylindrico altitudinis aliquorum mm., quasi stipitem formante. Massa sporarum umbrina seu ochraceo-fusca. Sporæ delicate verruculosæ, 4,6 ad 5 mm. diam.

3. ***Tubulina speciosa*** Speng. Nov. Add. ad Myc. Ven. n. 123. — Peridiis 1393
dense gregariis, fasciculatis, fasciculos subcirculares, 1-2 cm. long. et lat., 1-1½ mm. alt. efficientibus, hypothallo convexiusculo insidentibus, cylindræis, apice rotundatis atque irregulariter dehiscens, primo carneis dein cinnabarinis, micantibus; sporis verrucosis, ferrugineo-ochraceis, depressis, siccis, lentem concavo-convexam marginibus crassiuscule rotundatis perfecte referentibus.

Hab. ad ligna mucida Pini silvestris in silva alpina Cansiglio Italiæ borealis.

Species incerta.

4. **Tubulina nitidissima** Berk. in Linn. Journ. XVIII, p. 387. — Peridiis nitidissimis, aureis; sporis pallidis, globosis.

Hab. in Eucalypto microtheca, Rockhampton Australiæ.

LINDBLADIA Fries Summa Veg. Scand. p. 449, Rost. Mon. p. 223, Schroet. Krypt. Fl. Schles. Pilze p. 103, Cooke Myx. Brit. p. 55 (Etym. a cl. A. LINDBLAD Mycologo Upsaliensi). — *Æthaliium nudum*, peridiis numerosis, irregulariter polygonis, tunicis coalescentibus formatum. Peridia apice verruculosa.

1. **Lindbladia effusa** (Ehr.) Rost. Mon. pag. 123, B. et Br. Ann. N. Hist. n. 1605, Grevillea V, p. 13, Cooke Myx. Gr. Brit. pag. 55, Schroet. Krypt. Fl. Schles. Pilze pag. 103, *Licea effusa* Ehr. Sylv. pag. 26, fig. 1, *Æthaliium melænium* Chev. Byss. III, *Lindbladia tubulina* Fr. S. V. S. 449, *Æthaliium atrum* Preuss Linnea p. 141, *Reticularia maxima* Corda Ic. VI, 35, *Reticularia granulosa* Cerst. MSS. — *Æthaliio* nudo, hypothallo communi, valde evoluto insidente, cortice præmature exsiccata nigra, crassa, brunnea, nitente, rugosa; massa sporacea ochraceo-brunnea vel umbrina; sporis nitide coloratis, levibus, 6-7 μ . diam.

Hab. ad truncos et terram in Germania, Britannia, Bohemia et Gallia.

Fam. 2. **Clathroptychiaceæ** Rost.

Peridia numerosa, globosa (vel cylindracea), in æthaliium coalita, membrana regulariter perforata.

CLATHROPTYCHIUM Rost. Mon. p. 225, Schroet. Krypt. Fl. Schles. Pilze p. 164, Cooke Myx. p. 55 (Etym. *cleithron* claustrum *plyche* plica). — Peridia sessilia, in substrato communi arcte adnata; tunicæ superiores tantum persistentes, campanulatæ, filis nonnullis simplicibus e basi ad apicem currentibus connexæ.

1. **Clathroptychium rugulosum** (Wallr.) Rost. Mon. pag. 225, fig. 25, 28, 29, 30, Cooke Myx. p. 55, f. 25, 28, 29, 30, Schroet. Krypt. Fl. Schles. Pilze p. 104, *Fuligo plumbea* Fl. Dan. 1976, f. 1, *Reticularia plumbea* Fr. Syst. Myc. III, p. 88, *Licea rugulosa* Wall. Fl. Germ. 2107, *Licea applanata* Berk. Hook. 1845, Journ. 66, B. et Br. Ann. Nat. Hist. n. 313, Cooke Hdbk. n. 1195, *Lycogala lentigulare* Dur. et M. Fl. Alg. 401, *Dictydium æthaliium* applan-

natum Rstfki. in Fekl. Symb. 2, Nach. 69, *Licea cinnabarina* B. et Br. Ceylon Fungi II, n. 782, *Licea tenuissima* B. et Br. Ceylon Fungi II, n. 783, *Reticularia enthoxantha* Berk. Hook. Journ. III, p. 201, n. 353, *Reticularia lurida* B. et Br. Ceylon Fungi II, n. 736, *Ophiuridium rugulosum* Hazl. in Just Bot. Jahresb. 1877, p. 155. — Hypothallo valde evoluto; peridiis sursum campanulatis, basi filis sex simplicibus, triangularibus, persisitentibus adhærentibus; æthelio colore vario, rubro, brunneo v. ochraceo; massa sporacea ochracea vel ochraceo-brunnea; sporis tenui-verrucosis, 8-10 μ . diam.

Hab. in ramis emortuis in Belgio, Germania, Italia, Hungaria, Britannia Algeria, Amer. bor. et Australia.

2. **Clathroptychium cinnabarinum** Sacc. in Mich. I, pag. 545. — Pe. 1397
ridiis prismaticis, longe diffusis arcteq. constipatis, $\frac{1}{3}$ - $\frac{1}{2}$ mm. altis, viride cinnabarinis, supra (operculo) atro-purpureis, nitidulis, in hypothallo membranaceo erectis, sessilibus; sporis globosis, levibus, 9-12 μ . diam., cinnabarinis, guttulatis; floccis ex operculo descendentibus, crassiuscule filiformibus, fuliginosis.

Hab. in ligno putri quercino, ubi acervulos 4-6 cm. longos applanatos efficit, in silva Montello Italiæ borealis. — Peridiis anguste prismaticis, sporis levibus, cinnabarinis, paullo majoribus totiusque plantæ maturæ colore diverso a *Cl. ruguloso* (Wallr.) non parum recedere videtur.

Species incerta.

3. **Clathroptychium dissiliens** Hazl. Ein neuer Myx. Typus in Just 1398
Bot. Jahresb. 1877, p. 156 sub *Dictydiaethalio*. — Peridiis pulvinatis rotundis vel ovalibus, 2-5 mm. diam.; tunica peridii exteriori castaneo-brunnea, sordide pruinosa, interiori cum sporis et elateriis flavo-brunnea.

Hab. in ligno salicino in Hungaria. — Peridium maturum vix tactum elasticè dissiliit et tunc elateria triplo longiora evadunt.

ENTERIDIUM Ehr. in Link Jahrbüch. Grev. II, p. 51, Rost. Mon. pag. 226, Cooke Myx. pag. 56, Schroet. Krypt. Fl. Schles. Pilze p. 102 (Etym. *enteron* intestinum). — Æthelium cortice membranaceo, tenui tectum. Peridia clausa, caespitosa, tunicis late et symmetricè apertis, post exitum sporarum rete simulantibus prædita.

1. **Enteridium olivaceum** Ehrenb. Sylv. Ber. II, p. 54, f. 1, 5, A. E. 1399
Rost. Mon. p. 227, Cooke Myx. p. 56, Schroet. Krypt. Fl. Schles.

Pilze pag. 103, *Lycoperdon unguinum* Schum. Saell. 1404, *Reticularia versicolor* Fr. Obs. II, 147, *Lycogala olivacea* Link Hdbk., *Reticularia unguina* Fr. in Fl. Dan. t. 1977, f. 2, *Reticularia olivacea* Fr. Syst. Myc. III, p. 89, *Enteridium atrum* Preuss Linnea 142, *Reticularia applanata* B. et Br. Ann. Nat. Hist. t. II, f. 3, Cooke Hdbk. n. 1098, *Licea olivacea* Fekl. Sym. 338, *Licea glomulifera* De Bary et Rtfk. in Alex., *Licæthaliu olivaceum* Rtfki. Vers. pag. 4, *Lindbladia versicolor* Rtfki. in Fekl. 68. — *Æthalia* plano vel hemisphærico, cortice papyraceo, pellucido, at ob sporas olivaceo, tunicis peridii pellucidis, luteo-brunneis; sporis 10-20 conglobatis, singulis truncatis, latere convexo verrucosis, 11-15 μ . diam.

Hab. in truncis putrescentibus in Fennia, Germania, Italia, Hungaria, Belgio, Britannia et Amer. austr. — Peridia valde applanata, initio rubentia, dein fusco-olivacea, membrana persistente nitidula tecta, hypothallo subargenteo radiante cincta; sporæ in massulas aggregatæ, globoso-angulosæ, minutissime asperulæ, olivaceo-fuscellæ.

2. **Enteridium simulans** Rost. Sluzowc. Dod. I, p. 30, Karst. Myc. Fenn. IV, p. 126. — Priori simillimum, sed sporis liberis vel laxis, irregulariter sphæroideis, episporio toto verrucoso, 10-12 μ . diam. differt.

Hab. in ramis, cortice denudatis Alni incanæ in parœcia Tammela Fenniae. — Hæc species, præcedenti arcte, forte nimis, affinis, tantum e Fennia est cognita. *Æthalia* forma varia, suborbicularia vel oblongata, convexa, pulvinata vel deplanata, 2-5 mm. lata.

Ordo V. **Heterodermeæ** Rost.

Peridia absque columella, capillitio et calce, membrana tenera tota vel saltem superne evanescente, superficie interiori venulis planis, reticulatim junctis, læte coloratis ornata. Sporæ et protuberantiæ concolores, argillaceæ, rufæ, flavæ.

Fam. I. **Cribrariaceæ** Rost.

Peridia solitaria, stipitata, membrana vulgo dilabente, venas reticulatas relinquente.

DICTYDIUM Schrad. Nov. Gen. l. p. 11, Rost. Mon. p. 229, Cooke Myx. p. 57, Schroet. Krypt. Fl. Schles. Pilze p. 106 (Sym. *dictydion* reticulum). — Venæ parallelæ, æquales, filis tenellis in maculas rectangulares connexæ. Membrana peridiorum tota dilabens.

Dictydium cernuum (Pers.) Nees. Syst. f. 117, Rost. Mon. p. 229, 1401
f. 17, 19, 22, Cooke Myx. p. 57, f. 17, 19, 22, Schroet. Krypt. Fl.
Schles. Pilze p. 106, *Mucor cancellatus* Batsch. f. 232, *Stemonitis*
cancellata Gmel. Sys. 1468, *Sphaerocarpus trichioides* Bull. p. 124,
Cribraria cernua Pers. Obs. I, 91, *Dictydium umbilicatum* Schrad.
t. 4, f. 1, Fr. S. M. III, 165, Berk. Eng. Fl. v. 318, Cooke Hdbk.
1165, fig. 134, *Dictydium ambiguum* Schrad. t. 4, f. 2, *Trichia*
cernua Poir. Ency. VIII, n. 25, *Dictydium trichioides* Chev. Fl.
Par. 327, Corda Ic. V, f. 36. — Peridiis sphæroideis, cernuis, 0,5
mm. diam.; stipite peridio duplo triplove longiore, erecto, apice
curvato; hypothallo, stipite et sporis fusco-purpureis; venis api-
calibus, sporis expulsis, deficientibus; sporis 4-5 μ . diam., episporio
levi, luteo-brunneo.

Hab. supra ligna putrida præcipue Pini in Suecia, Germania,
Britannia, Fennia, Belgio, Hungaria, America boreali et australi
et in insula Ceylon. — Var. **laxum** Berk. et C. in Grév. 1873:
reticulo latiore; sporis pallidioribus majoribus differt. In] asseri-
bus in Carolina inferiore.

Species incerta.

Dictydium venosum Schr. N. G. p. 14, t. 3, fig. 6, Fr. Syst. Myc. 1402
III, p. 167, *Cribraria venosa* Pers. Syn. p. 191, *Trichia venosa*
Poir. Enc. VIII, p. 55, *Dictydium micropus* Fr. Syst. Myc. III,
p. 167. — Peridio cernuo, nervis validis, irregulariter et fascicu-
latim anastomosantibus, apice liberis, stipite abbreviato; sporis
lutosus.

Hab. ad lignum humidis locis prostratum Pini silvestris
in Suecia et Germania. — Species minima, pæne microscopica; sti-
pes subulatus, flexuosus, levis, fuscescens, peridio triplo circiter
longior; peridium minutum, sphæricum, haud punctulatum, sed
nervis validis venosum, cernuum; reticuli structura prorsus sin-
gularis; nervi irregulariter ramosi, apicibus et ramis lateralibus
liberis, fasciculatim ceterum anastomosantes demumque liberi, pe-
ridio evanescente, verum vera *Dictydia* species utpote primum ru-
ptum apice sporisque evacuatis omnino integrum persistens.

HETERODICTYON Rost. Mon. p. 231, Cooke Myx. p. 57 (Etym. *he-*
teros diversus et *dictyon* retes). — Venæ filis parallelis, tenel-
lis in rete masculis triangularibus connexæ, in parte superiore

peridii nodulis polygoniis ramis irregularibus radiantibus, tenuibus præditæ.

1. **Heterodictyon mirabile** Rost. Mon. p. 231. — Stipite recto, rigido, cylindrico, aliquantur cum subulato; peridio sphærico $\frac{1}{2}$ mm. diam., basi cupulato; massa sporarum fulvo-nigra; sporis 7 μ . diam., levibus.

Hab. prope Freiburg Germaniæ (DE BARY).

CRIBRARIA Pers. Syn. p. 192, Rost. Mon. p. 231, Cooke Myx. p. 57, Schroet. Krypt. Fl. Schles. Pilze p. 104 (Etym. *cribrum* ob capillitium). — Venæ reticulatæ sive cancellatæ, nodis planis, forma variis, majusculis irregulariter polygoniis. Pars inferior peridii sæpe cupulæformis, persitens (calyculus dicta).

Subg. 1. Schraderella Rost. Mon. p. 231.

Protuberantiæ in rete contextæ, per totam longitudinem æque crassæ. Nodi verrucosi. Calyculus vulgo bene evolutus.

1. **Cribraria rufa** (Roth) Rost. Mon. pag. 232, fig. 15, Cooke Myx. p. 58, fig. 15, Schroet. Krypt. Fl. Schles. Pilze p. 105, *Stemonitis rufa* Roth. Fl. Germ. 548, *Cribraria rufescens* Pers. Desp. t. I, f. 5, *Cribraria fulva* Schrad. t. I, f. 1, *Cribraria intermedia* Schrad. t. I, f. 2, Berk. et Br. Ann. N. Hist. n. 1601, *Trichia rufescens* Poir. Ency. VIII, n. 31. — Peridiis turbinatis vel piriformibus, rufis, stipitatis; stipite purpureo-brunneo, erecto; calyculo sæpe valde evoluto, infundibuliformi, margine irregulari, eroso; floccis crassis e venis calyculi orientibus, latis, in rete laxum connexis; sporis levibus, 5,7 μ . diam.

Hab. in lignis etc. in Germania, Suecia et Britannia.

2. **Cribraria minutissima** Schw. Am. fung. n. 2361, Rost. App. p. 31, *Cribraria minima* B. et C. in Grevillea 1873, n. 363. — Stipite filiformi $\frac{1}{2}$ mm. alto vel breviori; peridio globoso ad basim stipitis leniter angustato, vix $\frac{1}{5}$ mm. diam., nutante, umbrino, subtiliter striato; capillitio ut in *C. rufa*.

Hab. ad ligna pinea in Carolina.

3. **Cribraria microscopica** B. et C. in Grevillea 1873, n. 364, Rost. Mon. app. p. 31. — Peridiis vix conspicuis ovatis, stipitibus altitudinem peridii adæquantibus, cum peridio ferruginoso-fuscis; calyculo æque granuloso, regulariter dentato, transeunte in reticulum protuberantiarum æque angustarum, in reticula minute areolata multangularia junctarum.

Hab. in asseribus in Carolina inf.

- **Cribraria tatrica** Racib. in Hedw. 1885, p. 170. — Peridiis glo- 1407
bosis, rufo-brunneis, $\frac{3}{4}$ –1 mm. diam., stipitatis; stipite obscure
rufo, recto, 2 mm. longo; parte peridii inferiore (calyculo) persi-
stente, inæqualiter crenato-dentata, prope marginem crebre per-
tusa; venis capillitii post maturitatem sporarum persistentibus
æquilatis, neque ad angulos nodose incrassatis; sporis flavis, 6–7
 μ . diam., rotundis, levibus.

Hab. in lignis putridis, Tatra Hungariæ.

Subg. 2. **Eucibraria** Rost. Mon. p. 233.

Protuberantiæ in rete ad junctiones in nodos incrassatum contextæ; caly-
culus plerumque numquam evolutus.

- **Cribraria purpurea** Schrad. Nov. Pl. gen. p. 8, Rost. Mon. p. 233. 1408
— Peridiis sphæricis, vivide purpurei, stipitatis, cum stipitibus e
purpureo nigricantibus; calyculo tertiam partem inferiorem peridii
occupante, hemisphærico, cum floccis irregulariter laceratis et
transfossis; floccis protuberantiarum tenuissimis, densum reticu-
lum formantibus non in omnibus junctionibus, nodos formantibus,
nonnullis libere excurrentibus; nodis paucis sed bene evolutis,
elongatis, sæpe intricato-curvatis, multangularibus, cum lateri-
bus multis, valde concavis; sporis e purpureo candidantibus, 5–6
 μ . diam.

Hab. ad truncos abietinos putredine exesos in Germania. —
Totius generis maxima et longe speciosissima, colore vivide pur-
pureo insignis; stipes peridio duplo tantum longior, flexuosus, de-
num curvatus; peridium erectum, reticuli ramis basi incrassatis fo-
raminibus inæqualibus.

- **Cribraria aurantiaca** Schrad. Nov. Pl. Gen. p. 5, tab. 1, fig. 3, 4, 1409
Rost. Mon. p. 233, fig. 21, Fr. Syst. Myc. III, 174, Cooke Myx.
pag. 58, fig. 21, Schroet. Krypt. Fl. Schles. Pilze p. 105, B. et
Br. Ann. N. H. n. 1037, *Cribraria vulgaris* β . *aurantiaca* Pers.
Syn. 194, *Trichia rufescens* β . *aurantiaca* Poir. Ency. VIII, 31,
Cribraria aurantiaca γ . *sulphurea* Wallr. Fl. Germ., *Cribraria*
intermedia Berk. Engl. Fl. V. p. 318, Cooke Hdbk. n. 1166, *Cri-*
braria variabilis Ficinus Dresd. Fl. 269. — Peridiis gregariis
sphæroideis, plus minus cernuis, stipitatis, rufis vel fusco-rufis; sti-
pite sursum attenuato, dilute fusco; calyculo bene evoluti, hemi-
sphærico, margine denticulis brevibus, acutis armato; nodulis vulgo

valde evolutis ramos, apicibus demum invicem confluentibus, agentibus; sporis aurantiacis vel fusco-flavis, expallentibus, levibus, 5-6 μ . diam.

Hab. in ligno putri praecipue abiegnio in Suecia, Belgio, Britannia, Germania, Hungaria

7. **Cribraria vulgaris** Schrad. Nov. Plant. Gen. p. 6, tab. 1, fig. 5, Rost. Mon. p. 234, fig. 26, Karst. Myc. Fenn. IV, p. 85, Schroet. Krypt. Fl. Schles. Pilze p. 105. — Peridiis gregariis, sphæroideis, stipitatis, subtus paullum applanatis, plus minus nutantibus, fusciscenti-flavis; stipite subulato, leviter curvato, fusco vel fusco-purpureo; calyculo vulgo praesente, margine regulari, serrato; venis tenuissimis, in reticulum laxum junctis numerososque nodulos polygonios formantibus; sporis fuscescenti-flavis, 5-6 μ . diam.

Hab. in ligno putrido Pini, Abietis, Populi etc. in Germania, Suecia et Fennia. — Peridia vix 1 mm. attingentia; stipes peridio vulgo duplo triplove longior.

8. **Cribraria tenella** Schrad. Nov. pl. gen. p. 6, t. 3, f. 2, 3, Schroet. Krypt. Fl. Schles. Pilze p. 105, Rost. Mon. p. 235, *Trichia rufescens* β , *tenella* Poir. Enc. VIII, n. 31. — Peridio sphærico, longe stipitato, recto vel incurvato; stipite filiformi, pallide rufo-brunneo; calyculo fere hemisphærico, margine irregulari, perforato; floccis capillitii exilibus, nodis rotundis, crassis ad angulos mascularum praeditis; massa sporacea brunneo-flavescente; sporis luteis, 5-6,5 μ . diam.

Hab. ad ligna putrida in pinetis in Suecia, Italia et Germania. — Stipes gracillimus, capillaris, elongatus, aequalis, flexuosus, e fulvo-purpurascenti fuscescens; peridium globosum, fuscescens, levitens, calyculo dimidiato, e quo adscendit reticulum purpurascenti-fusum, nodosum, quare sub lente luculenter nigro-punctatum apparet.

9. **Cribraria elegans** B. et C. in Grevillea 1873, n. 362, Rost. Mon. App. p. 32. — Peridiis sphæricis, plus minusve nutantibus, purpureis; stipitibus obscurioribus subulatis; massa sporarum purpurea; calyculo bene evoluti, fere dimidium peridium occupante, cum fimbria satis irregulariter dentata; protuberantiis tenuibus velut filis, in solum reticulum junctis cum nodis valde magnis, planis, multangularibus, et lateribus valde concavis.

Hab. in ligno putri in Car. inf. et in Thuringia.

10. **Cribraria microcarpa** (Schrad.) Pers. Syn. Fung. pag. 190, Rost. Mon. pag. 235, Karsten. Myc. Fenn. IV, p. 85, Schroet. Krypt.

Fl. Schles. Pilze p. 105, *Dictydium microcarpum* Schrad. Nov. Pl. Gen. p. 13, t. 4, f. 3, 4. — Peridiis sparsis, stipitatis, sphæroideis erectis vel leviter nutantibus, fuscis, minutissimis; stipite tenerri-
mo, longissimo, fusco-purpureo; calyculo nullo; venis tenuibus, hya-
linis, nodulis numerosis, subatris instructis; nodulis polygoniis, an-
gulis obtusis, convexis; sporis fuscescenti-flavis, 5-6 μ . diam.

Hab. ad ligna abietina in Germania, Suecia et Fennia.

1. **Cribraria splendens** (Schrad.) Pers. Syn. Fung. pag. 191, Rost. 1414
Mon. p. 238, Karsten. Myc. Fenn. IV, p. 85, *Dictydium splendens*
Schrad. Nov. Pl. Gen. p. 14, tab. 4, fig. 5, 6. — Peridiis sparsis,
stipitatis, sphæroideis, erectis, membrana persistente, sporis tran-
slucentibus, aureo-micante, iisdem delapsis, argentea, venis flavo-
fuscis; stipite subulato, dilute fusco-purpureo, peridio duplo vel
triplo longiore; calyculo haud manifesto; nodulis majusculis, po-
lygoniis, angulis obtusis; sporis flavis, 5-6 μ . diam.

Hab. in truncis Pini mucidis in Fennia, Germania et Suecia.
— Peridia 0,5 mm. vix superantia; stipes ætate leviter curvulus,
e purpureo in fuscum transiens.

2. **Cribraria intricata** Schrad. Nov. pl. gen. pag. 7, tab. 3, fig. 1, 1415
Rost. Mon. p. 237, fig. 27, Cooke Handb. n. 1167 et Myx. Gr.
Brit. p. 59. — Peridiis globosis, erectis, brunneolis, usque 1 mm.
diam., massa sporacea pallide lutea; stipite subulato, basi leniter
incrassato, purpureo-brunneo; calyculo hemisphærico, margine re-
gulariter serrulato; nodis retis incrassatis, valde evolutis, polygo-
niis, angulis valde incrassatis, altero alteri duobus vel tribus fibris
parallelis flocciformibus conjuncto; sporis luteis, 5-7 μ . diam.

Hab. in truncis Abietum putrescentibus in Germania, Sue-
cia, Britannia, Car. inf. Amer. bor.

3. **Cribraria piriformis** Schrad. Nov. Plant. gen. p. 4, t. 3, fig. 4, 5, 1416
C. rufescens Pers. Syn. p. 193. — Peridiis piriformibus aut fere
turbuinatis, rectis, badiis; massa sporarum squallide e gilvo nigri-
cante; stipite crasso, cylindrico aliquantulum sursum subulato, nu-
ceo-purpureo; calyculo bene evoluta, infundibuliformi, cum fimbria
irregulariter lacerata et confossa; reticulo protuberantiarum den-
so, cum nodis satis evolutis, multangularibus, angulis acutis filis
tenuibus, radiorum instar exeuntibus junctis; sporis subgilvis, 5-6
 μ . diam.

Hab. in lignis abietinis in Germania et Suecia. — Statu-
ra prioris, sed constanter diversa videtur; stipes pro ratione bre-
vior et firmior, longitudinaliter striatulus, fusco-purpurascens; va-

riat compressus; peridium subelliptico-obovatum, nitidulum, purpurascens, calyculo persistente nervis in reticulum æquale continuatis obsolete striato. E Schradero peridium initio nigrescenti-purpureum, dein fusco-nigrum, fuscum, maturum e flavo in fuscescentem colorem transiens.

14. **Cribraria macrocarpa** Schrad. Nov. Plant. gen. pag. 8, tab. 2, fig. 3,4, Rost. Mon. pag. 238, B. et Br. Ann. Nat. Hist. n. 1600, Cooke Myx. pag. 59, *Trichia macrocarpa* Poir. Encyc. VIII, n. 30. — Peridiis piriformibus vel obovatis, erectis, luteo-brunneis, massa sporacea pallide lutea; stipite rigido, brevi leniter curvo, obscure brunneo; calyculo tertiam peridii partis inferioris partem æquante, sæpe infundibuliformi lateque perforato, margine valde irregulariter lacerato, dentis nodos elongatos æquantibus, rete e nodis irregularibus quam latis multo longioribus, plerumque in ramos simplices vel furcatos divisus, fibris tenuibus flocciformibus conjunctis; sporis luteis, 5-7 μ . diam.

Hab. in truncis Abietum mucidis in Germania, Suecia et Britannia.

15. **Cribraria argillacea** Pers. Obs. I, pag. 90, Rost. Mon. pag. 239, Cooke Myx. p. 59, *Stemonitis sphaerocarpa* Schr. Bot. Mag. XII, p. 20, *Stemonitis argillacea* Pers. in Gmel. 1409, *Cribraria micropus* Schrad. tab. II, fig. 1-2, *Trichia argillacea* Poir. Encyc. VII, n. 32, *Licea spermoides* B. et C. in Grev. 1873, n. 368. — Peridiis stipitatis, stipite brevi evanescente præditis, massa sporarum argillacea; tunicis peridii perdurantibus, maturitate nitide lucentibus; tunica interiore protuberantiis irregularibus reticulatis præditis, floccis basi cavis, sursum nodulosus; calyculo non distincte signato; sporiis lateritiis, 5-6 μ . diam.

Hab. in truncis abietinis in Britannia, Germania, Gallia et Amer. bor.

Species incertæ.

16. **Cribraria candida** Rabenh. in Colmeiro En. Cr. Esp. p. 37 (nomen).

Hab. inter folia in Aragonia Hispaniæ.

17. **Cribraria didermoides** Schum. Saell. 2, p. 218, *Dictydium didermoides* Fr. Syst. Myc. III, p. 165, Rost. Mon. p. 298. — Peridio cernuo transversim reticulato, apice perforato; columella conica; sporis umbrinis.

Hab. in foliis dejectis Castaneæ et Fagi in Saellandia. — Singularis fungillus, transitum ad præcedentia genera indicans et ab omnibus columella pallida diversus; stipes subulatus, nigrescens,

brevis, basi dilatatus; peridium globosum, dilute brunneum, primo erectum, dein cernuum; reticulum primo integrum, demum vertice perforatum, ore integro apertum.

18. *Cribraria rubiginosa* Fr. Syst. Mycol. III, p. 172. — Stipata, sti- 1421
pите brevissimo peridiisque oblongo-obovatis, badio-rubiginosis, re-
ticulo æquali; *sporis rubiginosis.

Hab. in truncis putrescentibus abiignis in Suecia et Germania. — Species pulchra, distinctissima generis, *Liceam Tubulinam* adeo referens, ut cum hac forsitan ab incautis observatoribus passim commutata sit; vegetatio cum *C. argillaceæ* potissimum convenit, verum hypothallus insignior, subrotundus, gelatinosus, siccus vero membranaceus, firmulus, cum integro grege a trunco facile secedens, peridiis stipatissimis, unde forma insolito elongata, inter se tamen prorsus liberis, (nec connexis ut in *Tubulinis*), obtectus; stipes peridiis multo brevior, immo obliteratus, nigrescens; peridia oblongo-obovata, utrinque obtusa, subvenosa, majuscula, ad dimidium fatiscencia, reticulo admodum delicato et æquali, fragilissimo, excipulo persistente, badio, sicco nitido; sporæ fœde inquinant, sed pulchre rubiginosa.

19. *Cribraria badia* Chev. Par. p. 328. — Peridio subturbinato rufo- 1422
badio; stipite elongato concolore; sporis fuscescentibus.

Hab. ad bases truncorum et muscos in Gallia. — Peridium rotundato-turbinatum, nitidulum; reticulum ex calyculi persistentis margine egressum, ut apparet, æquale, ob sporarum colorem insolitum nimis fere distincta species; stipes elongatus, teres, fuscus.

Sect. B. Trichophoræ Rost.

Peridia capillitio semper prædita.

Ordo VI. *Columelliferæ* Rost.

Peridia in æthalia confluentia, absque calce. Sporæ, capillitium et columellæ umbrina. Capillitium e tubulis tenellis, aere repletis, dense intricatis reticulatimque conjunctis, protuberantiis destitutis compositum.

Fam. 1. *Reticulariaceæ* Rost.

Æthalia e peridiis numerosis, elongatis, omnino nudis, distincte stratosi, coalitis composita. Peridia strati inferioris et medii columella longitudinali instructa. Columellæ fruticulose ac invicem connate, e basi æthalii enanescentes. Peridia strati medii et superioris capillitium includentia.

SIPHOPTYCHUM Rost. Mon. App. p. 32, Cooke Myx. App. pag. 83
(Ætym. *siphon* tubus et *ptyche* plica). — Peridia sessilia, cylindra-

cea. *Columella centralis*, cylindrica; tubi capillitii (non numerosi) radiantes, a columella orientes.

1. **Siphoptychium Casparyi** Rost. Mon. App. p. 32. — Peridiis in bene evoluto hypothallo, confertis vel mutua pressione prismaticis, vertice leviter convexis; floccis capillitii ex columella exeuntibus, paucis, simplicibus, rarius diffluentibus; hypothallo, parietibus peridii, columella, et massa sporarum æqualiter umbro-fuscis; sporis delicate aculeosis, 7 μ . diam.

Hab. in Germania (?); ad ligna, Adirondack Amer. bor. (Rex).

RETICULARIA Bull. Cooke Myx. p. 61, Schroet. Krypt. Fl. Schles. Pilze p. 116, Rost. Mon. p. 240 (Etym. *reticulum*). — *Æthalia* cortice papyraceo, fragili, communi tecta.

1. **Reticularia Lycoperdon** Bull. Champ. Franc. p. 95, t. 446. f. 4, et t. 476, f. 1-3, Rost. Mon. p. 240, fig. 3, 4, 6, 13, Hist. Champ. Fr. p. 95, t. 95, Rost. Mon. p. 240, Cooke Myx. pag. 61, fig. 3, 4, 6, 13, Schroeter Krypt. Fl. Schles. Pilze pag. 116, *Lycogala griseum majus* Mich. t. 95, f. 1, *Lycoperdon fuscum* Huds. Fl. Aug. 645, *Mucor lycogalus* Bolt. t. 133, f. 2, *Lycogala argentea* Pers. Disp. 7, *Lycogala turbinatum* Pers. Syn. 157, *Strongylium fuliginoides* Ditm. t. II, f. 1, *Fuligo Lycoperdon* Schum. Saell. 1409, *Reticularia argentea* Poir. Ency. VI, 20, *Reticularia umbrina* Fr. S. M. III, 87, Corda Ic. VI, f. 36, Eng. Fl. V. 308, Cooke Hdbk n. 1100. — Sporis, columella et capillitio umbrinis, cortice concolori, opaco et levi vel argenteo-micante aut verrucis inæqualibus tecto; sporis dimidia parte reticulatis, 8-9 μ . diam.

Hab. in truncis vetustis arborum in Gallia, Germania, Italia, Suecia, Britannia, Fennia, Hungaria, et Car. media Amer. bor. — *Æthalia* applanata, rotundata vel subellipsoidea, 2-6 cm. lata.

2. **Reticularia? Rozeana** Rost. Mon. App. p. 33. — *Æthaliis* forma irregularibus, globatis, larga basi substrato adnatis, cortice, columellis, capillitio et massa sporarum æqualiter ferrugineso-fuscis, cortice tenui velut membrana, irregulariter confosso; capillitio ex filis tenuibus, transeuntibus in planas, membranæ similes dilata-tiones et in undique clausum reticulum junctis; sporis irregulariter sphaericis, valde verrucosis, 8 μ . diam.

Hab. prope Paris Galliae (Roze).

Species incertæ.

3. **Reticularia affinis** B. et C. Cuban. Fungi n. 522. — Effusa te-

nuis, papillosa, atro-purpurea, margine tenui; sporis oblongis, 6-10 μ . long., capillitio brevi ramoso.

Hab. in arboribus emortuis in Cuba et in Car. inf.

1. **Reticularia apiospora** B. et Br. Fungi of Ceyl. n. 737. — Effusa, 1427
dendritica, fulva; peridio fibroso-sericeo; sporis obovatis, basi breviter apiculatis, hyalinis, 8 $\approx$ 4.

Hab. in ligno emortuo in insula Ceylon.

2. **Reticularia atro-rufa** B. et C. Cub. Fungi n. 523. — Effusa, 1428
atro-rufa, levis nec superficie reticulata; floccis brevibus, crassiusculis, cylindricis; sporis atro-rufis, subglobosis, 5 μ . diam.

Hab. in corticibus muscis tectis, Peradenya in insula Ceylon et Cuba.

3. **Reticularia carnea** (Schum.) Fr. Syst. Myc. III, p. 91, *Fuligo car-* 1429
nea Schum. Saell. 194, Fl. Dan. t. 1977, f. 1. — Peridio membranaceo, levi, carneo, cinerescente; floccis fibroso-reticulatis; sporis atris.

Hab. in *Artemisia vulgaris* marcescente in Saellandia. — *Fulgini* affinis, at ex icone hujus generis videtur nec cum alia conjungenda. Secus caules longitudinaliter nascitur, indeterminata, planiuscula, irregulariter dehiscens. An *Myxomyces genuinus*?

- Reticularia fuliginosa** B. et Br. Ceyl. fungi n. 740. — Effusa, te- 1430
nuis, ex olivaceo fusca, sericea; sporis magnis globosis, 12 μ . diam. floccisque atro-purpureis, levibus.

Hab. in foliis *Palmarum* nonnullarum in insula Ceylon.

4. **Reticularia polyporiformis** Berk. Chall. n. 30. — Crassa, polypo- 1431
roidea; fibris erectis laciniatis; sporis versiformibus, lateritiis.

Hab. in insula S. Thomas Afric. occid. — Effusa 3-5 cm. cr., sequenti affinis.

5. **Reticularia pyrrhospora** B. Cub. Fungi n. 521. — Crassa, pulvi- 1432
nata, rubro-ferruginea; floccis stuppeis, lutosi; sporis obovatis, hic illic breviter pedicellatis, peroxydatis, 12-15 μ . longis.

Hab. in arboribus in insula Mauriti.

6. **Reticularia venosa** B. et C. Cub. Fungi n. 524. — Effusa; pe- 1433
ridio murino-purpureo, venis remotis notato; sporis fuligineo-purpureis, subellipticis; floccis remotis.

Hab. in muscis in insula Cuba et insula Ceylon.

Ordo VII. *Calonemæ* Rost.

Peridia, sporæ et capillitia vulgo concoloria. Color varius, puniceus, chraceus, fuscus, castaneus, olivaceus etc. numquam vero ater aut fusco-vel violaceo-ater. Capillitium ut plurimum bene evolutum. Flocci simplices vel

reticulatim connexi, liberi vel parieti peridii adnati, raro leves, vulgo protuberantibus variis, aculeos, venas, verrucas, plicas vel teniolas spirales sistentibus ornati. Columella nulla. In membrana peridii sola subinde invenitur calx.

Fam. 1. **Perichæenacæ** Rost.

Peridia membrana simplici vel duplici exteriori sæpe calcarea. Flocci capillitii leves, anastomosantes, parieti partis peridii superioris innati, sæpe obsoleti.

PERICHÆNA Fries Symb. Gast. p. 9, Syst. Orb. Veg. I. p. 141, Rost. Mon. p. 292, Cooke Myc. p. 77, Schroet. Krypt. Fl. Schles. Pilze p. 107 (Etym. *peri* circum et *chaino* rumpo). — Peridia discreta, regularia vel difformia (plasmodiocarpa), circumscisso- vel laciniato-dehiscentia. Flocci vel tubuli capillitio reticulatim juncti, ramis aliis parieti peridii innatis, aliis liberis, subinde obsoleti, leves.

1. **Perichæna depressa** Lib. Pl. Ard. coll. fasc. IV, 378, Rost. Mon. p. 292, Pat. Tab. An. Fung. p. 85, fig. 200, Schroet. Krypt. Fl. Schles. Pilze p. 107, Cooke Myx. p. 77, *Perich. marginata* Schw. Am. n. 2310, *Perichæna vaporaria* Schw. Am. n. 2311, *Stegasma depressum* Corda Ic. V, f. 13. — Peridiis valde applanatis, gregariis, stipatis, polygoniis, lateribus contiguis, rufo vel castaneo-brunneis, nitidis, operculo truncato apertis, massa sporacea et capillitio luteis; capillitio valde evoluto, e tubis crassitudine variis formato, 8-12 vel 25-33 μ . crassis; sporis globosis, levibus, 9-11 μ . diam.

Hab. in corticibus putrescentibus in Germania, Britannia, Bohemia, Belgio et Italia.

2. **Perichæna corticalis** (Batsch) Rost. Mon. pag. 293, Cooke Myx. p. 73, f. 188, Schroet. Krypt. Fl. Schles. Pilze p. 107, *Lycoperdon corticale* Batsch El. p. 155, *Sphaerocarpus sessilis* Bull. t. 417, f. 5, *Trichia gymnosperma* Pers. Obs. VI, f. 1 et 2, *Trichia circumscissa* Schrad. pag. 19, *Licea circumscissa* Pers. Syn. 186, *Physarum luteo-album* Schum. Saell. 1430, *Tubulina circumscissa* Poir. Ency. VIII, 5, *Perichæna populina* Fr. Gast. 12, Grev. t. 252, Eng. Fl. v. 321, Cooke Hdbk. n. 1192, *Perichæna populina* β . *sorbea* Weinm. in Fr. Syst. Myc. III, p. 192, *Perichæna quercina* Fries Gast. p. 12, *Trichia varia subrufescens* Bong. Herb., *Licea quercina* Wallr. Fl. Cry 2103, *Licea Artocreas* B. et Rav. Fungi Car. II, p. 82, *Perichæna Artocreas* B. et Rav. Grev. 1873, n. 370. — Peridiis gregariis, sessilibus, hypothallo insidentibus, sphaeroideis, depressis, circumscisso-dehiscentibus, e sor-

dide lutescente obscure spadiceis; capillitio parum evolutu, tubulis 8-25 μ . crassis; sporis levibus, læte luteis, 10-12 μ . diam.

Hab. in corticibus et lignis emortuis in Belgio, Gallia, Germania, Suecia, Britannia, Sibiria, America boreali et Peradenya insulæ Ceylon.

3. **Perichæna fusco-atra** (Sibth.) Rost. Mon. pag. 294, Cooke Myx. 1436
p. 88, Schroet. Krypt. Fl. Schles. Pilze p. 107, *Mucor lycoper-
dioides* Scop. Ann. IV, t. I, f. 11, *Trichia fusco-atra* Sibth. Fl.
Ox., 1152, *Sphærocarpus sessilis* Sow. t. 258, *Licea circumscis-
sa*, β . *abietina* A. et S. p. 108, *Perichæna abietina* Fr. Gast.
p. 17, Eng. Fl. V, 321, Cooke Hdbk. n. 1191, *Perichæna micro-
carpa* Sauter. Rabh. DC. Fl. n. 2180. — Peridiis obovatis, glo-
bosis, griseis, truncate ruptis, operculo convexo donatis; capillitio
vix visibili, tubis 1,7 μ . crassis, vacuis formato; sporis globosis,
asperulis 12-13 μ . diam.

Hab. in ligno abiegnio in Germania, Hungaria, Britannia, Ital.

4. **Perichæna vermicularis** (Schw.) Rost. Mon. App. p. 34, *Physa-* 1437
rum vermiculare Schw. Am. n. 2296. — Plasmodiis venulosis, ar-
cuatis, angustis, repentibus, aliquando reticulate junctis, pallide-
badiis; massa capillitii et sporarum subgilva; capillitio bene evo-
luto, cum floccis serrulatis, 1,6 μ . latis; sporis 10-11 μ . diam.

Hab. ad cortices in Carolina.

5. **Perichæna liceoides** Rost. Mon. p. 295. — Peridiis globosis irre- 1438
gulariter operculatis; sporis levibus 9-10 μ . diam.

Hab. prope Berlin Germaniæ (CIENKOWSKI).

6. **Perichæna irregularis** B. et C. in Grevillea 1873, p. 68. — Pe- 1439
ridiis congestis, irregularibus, floccis granulatis, luteis, 1,6-2,5 μ .
crassis; sporis e globosis late ellipticis, 8,3 $\approx$ 8-10.

Hab. in corticibus in Carolina inferiori. — Affinis *P. populi-
næ* sed ab ea distincta.

7. **Perichæna variabilis** Rost. Mon. p. 295, *Ophiotheca umbrina* B. 1440
et C. in Grevillea 1873, n. 372. — Peridiis umbrinis, serpentibus;
floccis crenatis, pallidis, 1,7-2,5 μ . crassis, verrucis 4,2 μ . diam.;
sporibus globosis, levibus, 10 μ . diam.

Hab. in caulibus herbaceis in Carolina superiori. — « An huc
ducenda *Ophiotheca pallida* B. et C.?

8. **Perichæna Friesiana** Rost. Mon. p. 296. — Plasmodiis verruculo- 1441
sis, leniter applanatis, in reticula junctis, olivaceo-umbrinis, ir-
regulariter operculatis; capillitio bene evolutu, floccis, 1,7-2,5 μ .
crassis; sporibus 8-9 μ . diam. levibus.

Hab. in Carolina (CURTIS).

9. **Perichæna reticulata** (B. et Br.) Rost. Mon. App. p. 35. — Plasmodiis venulosis, applanatis, junctis in reticula irregularia, obscure umbrinis; massa sporarum et capillitio umbrino-albidioribus; capillitii floccis 2,5 ad 4,2 μ . latis, parietibus valde crassis sed non serrulatis, multis sed valde parvis granulosis protuberantiis conspersis; sporis 11-13 μ . diam.

Hab. in corticibus, Peradenya in insula Ceylon.

10. **Perichæna flavida** Peck 26 Rep. pag. 76, *Oligonema flavidum* Peck. — Lutea; peridiis stipatis, in acervulos collectis, sessilibus, forma ac magnitudine variis, nitidis; floccis paucis, brevibus, sub-nodulosis, obtusis, parce ramosis; sporis globosis, echinulatis, 11 μ . diam.

Hab. ad muscos, Sandlake Americæ bor. — Peridia matura subinde sursum rugosa sunt, et acervuli colore nitide luteo mox conspicui.

11. **Perichæna Rostafinskii** Karst. Myc. Fenn. IV, p. 130. — Peridiis sparsis vel subgregariis, sessilibus, sphæroideis, e flavescenti spadiceis, nitidis; capillitio haud evoluto; sporis sphæroideis, levibus vel sublevibus, obscuris vel atro-fuscis, sub micr. fuscidulis, majoribus et minoribus, 10-27 μ . diam.

Hab. supra muscos emortuos foliaque putrida in parœcia Tyrvis Fennicæ.

12. **Perichæna microcarpa** Schröt. Krypt. Fl. Schles. Pilze p. 103. — Peridiis discretis vel in soros minutos confluentibus, plerumque globosis, 0,5 μ . diam., rarius inæqualibus, applanatis, flavo-brunneis, levibus, sparsis, irregulariter ruptis; capillitio valde evoluto, in rete laxum, regulare, connexo, tubulis, 1,5-2 μ . crassis, ad angulos crassioribus, levibus, aureis; sporis aureis, globosis, 15-17 μ . diam., episporio fortiter aculeolato.

Hab. inter folia putrida, Breslau Silesiæ.

Species incertæ.

13. **Perichæna pallida** (Ces.) Berl. *Stegasma pallidum* Ces. Myc. Born. pag. 12. — Peridiis gregariis pallidissime alutaceis; sporis flavis sed pallidioribus quam in *Perichæna australi* [cujus peridia e fulvo castanea in omni vitæ stadio, sporæque intense auræ, a præsentī speciem distinguunt].

Hab. Sarawak in insula Borneo.

14. **Perichæna australis** (Ces.) Berl. *Stegasma australe* Ces. in Hedw.

1874, p. 186. — Peridiis sæpius circinnantibus, angulosis, centralibus orbicularibus, primitus luteis per castaneum ad brunneum transeuntibus; operculo omnino plano, levi; floccis flavis; sporis subglobosis, intus granulosis, opacis, concoloribus.

Hab. ad folia marcescentia *Agaves americanæ* in Horto Botanico neapolitano in Italia merid. (CESATI).

15. **Perichæna decipiens** B. et Br. in Ann. Nat. Hist. n. 1605, t. IX, 1448 fig. 3. — Peridiis aggregatis, rotundis, rufo-brunneis, circumscissis; capillitio ramoso; sporis magnitudine variis, majoribus 5 μ . diam., minoribus vero 2,5, nitido-luteis.

Hab. in strobilis *Abietum* in Britannia.

16. **Perichæna picea** B. et Br. Ann. Nat. Hist. n. 1377. — Peridio 1449 obscure brunneo, hemisphærico, dein circumscisso; sporis subglobosis, cinnamomeis, æqualibus, floccis concoloribus.

Hab. in ligno putri, Shrewsbury Britannicæ. — Primo obtutu *Perisporio* similis. Verisimiliter, ut cl. Rost. opinatur, est *Pyrenomyces*. Certe species dubia.

Fam. 2. Arcyriacæ Rost.

Peridia discreta aut in æthalia coalita, membrana vulgo simplici, sæpe in superficie interiori protuberantiis ornata, absque calce. Tubuli capillitii raro implices vulgo ramosi, reticulatim connexi, protuberantiis spinulas, verrucas, renulas sistentibus. Peridia sporæ et capillitia concoloria.

CORNUVIA Rost. Vers. Mycet. p. 15, Mon. p. 289, Cooke Myx. p. 76, Schroet. Krypt. Fl. Schles. Pilze p. 108 (Etym. a cl. M. Cornu, cui genus merito dicatum). — Peridia discreta, regularia vel irregularia (plasmodiocarpa), irregulariter vel circumscisso-dehiscencia. Tubuli capillitii reticulatim juncti, peridio non adnati, apicibus nunc totis liberis.

1. **Cornuvia metallica** (B. et Br.) Rost. Mon. App. p. 35, Cooke Myx. 1450 p. 76, *Physarum metallicum* Berk. Ann. und Mag. n. 29, tab. 3, fig. 8, Cooke Handb. n. 1139 et Myx. Brit. p. p. — Peridiis globosis sursum applanatis, metallice nitentibus, basi attenuatis; floccis capillitii rigidis, 10-24 μ . crassis, nodulosis, extus in apices numerosos, liberos, obtusos vel acutos desinentibus; sporis globulosis, 10 μ . diam. verrucosis.

Hab. in ramis decorticatis in Britannia.

2. **Cornuvia Serpula** (Wigd.) Rost. Mon. pag. 289, *Arcyria Serpula* 1451 Wigd. in Pringsh. Jahrb. Bot. III, fig. 18. — Plasmodiis venulosis, luteis; massa sporarum et capillitio luteo-aureis; floccis ca-

pillitio cylindraceis, tenuibus, 3,3 μ . crassis, protuberantiis 0,4-0,7 μ . altis, circulos sistentibus præditis; sporis 10 μ . diam.

Hab. prope Freiburg Germaniæ (DE BARY).

3. **Cornuvia circumscissa** (Vall.) Rost. Mon. pag. 290, Cooke Myx. pag. 76, Schroet. Krypt. Fl. Schles. Pilze pag. 108, *Lignidium quercinum* Fr. Stirp. Fenisj. 83, *Trichia circumscissa* Wallr. Fl. Germ. 2219, *Arcyria glomerata* Fr. S. V. S. 457, *Ophiotheca chrysosperma* Curr. Micr. Journ. p. 240, tab. IX, f. 1, 5, Cooke Hdbk. n. 1176, *Trichia Curreyi* Crouan. Fin. p. 16. — Peridiis globosis, applanatis, circumcirca ruptis, operculo deciduo ornatis; plasmodiocarpo venoso, serpente, secundum suturas vel irregulariter rupto, superne opaco vel castaneo-brunneo; capillitio e tubis tenui-tunicatis 2,5 μ . crassis, vacuis, in ramos numerosos, liberos, apicibus leniter incrassatos desinentibus formato, protuberantiis spinas acutas, curvas 1,6 μ . longas sistentibus raro prædito; sporis levibus, 8-9 μ . diam.

Hab. in cortice interiore arboris emortuæ in Britannia, Suecia et Germania. — α . **scabra** Schroet. Krypt. Fl. Schles. p. 109 (Pilze). Capillitio aculeis rigidis, 1-2 μ . longis, prædito. In Waldenberg Silesiæ. β . **spinosa** Schr. l. c. Capillitio aculeis sparsis, acutis, 5-6 μ . longis ornato. In Breslau Silesiæ. Teste Raciborski (Cfr. Hedw. 1887, p. 110), potius *Cornuvicæ Wrightii* peraffinis.

4. **Cornuvia dictyocarpa** Crupa in Cosmos, Lemberg 1886, Sec. Racib. in Hedw. 1887, p. 110. — Affinis *C. circumscissæ*, differt peridii tunica interiore lineolis incrassatis, depressis instructa et maturitate in fragmenta quadrangula vel pentagona disrupta.

Hab. in Polonia. — Teste Racib. l. c. a *C. circumscissæ* vel *C. Wrightii* notis datis non satis distincta.

5. **Cornuvia Wrightii** B. et C. Cuban. Fungi I, n. 544, Rost. App. pag. 36. — Plasmodiis repentibus, venulosis, crassis, fusco-badiis, massa sporarum et capillitio aureo-gilvis; floccis capillitii 2,5-3,3 μ . latis, aculeis 1,7-3-3 μ . altis raro præditis; sporis delicate verruculosis, 10,8-12,5 μ . diam. luteis.

Hab. in ligno putri in insula Cuba et Peradenya Ceylon.

6. **Cornuvia anomala** Karst. Myc. Fenn. IV, pag. 131, *Trichia anomala* Karst. in Not. Sällsk. pro Faun. et Flor. Fenn. IX, 1868, p. 354. — Peridiis sparsis vel gregariis, sessilibus, subsphæroides, sordide ochraceis, nitidiusculis, circiter 1,5 mm. latis: tubulis capillitii 4-6 μ . crassis, cylindraceis, apicibus numerosis, liberis, truncatis, sæpe clavato-inflatis terminatis, protuberantiis cre-

bris elevatis, circulos sistentibus; sporis sphæroideis, levibus, sordide ochraceis, s. m. dilutissime flavescentibus, 6-7 μ . diam.

Hab. ad lignum et corticem Pini, mense Junii, in Fennia austr.

7. **Cornuvia leocarpoides** Speg. Fungi Argentini Pug. I, n. 264. — 1456

Peridiis subglobosis vel piriformibus, 0,6-0,8 mm. diam., gilvo-lateritiis vel fulvis, sæpe antice depressis ac centro saturatius coloratis, non vel vix nitentibus, levissimis, cortice crassiusculo, subcartilagineo, mox rupto ac frustulatim evanescente at sæpe basicalyculatim persistente donatis; stipite rigidulo, erecto, fuscescente v. subatro, gracili, levi v. subruguloso, diametrum peridii non v. vix superante, capillitio post dehiscenciam sporarum elastice protrudente, basi tantum adnato, diu persistente, fulvo-tabacino vel fulvo-olivascens, tubulis tenellis, cylindræis, 5-6 μ . cr., dense reticulatim connexis, apicibus liberis numerosis, teretibus, truncato-rotundatis, tæniolis 3 vel 4 spiraliter involutis, levissimis, non papillatis, olivaceo-fulvis; sporis globosis, 8-10 μ . diam., levissimis, granuloso-farctis, fulvo-olivascens.

Hab. ad ligna putrida, cariota in nemorosis prope Apiahy Brasilie meridionalis (J. PUIGGARÍ).

ARCYRIA Hall. Hist. p. 47, Rost. Mon. pag. 268, Cooke Myx. Gr. Brit. p. 69, Schroet. Krypt. Fl. Schles. Pilze p. 109 (Etym. *arcys* rete). — Peridia regularia, stipitata circumscissa, superne evanescentia, basi persistente calyculari. Capillitium e tubulis intortis compactum, elastice expansum, deciduum, receptaculo vel tubo stipitis innatum.

Clavis analytica specierum.

A) Capillitium e ramis numerosis receptaculo coalitis formatum.

1. Peridia ovata vel elongata.

† Tubi capillitii æquales.

Arc. punicea. Tubi capillitii per totam longitudinem æquales.

†† Tubi capillitii centro peridii expansi, margine attenuati.

A. cinerea. Peridia stipite simpliciter, erecto prædita.

A. digitata. Stipites nonnulli in fasciculum collecti.

II. Peridia sphærica.

A. pomiformis. Sporæ 7-8 μ . diam.

B) Rami inferiores capillitii in medio cellularum tubum stipitis continentium coaliti.

† Tubi capillitii cylindrici.

× Protuberantiæ crasse tæniæformes spiram formantes vel retortæ, pars cetera tubi spinulis minutis tecta.

- A. adnata*. Tubi per totam longitudinem æquales. Protuberantiæ regulariter in spiras dispositæ.
- A. similis*. Tubi protuberantiis semilunaribus irregulariter dispositis.
- A. affinis*. Tubi in parte superiori capilliti crassiores.
- XX Protuberantiæ crasse spinosæ, non numerosæ, inordinate transverse (diagonaliter) dispositæ.
- A. nutans*. Peridia aggregata, sporæ 7-8 μ . diam.
- A. Erstedtii*. Protuberantiæ omnino spinulosæ.
- A. dictyonema*. Protuberantiæ spinulosæ sed intense conjunctæ et rete superficie tuborum formantes.
- A. inermis*. Protuberantiæ spinulosæ in rete conjunctæ; sporæ verruculosæ, 9-10 μ . diam.
- A. irregularis*. Tubi capillitii complanati, protuberantiis conoideis, irregulariter dispositis præditi.
- A. decipiens*. Tubi inferiores uno latere dentati, ceteri protuberantiis spiraliter dispositis ornati.
- †† Tubi capillitii triangulares angulis rotundatis.
- A. ferruginea*. Protuberantiæ uno latere, tubi duo vero irregulariter reticulati.

Species incertæ sedis.

<i>A. bonariensis</i> .	<i>A. decipiens</i> .
<i>A. Friesii</i> .	<i>A. insignis</i> .
<i>A. versicolor</i> .	<i>A. cinnamomea</i> .
<i>A. vitellina</i> .	

Subg. 1. *Clathroides* Rost.

Capillitium ramis pluribus margini calyculi concretum
et cum eo persistens.

1. *Arcyria punicea* Pers. Disp. meth. Fung. p. 10, Pat. Tab. An. Fung. p. 83, f. 193, Cooke Myx. p. 61, f. 190, 192, 197, Rost. Mon. p. 268, f. 190, 192, 197, Schroet. Krypt. Fl. Schles. Pilze p. 109, *Clathroides purpureum* Mich. t. 94, f. 1, c, Hall. pl. I, f. 6, *Clathrus pediculatus* Guett. Obs. I, p. 16, *Arcyria pedicula* Hill. p. 47, *Clathrus denudatus* Linn. sp. pl. 1179, *Trichia* Hall. n. 2164, t. 48, f. 6, *Mucor clathroides* Scop. Carn. II, 492, *Mucor piriformis* Leers. Fl. Herb. 1135, *Clathrus pedunculatus* Batsch. El. p. 141, *Lycoperdon rufum* Dicks Cry. fasc. I, p. 25, *Stemonitis denudata* Rehl. Fl. Cant., *Embolus crocatus* Batsch. t. 30, f. 176, *Stemonitis crocata* Willd. Fl. Ber. 1189, *Stemonitis coccinea* Roth. Fl. Germ. I, 548, *Trichia denudata* Vill. Fl. Dauph. 1060, Purt. Mid. Fl. t. 24, f. 2, Sow. t. 49, *Trichia graniformis* Hoffm. V, Cr. I, p. 3, *Trichia cinnabaris* Bull. tab. 502, fig. 1, b, c, *Stemonitis crocea* Gmel. Sys. 1467, *Trichia rufa* With. Arr. III, pag. 478,

Trichia purpurea Schum. Saell. 1472, *Arcyria rufa* Schum. Saell. 1486, *Arcyria melanocephala* Schum. Saell. 1484, *Arcyria conjugata* Schum. Saell. 1485, *Arcyria cincta* Schum. Saell. 1480, *Arcyria cylindrica* Schum. Saell. 1486, *Trichia cinnabaris* DC. Fl. Fr. n. 688, *Arcyria fusca* Fr. Gast. p. 17, *Arcyria vernicosa* Rtfki. Mon. Supp. p. 36. — Peridiis congestis, vulgo stipitatis, plus minus ovoideis, nitentibus; stipite stricto, longitudine vario; colore peridii, stipitis, capillitii et sporarum maturarum vario, ut plurimum croceo, puniceo vel lateritio-rubro; tubulis capillitii æqualibus, applanatis, e receptaculo enatis, 3 μ . latis, protuberantiis semicirculos vel circulos sistentibus ornatis; sporis levibus 6-7 μ . diam.

Hab. in lignis putrescentibus in Suecia, Germania, Britannia, Belgio, Sibiria, Italia, Gallia, Hungaria, Fennia, America boreali et australi, Africa et Australia.

2. ***Arcyria pomiformis*** (Roth.) Rost. Sluzowc. pag. 271, Cooke Myx. 1458 p. 80, Schroet. Krypt. Fl. Schles. Pilze p. 109, *Stemonitis pomiformis* Roth. Fl. Germ. I, 548, *Stemonitis ochroleuca* Trent. in Roth. 221, *Stemonitis lutea* Trent. 221, *Arcyria umbrina* Schum. Saell. 1479, Berk. Ann. N. Hist. n. 389, Cooke Hdbk. n. 1174, *Arcyria silacea* Ditm. t. 8, *Arcyria ochroleuca* Fr. Syst. Myc. III, p. 181, Berk. Ann. N. Hist. n. 115, Cooke Hdbk. n. 1175, *Arcyria lutea* Schwz. Fungi Car. 2339, *Arcyria globosa* Weinm., teste Fr., *Stemonitis ochracea* Opiz herb. — Peridiis sparsis stipitatis, sphæroideis, ochroleucis; tubulis capillitii aere repletis, 2-4 μ . crassis, receptaculo enatis, protuberantiis spinulas dense inordinateque sparsas formantibus; sporis levibus, 7-8 μ . diam.

Hab. in ligno putri in Suecia, Germania, Britannia, Fennia, America boreali et Australia.

3. ***Arcyria cinerea*** (Bull.) Schum. Enum. Plant. Saell. n. 1480, Cooke 1459 Handb. n. 1172, et Myx. pag. 81, fig. 182, 185, 193, Rost. Mon. p. 272, 182, 185, 193, Pat. Tab. An. Fung. p. 83, fig. 196, Schroet. Krypt. Fl. Schles. Pilze pag. 109, *Clathrus recutitus* Linn. Sp. 1649, *Trichia* Hall. n. 2166, *Trichia cinerea* Bull. t. 477, f. 3, *Stemonitis recutita* Gmel. Sys. 1467, *Stemonitis cinerea* Gmel. Sys. 1467, *Arcyria albida* Pers. Disp. t. 1, f. 2, *Stemonitis glauca* Trent. p. 221, *Trichia carnea* Wall. in litt., *Arcyria carnea* Wallr. Fl. Germ. 2234, *Arcyria trichioides* Corda Ic. II, f. 86, *Stemonitis grisea* Opiz. in Lotos 215, *Arcyria pallida* B. et C. Grev. 1873, n. 365, *Arcyria stricta* Rtfki. Mon. Supp. pag. 36,

Comatricha alba Schulzer in Just. Bot. Jahresb. 1877, p. 155. — Peridiis gregariis, stipitatis, ovoideis vel ovoideo-ellipsoideis; stipite simplici, stricto, levi, longo; capillitio et sporis vulgo dilute cinereis; tubulis capillitii in centro peridii 4-5 μ . crassis, verrucis præditis, versus marginem tenuioribus, 2 μ . crassis, spinulosis; sporis levibus, 6-8 μ . diam.

Hab. in lignis putrescentibus in Gallia, Germania, Suecia, Britannia, Fennia, Italia, Belgio, America, Australia et Africa austr.

4. **Arcyria digitata** (Sz.) Rost. Mon. pag. 272, *Arcyria Leprieurii* Mont., Guyan. n. 603 et Syll. n. 1076, *Arcyria bicolor* B. et C. Cuban Fungi II, p. 86, n. 542, *Stemonitis digitata* Schw. Am. n. 2350. — Sparsim gregaria; peridiis congestis, linearibus, stipitatis; stipitibus plerumque coalitis; capillitio elongato cylindrico sporisque argillaceo-umbrinis, levibus, 7-9 μ . diam.

Hab. ad ligna putrescentia, Cuba et Cayenna (LEPRIEUR). — Stipites cylindrici, elongati, basi crassiores, subnigri, formant plures fasciculos, 3,5 mm. altos. Aliqui stipites in tota longitudine connati et vertice gerunt peridia totidem, cylindrica, vertice arcuata, furva, aliquantulo humiliora; capillitium gerit tubulos, exteriores 2,5 ad 4,2 μ . latos, et cum protuberantiis in forma punctorum, interiores vix 1,2 ad 1,6 μ . latos et valde aculeosos.

Subg. 2. **Arcyrella** Rost. Add. p. 36.

Capillitium tantum mediæ columellæ adnatum et facile recedens (Rost. l. c.).

5. **Arcyria adnata** (Batsch) Rost. Sluzowc. Add. pag. 36, *Clathroides purpureum* Mich. t. 94, f. 2, *Arcyria sessilis* Hll. pag. 47, *Clathrus ramosus* a, Retz. Vet. Hand. 253, *Lycoperdon hypoxylon* Pallas II, 503, *Clathrus adnatus* Batsch. p. 141, *Stemonitis trichia* Roth. Fl. Germ. I, 549, *Stemonitis lilacina* Schr. Fl. Bav. II, 1784, *Stemonitis incarnata* Pers. in Gmel. 1467, *Trichia cinnabaris* Bull. t. 502, f. 1, d, *Arcyria incarnata* Pers. Obs. t. V, f. 4, 5, Eng. Fl. V, 318, Rost. Mon. p. 275, f. 187, 199. Pat. Tab. An. Fung. p. 84, fig. 197, Cooke Myx. p. 71, fig. 187, 199, Schroet. Krypt. Fl. Schles. Pilze p. 110, *Stemonitis carnea* Trent. p. 222, *Stemonitis globosa* Trent. p. 222, *Trichia flexuosa* Schum. Saell. 1465, *Arcyria lilacina* Schum. Saell. 1476, *Arcyria carnea* Schum. Saell. 1477, *Arcyria dentata* Schum. Saell. 1478, *Arcyria incarnata*, β . *flexuosa* Fr. Syst. Myc. III, p. 179. *Arcyria nutans* β . *exigua* Bong. in Weinm. 609, *Arcyria fle-*

venosa Rabh. Fl. Cry. 2158. — Peridiis gregariis aut fasciculatis, stipitatis, ovoideis; stipite erecto, brevi, evanescente; sporis et capillitio incarnatis, raro ochraceis; tubulis capillitii e tubo stipitis enatis, cylindræis, æqualibus, 4 μ . crassis, protuberantiis tæniolas spirales v. diffusas spinulasque exiguas sistentibus; sporis levibus s. m. flavidis vel dilutissime flavescentibus, 6–7 μ . diam.

Hab. ad ligna putrida in Germania, Suecia, Gallia, Fennia, Britannia, Italia, Belgio, America et Australia. — Calyculus grandiusculus, pezizoideus, contextu plasmodico punctato, ochraceo-ferrugineus, radiatim plicatus, nec vere venosus; capillitium ochraceo-ferrugineum, ubique muriculatum, $3\frac{1}{2}$ μ . crassum.

6. *Arcyria similis* Racib. Myx. Crac. p. 13, fig. 8. — Peridiis breviter stipitatis cerasinis; capillitii floccis pachydermicis 4,2–5,8 μ . latis, cylindræis, aut parum compressis, totis ornatis verruculis confertis atque lamellis; lamellis plerumque semiannularibus non ut in *A. adnata* in spiras regulares, sed aut omnibus omnino irregulariter, aut paucis earum aliis super alias, ut in *A. ferruginea* aut in spiras, irregulares diremptas dispositis; sporis 7,5–8,3 μ . latis, membrana tenui, fere decolorata, evidenter verruculosa.

Hab. prope Cracoviam Poloniæ.

7. *Arcyria affinis* Rost. Mon. p. 276, *Arcyria vermicularis* Schum. 1463 Fl. Saell. n. 1475, *Arcyria punicea* β . *vermicularis* Fr. Syst. Myc. II, p. 178. — Peridiis cylindrico-ovatis, 1 mm. altis, stipite paris altitudinis fultis, acervatim in substrato stantibus; massa sporarum et capillitii purpureo-ferruginea aut gilvo-rubra; reticulo capillitii e floccis cylindricis inferius 3,6 superius 5,4 μ . latis formato; protuberantiis ut in *A. incarnata*.

Hab. in truncis in Suecia et Saellandia.

8. *Arcyria nutans* (Bull.) Grev. Flor. Edin. pag. 455, Pat. Tab. An. 1464 Fung. pag. 84, fig. 298, Rost. Mon. p. 277, Cooke Myx. pag. 72, Schroet. Krypt. Fl. Schles. Pilze pag. 110, *Clathroides flavesceus* Mich. p. 214, *Clathroides longissimum* Hall. pag. 10, *Clathrus ramosus*, β . Retz Vet. Handl. 253, *Trichia nutans* Bull. t. 502, f. 3, Sow. t. 260, *Stemonitis nutans* Gmel. Sys. 1467, *Arcyria flava* Pers. Obs. I, p. 85, Grev. t. 309, *Stemonitis amara* Trent. pag. 222, *Trichia elongata* Schum. Saell. 1464, *Arcyria alutacea* Schum. Saell. 1474, *Arcyria pallens* Wallr. in litt., *Arcyria straminea* Wallr. Crypt. Germ. 2232, *Arcyria nutans*, c. minor Bong. in Weinm. p. 609. — Peridiis aggregatis, breviter

stipitatis, cylindraceis; stipite brevi, evanescente; sporis et capillitio sordide albo-flavis; capillitio laxo, longissimo, arcuato, demum decumbente; tubulis e tubo stipitis enatis, 3-4 μ . crassis, protuberantiis spinulas firmulas, inordinatas, sistentibus; sporis levibus, 7-8 μ . diam.

Hab. in lignis putrescentibus in Suecia, Germania, Italia, Gallia, Britannia, Belgio, Fennia, Lapponia, Hollandia, Hungaria et Amer. bor. — Capillitio longissimo, decumbente et a peridio dilabente facile distincta. — Var. **brevissima** Racib. in Hedw. 1885, p. 170. Tubis capillitii aculeolis brevibus 1,7 μ . altis lineolis brevibus crebre vestitis. Cum typo. — Var. **spinosissima** Rac. l. c. Tubulis capillitii aculeis longis lineolisque brevibus utrisque 3,5 μ . altis vestitis. In Tatra.

9. **Arcyria inermis** Racib. Myx. Crac. p. 14, f. 7. — Peridiis stipitatis lateritiis, stipite vesiculis variæ magnitudinis farcto et in earum intervallis capillitii floccis repleto; capillitii rete tubulis constante, cylindraceo-complanatis, 4,2-10,8 μ . latis, protuberantiis in rete coniunctis, masculis 1,6-2 μ . longis et atque fere latis ornatis; sporis 9,9-10,8 μ . latis, membrana firma, rubicunda, evidenter verruculosa.

Hab. prope Cracoviam Poloniæ.

10. **Arcyria irregularis** Racib. Myx. Crac. p. 15, fig. 10. — Peridiis incarnatis, stipitatis; stipitibus usque ad 0,5 mm. altis, vesciculis decoloribus repletis, calyculo hemisphærico, membrana verruculosa; capillitii rete irregulari, masculis parvis aut maioribus; tubulis complanatis, marginibus undulatis, varia latitudine 4,5-9,1 μ . latis, 2,5-4,5 μ . crassis, conis irregularibus, obtusis 0,8,3-1,5 μ . latis, plerisque elongatis, omnino irregulariter dense per totum capillitium dispositis ornatis; sporis 7-7,5 μ . latis, membrana firma, levi subdecolore.

Hab. prope Cracoviam Poloniæ.

11. **Arcyria Raciborsckii** Berl. *Arcyria decipiens* Racib. Myx. Crac. p. 16, f. 9 non Berkeley. — Peridiis stipitatis, stipitibus, vesciculis repletis; calyculis hemisphæricis, membrana tenui, subrubicunda, intus verruculis densis, brevissimis, acuminatis ornata, capillitiis in nodis sæpe etiam in internodiis in vesciculas globosas inflatis, rete formantibus laxum; capillitii parte inferiori e tubulis efformata complanatis, margine uno in dentes incrassato, cæterum levibus, parte cætera majori e tubulis subcylindraceis, dentibus illis in spiram dispositis, atque lamellis reliquam tubuli partem occupanti-

bus ornatis composita, lamellis dorso undulato, in spiras dispositis spirarum numero inconstanti (1 usque ad 4), spiris enim aliis explanatis et evanescentibus, aliis in ramos dividantibus et passim rete incrassatum irregulare e multis masculis compositum efformantibus, vesiculis retibus incrassatis tantum ornatis; sporis membrana verruculosa præditis, 10,5–11,6 μ . latis.

Hab. in agro Cracovicesi Poloniae

2. **Arcyria Ærstedtii** Rost. Mon. p. 278. — Peridiis ovatis, in for- 1468
mis typicis, stipitatis; stipitibus brevi bus rectis; capillitio multo-
toties diviso, dein evanescente; massa sporarum et capillitii nucea,
subfusca, coccineo-fusca aut e fusco-nigricante; reticulo capillitii
e tubis cylindricis, incisuram habentibus, subulatis 3,3 ad 5 μ . la-
tis, sæpe valde vesiculoso-inflatis formato; protuberantiis tantum
aculeos laxè disseminatos variæ altitudinis sistentibus; sporis le-
vibus, 8–9 μ . diam.

Hab. prope Petesburg Rossiae et Pinzgau Tyroliae, nec non ad
Kopenhagen Daniæ.

3. **Arcyria dictyonema** Rost. Mon. p. 279. — Peridiis ovatis, stipi- 1469
tatis; stipitibus e substrato acervatim orientibus; capillitio non
valde diviso, e tubis cylindricis, variæ latitudinis, plerumque 3–5
 μ . crassis formato; protuberantiis ex aculeis rigidis, spinosis, 1,7
 μ . altis formati, aculeis reticulatim basi se jungentibus; sporis le-
vibus 9–10 μ . diam.

Hab. prope Petersburg Rossiae (BOUGARD) et Freiburg Germa-
niæ (DE BARY).

4. **Arcyria ferruginea** Saut. Beitr. z. Kenntn. Pilz. Ober-Pinzg. in 1470
Flora 1741, pag. 316, Schroet. Krypt. Fl. Schles. Pilze pag. 110,
Arcyria lateritia De Bary, Mycet. pag. 24, *Arcyria ferruginea*
Fuck. Sym. pag. 337, ex substrato acervatim oricutibus, Berk. et
Br. Ann. Nat. Hist. n. 1603, Grevillea V, p. 13, *Arcyria intri-
cata* Rtfki. Mon. Supp. p. 37. — Peridiis breviter stipitatis, ovoï-
deis; sporis et capillitio lateritiis vel ferrugineis, rarius ochra-
ceis; tubulis trigonis, e tubo stipitis enatis, uno latere vittatis,
ceteris duobus irregulariter reticulatis; sporis 9–12 μ . diam., s.
m. flavidis, demum dilutissime flavescens vel hyalinis, levibus.

Hab. in ligno putri in Britannia, Germania et Fennia.

Species incerti subgeneris.

5. **Arcyria bonariensis** Speg. Fun. Arg. Pug. III, n. 90. — Peridiis 1471
minutis, $\frac{1}{2}$ – $\frac{3}{4}$ mm. long., $\frac{1}{3}$ – $\frac{1}{4}$ mm. cr., in acervulos 5–20 dense

constipatis, amœne citrino-flavis, pedicello dimidium peridium æquante, concolore; tubulis capillitii e tubo stipitis enatis, cylindraceis, æqualibus, 3 μ . crass., dense muricatis, chlorino-hyalinis; sporis globosis, granuloso-farctis vel guttulatis crassiuscule, tunicatis, 10 μ . diam.

Hab. in trabe vetusta fabrefacta, Bonaria Argentina. — Species *Arc. nutanti* affinis sed satis diversa.

16. **Arcyria Friesii** B. et Br. Ann. Nat. Hist. n. 1602, Grevillea V, pag. 13, Cooke Myx. Brit. fig. 251, 259, *Arcyria cinerea* Fries Syst. Myc. III, p. 180, non Bull. — Peridiis gregariis globoso-ovatis, stipitatis, cinereis, capillitio e tubis crassitudine variis, iis centro validioribus formato; tubis centralibus verrucosis vel levibus, externis delicate verruculosi; sporis glaucis, globosis, 9-10 μ . diam.

Hab. in residuis lignosis a serrula formati in Britannia.

17. **Arcyria versicolor** Phill. in Grevillea V, p. 115, tab. 88, fig. 8, *a, b, c, d, e.* — Peridiis stipatis, latis, breviter stipitatis, ovoideis, pallide brunneis; capillitio basi elongato, carneo, apice sordide brunneo-griseo; floccis tuberculigeris; sporis 10 μ . diam., pallide brunneis.

Hab. in cortice Pini etc., Blue Canon Calif. Amer. bor.

18. **Arcyria vitellina** Phill. in Grevillea V, p. 115, tab. 88, fig. 7, *a, b, c, d, e.* — Peridiis stipatis, latis, breviter stipitatis, ovoideis, luteis, circulariter sursum apertis; capillitio nitide luteo, elongato-clavato, noduloso; floccis tuberculigeris, annulis distantibus cinctis; sporis concoloribus, 10 μ . diam.

Hab. in truncis Quercus, Blue Canon Calif. Amer. bor.

Species incertæ.

19. **Arcyria insignis** Kalchbr. et Cooke in Grevillea X, p. 143. — Parva, rosea, fasciculata; peridiis ovatis; sporis exoletis.

Hab. in ligno putri, Africa austr. (Mac-OWAN).

20. **Arcyria decipiens** Berk. Fung. Darw. p. 447, t. X, f. 3. — Gregaria; peridiis stipitatis, obovatis, ochraceis, capillitio supra libero obovato, erecto sporidiisque concoloribus, globosis.

Hab. in cortice Palmarum Rio Janeiro Amer. — Habitus *Trichia clavata* sed capillitium reticulatum, non spirale.

21. **Arcyria cinnamomea** Hazsl. Ein neuer Myxog. Typus in Just Bot. Jahr. 1877, p. 156. — Intus et extus cinnamomea; peridiis gregariis demum discretis, cylindricis; stipite æquilongo diaphano-

albo; capillitii tubulis in masculas hexagonas reticulato-connexis, 3-4 μ . crassis, verruculis breve cylindraceis, diaphanis vestitis; sporis cinnamomeis.

Hab. in ligno salicino in Hungaria.

ACHNOBOLUS Fries in Flora Scanica, Rost. Mon. pag. 281, Cooke Myx. Gr. Brit. p. 74, Schroet. Krypt. Fl. Schles. Pilze p. 410 (Etyim. *lachneios* villosus et *bolos* jactus). — Peridia stipitata vel substipitata, irregulariter rupta. Rete capillitii ramis superficiem tunicae peridii attingentibus praeditum.

Lachnobolus incarnatus (Alb. et Schw.) Schroet. Krypt. Flor. Schles. 1478 Pilze p. 110, *Lachnobolus circinans* Rost. Mon. p. 281, Cooke Myx. p. 74, *Licea incarnata* Alb. et Schw. Consp. p. 109, t. 10, f. 6, *Arcyria circinans* Fr. Stirp. Fenn. pag. 83, *Lachnobolus circinans* Fr. Fl. Scand. p. 356, *Lachnobolus Sauteri* Rost. in Fuck. S. Myc. 2, Nach. p. 76, *Lycogala incarnata* Schwrtz. Vet. Ac. Handl. p. 112, *Perichæna incarnata* Fr. Syst. Myc. III, p. 193, *Lycoperdon pineum* Batsch. Elench. p. 155, n. 29, *Physarum congestum* Somm. l. c. Lapp. pag. 241, *Perichæna congesta* Fr. S. M. III, p. 192, *Licea congesta* Wallr. Fl. Crypt. Germ. n. 2108. — *Æthaliis* globosis vel ellipsoideis, circiter 0,5 mm. diam., raro solitariis plerumque multis in acervulos 1 cm. latos collectis; peridiis membranaceis, fragilibus, carneo-coloratis, demum nitide brunneis, lucidis, capillitio e tubis permultis in rete laxum nodis 10 μ . crassis praeditum connexis, 3-5 μ . crassis, protuberantiis ornatis formato; massa sporacea nitide carnea; sporis 6,5-7,5 μ . diam. levibus.

Hab. ad ligna abietina putrida in Germania, Suecia Britannia et Lapponia.

Lachnobolus globosus (Schw.) Rost. Mon. p. 283, *Arcyria globosa* 1479 Schw. Consp. Car. n. 400, Am. fungi n. 2340, *Craterium globosum* Fr. Syst. Myc. III, p. 154, *Nassula globosa* Fr. Summa Veg. Scand. p. 456. — Peridiis sphaericis, aliquantulum applanatis, albis, fere sulphureis, stipite parvo recto; capillitio, non se extendente, e tubis reticulum valde laxum formantibus, irregulariter dispositis, 3,7 ad 5,2 μ . latis, ramis multis dilatatis et levibus praeditis, multis in locis parieti peridii adnatis formato; protuberantiis aculeos tenuissimos sistentibus ad 0,4 μ . altis; sporis levibus, 6-7 μ . diam.

Hab. gregatim et solitarie provenit in involucris putridis Ca-

staneorum in Carolina superiore. — Elegans; peridii pars persistens minuta, cupularis; capillitium globosum, compactum non expansum, sporis dispersis concolor.

3. **Lachnobolus Arcyrella** Rost. Mon. p. 431. — Peridiis piriformibus, fulvis, quasi coloris straminis; stipite altitudinem peridii attingente, aut vix brevior, subgilvo; capillitio non se extendente e tubis reticulum valde laxum formantibus irregulariter dispositis, 2,5 ad 8,3 μ . latis, multis in locis parieti peridii adnatis formato, nonnullis descendentibus intus fistulam stipitis, et plurimis verruculis obtusis tectis; sporis levibus 7-8 μ . diam.

Hab. in Jutlandia.

4. **Lachnobolus congestus** B. et Br. in Ann. Nat. Hist. n. 1604, t. 9, fig. 2, Cooke Myx. Gr. Brit. n. 90. — Peridiis sessilibus, stipitatis in acervulos orbiculares, nitidis, luteo-umbrinis; capillitio e tubis ramosis, sporis concoloribus, verrucosis formato; sporis globosis, 7,5-10 μ . diam., luteo-umbrinis.

Hab. in ligno exsiccatum in Britannia. — An a *L. incarnato* valde distinctus?

5. **Lachnobolus Rostafinskii** Racib. Myx. Cracov. p. 12, fig. 6. — Peridiis stipitatis, ovato-conoideis apice rotundato, flavo-cinereo, parte inferiore tantum tecta membrana hemisphaerico-patellæformi, cæterum nuda; capillitio abundante, rete formante, membranae peridii multis ramis adnato, sursum multos ramos emittente liberos, apicibus rotundatis, ad ipsam peridii nudam superficiem evanescentibus; capillitii floccis passim coarctatis, latitudine igitur inter 4,2-8,2 μ . variantibus, lamellis tenuibus reticulatim coniunctis ornatis; sporis 7,5-8,3 μ . luteis, membrana firma, levi decolore.

Hab. prope Cracoviam Poloniæ.

DERMODIUM Rost. Mon. p. 284, Cooke Myx, p. 74 nec Nees. (Etym. a *derma* pellis). — Peridium simplex, membrana simplici, cellis coloratis prædita tectum; capillitium e tubis in rete connexis, totius superficiæ interiori tunicae uniformiter adnatis formatum.

1. **Dermodium conicum** (Pers.) Rost. Mon. p. 284, *Lycogala conica* Pers. Syn. p. 159, Fr. Syst. Myc. III, pag. 82, Wallr. Fl. Crypt. germ. n. 2253, *Lycogala atro-purpureum* B. et Br. Ceylon Fungi II, n. 735, *Lycog. nitidum* B. et Br. Ceylon Fungi II, n. 734. — Peridiis gregariis, primum pulposis, miniato-rubris, conicis, dein arescendo violaceo-purpurascens nitidis, demum verrucis in fibrillulas brevissimas solutis variegatis pallide-fuscis, vertice trun-

cato fatiscientibus lata basi, sessilibus; massa sporarum globosarum argillaceo-olivacea; tubis capillitii fere absque protuberantiis.

Hab. ad ligna carie exesa in Germania, Suecia et Ceylon. — Coloris mutationes omnino ut in *Lycog. epidendron*; peridium modo junius magis miniatum adultius magis nitens, exoletum fusco-pallescent; pulpa primo concolor, dein purpureo-violacea, sed mox rosea et sporis maturis pallens, argillacea. Ceterum vero insignis species; forma constanter conica, passim geminatim vel ternatim connata, capsulis *Buxabaumiae aphyllæ*, in statu adulto similis; peridii verrucæ abeunt in fibrillas brevissimas, longitudinaliter seriatis dispositas, nigras, magis innatas, ut peridium variegatum videatur; sporæ maturæ argillaceæ, floccis tenellis mixtæ, ore truncato rotundo; sporis deflatis, floccis intus villosum Fr. l. c.

LYCOGALA Mich. Nov. Gen. Pl. p. 215, Rost. Mon. p. 285, Cooke Myx. p. 74, Schroet. Krypt. Fl. Schles. Pilze p. 111 (Etym. *lycos* lupus et *gala* lac.). — *Æthalia* plus minusve rotundata, colore varia, in plasmodiocarpa nuda, intricate complexa vel coalita. Peridia externa corticem duplicem, vesiculis minutis coloratis tectum, efficientia. Tubuli capillitii e strato corticis interioris enati, ramos quorum plures apice libero, obtuso protrudentes, reticulum laxum formantes.

Lycogala epidendrum Buxb., Hall. p. 203, Fl. Dan. t. 720, Light. 1484 f. Fl. Scot. n. 1068, Holms. Ot. tab. 31, Bolt. tab. 119, fig. 1, Sow. tab. 52, Purt. Midl. Fl. pag. 701, Rehl. Cant. p. 566, With. Arr. IV, p. 457, Fr. Syst. Myc. III, 80, Berk. Engl. Fl. V, p. 307, Cooke Hdbk. n. 1095, Rost. Mon. p. 285, fig. 1, 7, 12, Cooke Myx. pag. 75, fig. 1, 7, 12, Schroet. Krypt. Fl. Schles. Pilze pag. 111, *Fungus coccineus* Ray Syn. II, 336, *Fungus sanguineus* Bocc. Mus. pag. 304, *Fungus non vescus* Læs. Fl. Prus. pag. 96, *Lycoperdon sanguineum* Rupp. Fl. Jen. *Bovista miniata* Dill. Cat. Pl. 197, *Lycogala globosum* Mich. tab. 95, fig. 2, *Lycoperdon sanguineum* Buxb. tab. 29, f. 2, *Lycoperdon sphaericum* Gled. Meth. 150, *Mucor III. sphaericus* Gled. Meth. 161, *Mucor secundus* Schff. t. 193, *Lycogala sessile* Retz. Ac. Holms. 254, *Mucor lycogala* Scop. Carn. II, 1645, *Mucor fragiformis* Schff. Bar. n. 283, *Lycoperdon variolosum* Huds. Fl. Ang. 645, *Lycoperdon epiphyllum* Huds. Fl. Ang. 645, *Lycoperdon pysiforme* Jacq. Misc. t. 7. *Galeperdon epidendron* Wigg. Fl. Holsat. 1148, *Lycoperdon chalybeum* Batsch. El. p. 155, *Lycoperdon verruco-*

sum Batsch. El. p. 155, *Reticularia rosea* DC. Bullet. Phil. f. 8, *a, b, c, Lycogala miniata* Pers. Obs. II, pag. 26, Crev. S. C. Fl. tab. 38, Nees. tab. 8, fig. 97, Gray. Arr. I, 568, Pat. Tab. An. Fung. pag. 85, fig. 199, *Lycogala punctata* Pers. Syn. pag. 158, *Lycogala plumbea* Schum. Saell. 1408, *Lycogala ferruginea* Schum. Saell. 1406, *Reticularia miniata* Poir. Ency. VIII, 22, *Reticularia punctata* Poir. Ency. VIII, n. 21, *Reticularia rosea* Poir. Ency. VIII, n. 21, *Lycogala miniata* Johnst. Fl. Berw. *Lycogala affinis* B. et Br. Ceylon Fungi n. 735. — *Æthaliis* gregariis, rotundatis, nitentibus, verrucosis, primitus roseis vel miniatis, demum cinereis vel fusciscentibus; sporis et capillitio colore variis, roseis, purpureis, violaceo-rubris, demum expallentibus, plumbeis vel griseis; sporis levibus, 3-5 μ . diam.

Hab. in lignis et truncis putrescentibus in Italia, Germania, Lusitania, Sibiria, Gallia, Britannia, Hungaria, Belgio, Suecia, America boreali, Australia, in Africa occ., insula Ceylon. — Colore amœne rubro adhuc immatura oculos e longinquo allicit. *Æthalia* 3-6 mm. lata.

2. ***Lycogala flavo-fuscum*** (Ehrenb.) Rost. Mon. p. 288, Cooke Mon. p. 76, Schroet. Krypt. Fl. Schles. Plze pag. 111, *Diphtherium flavo-fuscum* Ehr. Syl. pag. 27, *Reticularia flavo-fusca* Fr. S. M. III, 88, B. et Br. Ann. N. Hist. n. 591, *Reticularia testacea* Wallr. Fl. Germ. 209. — *Æthaliis* rotundis, superficie opaca, levi vel indistincte reticulata, griseo-umbrinis; massa sporacea et capillitio griseo-umbrinis; sporis minutis delicate spinulosis, 3,3-5,8 μ . diam. dilute argillaceis.

Hab. in ligno putri in Germania, Italia, Britannia, Suecia et Amer. bor.

3. ***Lycogala minutum*** Sacc. et Paol. Fungi Malacen. in Atti R. Ist. Ven. 1888, tab. V, fig. 1. — Peridiis gregariis superficialibus e flavo ochraceis, basi adnata sessilibus, globoso-depressis, 4-5 mm. lat., levibus (non punctatis), denique vero minute crebre foveolatis; hypothallo parco albo mucedineo; floccis filiformibus, brevibus, subsimplicibus, hyalinis; sporis globosis, asperulis, uniguttulatis, 3 μ . diam. e flavido hyalinis.

Hab. in ramis decorticatus dejectis putridis in pœnins. Malacca (SCORTECHINI).

- OLIGONEMA** Rost. Mon. p. 291, Cooke Myx. p. 77 (Etym. *oligos* paucus et *nema* filum). — Peridia simplicia, regularia vel irregularia.

ria irregulariter rumpentia. Capillitium e tubulis (elateribus) liberis compositum.

1. ***Oligonema æneum*** Karst. Myc. Fenn. IV, p. 125. — Peridiis densissime stipatis sæpeque venuloso-confluentibus, raro sparsis, orbicularibus vel mutua pressione angulatis, applanatis, nitidis metallicis, cupreis vel virescentibus vel subolivaceis; tubulis capillitii liberis, protuberantiis circulos sparsos sistentibus, 2-3 μ . crassis; sporis sphæroideis, verrucosis, ferruginascente- vel helvolo-ochraceis, flavescentibus, 12 μ . diam. 1487

Hab. in ligno pineo prope Mustiala et in Merimasku Fennicæ.

2. ***Oligonema nitens*** (Lib.) Rost. Mon. p. 291, Schroet. Krypt. Fl. Schles. Pilze p. 108, *Trichia nitens* Libert Pl. Arduenn. collect. fasc. III, n. 277 (non Persoon). — Peridiis sphæricis sessilibus, plura strata superimposita formantibus et sic placentas aliquot mm. altas et sæpe aliquot cm. long. et lat. sistentibus; pariete singulorum peridiorum rigido, gilvo, splendide nitido; capillitio e tubis multis solutis, in utroque fine obtuse clausis, varie curvatis, 4,2 μ . latis constante; protuberantiis paucis rigidis brevibus annulis constantibus; sporis sphæricis costidis in reticulum conjunctis præditis, 11-13 μ . diam. 1488

Hab. in muscis in Germania et Arduennis.

3. ***Oligonema breviflum*** Peck in 31 Rep. State Agr. Mus. p. 42. — Nitide ochraceo-luteum; peridiis stipatis, acervulos effusos, nitidos, forma varios formantibus; floccis paucis, brevibus, cylindraceis vel subfusiformibus, non septatis; sporis globosis, rugosis, 11 μ . diam. 1489

Hab. in muscis, Oneida Amer. bor.

4. ***Oligonema bavaricum*** (Thuem.) Balf. et Berl. *Trichia bavarica* Thuem. Myc. Univ. n. 1497. — Elateribus protuberantiis spiralibus vix conspicuis ornatis, subinde leniter acutis, paucis. 1490

Hab. in ligno putri in Bavaria. — Ut Cl. Bayley Balfour opinatur, *Trichia bavarica* Thuem. ad genus *Oligonema* ducenda, sed ab *Oligonemate nitente* vero diversa videtur.

Fam. 3. **Trichiaceæ** Rost.

Peridia discreta sessilia vel stipitata, irregulariter rumpentia, membrana simplici vel duplici, calce deficiente. Tubi capillitii aut liberi, utrinque attenuati aut reticulatim juncti, protuberantiis tæniolas spirales sistentibus instructi.

PROTOTRICHIA Rost. Mon. Appl. p. 38, Cooke Myx. p. 65 (Etym. a *protos* primus et *Trichia*). — Tubi capillitii una extremitate parti

inferiori peridii adnati, alia vero e peridio ut penicillus libere exeuntes.

1. **Prototrichia elegantula** Rost. Mon. App. p. 39. — Peridiis sphaericis, lata basi substrato adnatis, metallicis; massa sporarum et capillitii obscure-rufa; tubis capillitii basi coangustatis, ulterius 1 ad 5 μ . latis, 0,3 mm. longis, circa 17-50 μ . ante finem in aliquos fere leves aculeos basi incrassatulos productis; elateribus bene evolutis, tæniolis quatuor spiralibus planis, valde latis, et interstitiis valde angustis; sporis levibus, 10 μ . diam.

Hab. in Suecia (LINDBLAD).

2. **Prototrichia flagellifera** (B. et Br.) Rost. Mon. App. p. 38, Cooke Myx. p. 65, *Trichia flagellifera* B. et Br. Ann. N. H. n. 1143, *Trichia metallica* Berk. Fl. Tasm. p. 268. — Peridio lentiformi vel globoso fulvo, metallicis coloribus ornato, subtus umbilicato; stipite brevi cylindrico carneo, massa sporarum et capillitio carneis; tubis capillitii basi latis, sursum bis terve divisus, carneoluteis, apice vix attenuatis, ad extremitates in apices distinctos leviter desinentes, tæniolis spiralibus 4 indistincte signatis; sporis incarnato-fulvis, 10-12 μ . levibus.

Hab. in ligno putri in Britannia, Tasmania et Australia (ARCHER). — *T. fallaci* affinis.

TRICHIA Hall. Helv. III, p. 114, Rost. Mon. pag. 243, Cooke Myx. p. 61, Schroet. Krypt. Fl. Schles. Pilze p. 111 (Etym. *thrix*, *trichos* capillus, coma). — Tubuli capillitii simplices, liberi, apicibus attenuati, rarissime hinc inde furcati.

Clavis analytica specierum.

A) Bigyræ.

T. varia. Elateres cylindrææ, tæniolis spiralibus duabus, a spatio ter-quaterve diametro earum superante divisus.

B) Polygyræ. Elateres cylindrææ vel fusiformes, tæniolis spiralibus pluribus ornatae.

† Elateres fusiformes, peridium stipitatum.

× Peridium et stipes cavitatem communem efficientia.

T. fallax. Sporæ verrucosæ 10-12 μ . diam.

×× Cavitas peridii a cavitare stipitis membrana divisa.

T. fragilis. Elateres 4 μ . crassæ, tæniolis spiralibus tribus præditæ.

T. lateritia. Elateres 5 μ . crassæ, tæniolis spiralibus 4 cavis et applanatis præditæ.

†† Elateres cylindrææ.

Ψ Peridium stipitatum.

T. Decaisneana. Sporæ 10-11 μ . diam.

♀♀ Peridium sessile.

Ω Sporæ leves vel verrucosæ.

T. scabra. Elateres 4 μ . crassæ, tæniolis 4 spiralibus, spinis tectis ornatae.

T. inconspicua. Elateres 3 μ . crassæ tæniolis spiralibus 4, levibus in apicem levem desinentibus, diametro elateris duplo longioribus ornatae.

T. persimilis. Elateres 4-6 μ . crassæ, tæniolis spiralibus 3-4 prominentibus, aculeis hyalinis ornatis.

T. heterotricha. Elateres 7 μ . crassæ, utrinque spinis vel annulis, vel verrucis ornatae, sursum inflatae, apice attenuatae; sporæ leves.

T. proximella. Elateres 4-5 μ . crassæ, apiculo obliquo, levi; tæniolæ spirales 3-4; sporæ verruculosæ.

T. contorta. Elateres 2,5-3 μ . crassæ, ad apicem inconspicue incrassatae, spina tenui, levi terminatae; tæniolæ spirales 2-4 vix distinctæ.

ΩΩ Sporæ reticulatae masculis incrassatis.

* Tæniolæ spirales venis tenuibus elaterum tunicae parallele decurrentibus inter se connexæ.

T. chrysosperma. Elateres 8 rarius 5 μ . crassæ, tæniolis spiralibus 4-5 venis tenerrimis, longitudinalibus junctis ornatae.

** Tæniolæ spirales non a venis junctæ.

T. affinis. Tæniolæ spirales 3-5, elateres 4-5 μ . crassæ.

T. Jackii. Tæniolæ spirales 3-4; spinis numerosis tectæ; elateres 4 μ . crassæ.

Species incertæ sectionis.

T. Kickxii.

T. purpurascens.

T. piriformis.

T. pusilla.

T. reniformis.

T. abrupta.

1. **Trichia fallax** Pers. Obs. 1, pag. 59, t. III, f. 4,5, Nees f. 113, 1493 Corda Ic. IV, p. 97, Cooke Myx. pag. 61, fig. 211, 221, 223, 236, Schroet. Krypt. Fl. Schles. Pilze pag. 111, Rost. Mon. pag. 243, fig. 211, 221, 222, 233, 236, *Mucor capitulis piriformis* Fl. Dan. t. 617, f. 2, *Mucor miniatus* Jacq. Misc. t. 299, *Stemonitis flavescens* Schrank p. 19, *Lycoperdon aggregatum* Liljeb. Fl. Scan. 460, *Lycoperdon pusillum* Hedw. Abh. t. III, f. 2, *Physarum piriforme* Schum. Saell. 1448, *Trichia virescens* Schum. Saell. 1459, *Trichia cerina* Ditm. t. 25, Curr. Micr. Journ. V, p. 127, Cooke Hdbk. n. 1184, *Trichia fulva* Purt. Mid. Fl. 1534, *Trichia clavata* Wigand. n. 3, *Trichia furcata* Wigand. n. 4, *Arcyria elongata* Bong. Herb., *Trichia nana* Zukal Einig. neue Pilze Myx. und Bact. p. 334, t. XV, f. 8. — Peridiis gregariis, stipitatis, nitentibus, turbinatis, obscure ochraceis aut argillaceo-vel olivaceo-flavis; stipite plicato, obscuriore tubo cum cavitate peridii continuo; elateribus fusiformibus, simplicibus vel ramosis, in centro 4-5 μ . crassis, utrinque æqualiter attenuatis, apiculis diametro elaterum

quater vel sexies longioribus, levibus; tæniolis spiralibus tribus, leviter prominentibus; sporis verrucosis, 10–12 μ . diam.

Hab. in truncis et lignis putrescentibus, mollibus, in Germania, Britannia, Italia, Belgio, Gallia, Hungaria, Fennia, Suecia et Amer. bor. — α . **minor**: peridiis turbinatis, raro piriformibus vel clavatis, obscure ochraceis vel argillaceo-sive fusciscentis ochraceis, 1,5 mm. altis. Sec. cl. Raciborski *Trichia nana* Zukal est mera forma minor *Trichia fallacis* var. *minoris*. (Cfr. Hedw. 1887, p. 109). — β . **genuina**: peridiis turbinatis, raro piriformibus vel clavatis, ochraceo-flavis, hinc inde olivaceis, 2–3,5 mm. altis. — γ . **cerina** (*Trichia cerina* Ditm. in Sturm Deutschl. Flor. III, t. 25): peridiis piriformibus, vulgo olivaceo-flavis, 4–5 mm. altis. Cum type in Germania. — I. *simplex*: elateribus simplicibus, apicibus tantum duobus. — II. *furcata*: elateribus furcatis, apicibus 3–10.

2. **Trichia fragilis** (Sow.) Rostaf. Sluzow. p. 246, f. 203, 204, 225, 226, Cooke Myx. p. 62, Schroet. *Lycoperdon bombacinum* Batsch El. pag. 153, *Stemonitis Botrytis* Pers. in Gmel. Sys. 1468, *Trichia Botrytis* Pers. Disp. pag. 9, Ic. Pict. tab. 12, fig. 1, 2, Krypt. Fl. Schles. Pilze pag. 112, *Trichia Botrytis* β . *minor* Pers. Disp. 54, *Trichia serotina* Schrad. Journ. t. 3, f. 1, Eng. Fl. V, p. 310, Cooke Hdbk. n. 1181, *Sphaerocarpus fragilis* Sow. t. 279, *Trichia notata* Fl. Dan. 1680, *Trichia badia* Fr. Stirp. Femsj. 83, *Trichia piriformis* Fr. S. M. III, 184, Curr. Micr. Journ. III, t. 2, f. 9, 10, Cooke Hdbk. n. 1178, *Trichia Lorinseriana* Corda Ic. I, f. 228, Curr. Micr. Journ. V. p. 129, Cooke Hdbk. n. 1180, *Trichia piriformis* β . *serotina* Rtfki. in Fuck. Symb. 2, n. 75, 1873, *Craterium floriforme* Schw. Am. n. 2307, *Alwisia Bombarda* B. et Br. Ceylon Fungi n. 784, t. II. f. 6. — Peridiis stipitatis, solitariis vel fasciculatis, piriformibus, rarius turbinatis, obscure rufis vel atro-rubrescentibus, rarius fuscis vel flavis, opacis, stipitibus simplicibus vel connatis, subracemosis, plicatis, rigidis, erectis vel cernuis et prostratis, concoloribus; sporis et elateribus e tubo stipitis membrana propria disjunctis, croceis, cinnameis, ferrugineo-flavis vel ochraceo-flavis; elateribus fusiformibus, ad medium 4 μ . crassis, utrinque vix vel leviter attenuatis, apiculis levibus, diametro elaterum duplo longioribus; tæniolis spiralibus tribus prominentibus; sporis episporio firmo, verrucoso, 11–13 μ . diam.

Hab. in ligno putri in Germania, Suecia, Britannia, Bohemia, Italia, Belgio, Fennia, America et in insula Ceylon Africae. — In

var. **Lorinseriana** et var. **Botrytis** peridia sunt atro-cinnamomea, levia, nitidula, piriformia 1 mm. long., 0,5-04 mm. cr., 6-9-aggregata, pedicellis cinnamomeis simul fasciculato-conglutinatis 2 mm. long., 0,5 mm. cr.; tubuli capillitii sunt teretes 5 μ . cr., cinnamomei, 3 v. 4 tæniolis aculeos paucos, acutos ac longiusculos, 3 $\approx$ 0,5 gerentibus percursi, apice simplici breviuscule conoideo-attenuato donati; sporæ globosæ 10-12 μ . diam. v. e latere mutue compressæ, 1-grosse guttulatæ, minute denseque papilloso-asperæ. — α . **genuina**: peridiis piriformibus, rubris vel obscure fuscis, subinde atris, opacis; sporis et elateribus, cinnamomeis vel subferrugineis, vel fuscescente-ochraceis; stipite rigido, recto. — I. *simplex*: stipite simplici. — II. *Botrytis*: stipitibus connatis, fasciculatis. — β . **Lorinseriana**: peridiis piriformibus dilute rufis, nitidulis; sporis et elateribus ochraceis; stipite vulgo non rigido, arcuato vel prostrato. — I. *simplex*: stipite simplici. — II. *Botrytis*: stipitibus connatis, fasciculatis. — γ . **serotina**: peridiis clavatis v. piriformibus, dilute coccineo-fuscis vel dilute castaneis; sporis et elateribus flavis vel ochraceo-flavis; stipite rigido. — I. *simplex*: stipite simplici. — *Botrytis*: stipitibus connatis, fasciculatis.

3. **Trichia lateritia** Lév. Ann. Sc. Nat. V, p. 167, Rost. Mon. p. 250, 1495
Cooke Myx. fig. 223, 224. — Peridiis piriformibus, stipitatis; stipite brunneo-nigro, opaco; massa sporarum et elateribus rufo-lateritiis; elateribus fusiformibus, apicibus acute terminatis, fere acutatis, tæniolis spiralibus prominulis, quaternis, destrorsis; sporis membrana crassiuscula, levibus, 10-12 μ . diam.

Hab. in ligno putri, Orton Wood Britanniae (Rev. A. BLOXAM).

4. **Trichia Decaisneana** De Bary in Rost. Mon. pag. 250, Schroet. 1496
Krypt. Fl. Schles. Pilze p. 112. — Peridiis pyriformibus, fusco-gilvis, nitidis, stipitatis, stipite ex rubro fusco subnigro, valde plicato, oblongo; massa sporarum et elaterum croceo-gilva, undique membranâ internum parietem peridii cum externo connatum formante cincta; elateribus cylindricis, circa finem inflatis, deinde in aculeum latitudine elateris ter et sæpe sexies longiorem, extremitate fere levem et in latus curvatum, desinentibus; tæniolis spiralibus quinque aut sex flexuosus, dextrorsum currentibus aculeatis, ex utraque elateris parte, veluti crenis seu rugis eminentibus, latioribus interstitiis separatis; sporis membranâ delicate aculeatâ præditis, 10-11 μ . d.

Hab. in Jungermannii in Germania. — Sec. cl. Schr. l. c., sporæ 11-12 μ . metiuntur, elateres 4-5 μ . crassæ, tæniolis spiralibus 3-4 apice 8-10 μ . longo præditæ.

5. *Trichia varia* Pers. Disp. meth. Fung. p. 10, Rost. Mon. p. 251, f. 171, 202, 208, 212, 218, 237 (var. *genuina*), Cooke Myx. p. 63, f. 171, 202, 208, 212, 218, 237, Schroet. Krypt. Fl. Schles. Pilze p. 112, *Lycogala luteum* Mich. t. 95, f. 4, *Mucor quintus* Schaff. 296, *M. granulatus* Schaff. n. 286, *Lycoperdon vesiculosum* Batsch 283, *Sphaerocarpus chrysospermus* Bull. t. 417, f. 4 (?), *Stemonitis varia* Pers. in Gmel. Sys. 1470, *Stemonitis vesiculosa* Gmel. Sys. 1470, *Trichia olivacea* Pers. Obs. I. 62, *Lycoperdon luridum* Hedw. Obs. t. XI, a, *Trichia favoginea* Schum. Saell. 1455, *Trichia applanata* Hedw. in DC. Organ. t. 60, f. 1. — Peridiis sessilibus, sphæroideis, irregulariter applanatis, sæpe nonnullis reniformibus immixtis, flavescentibus, subochraceis vel rufescente-flavidis, sparsis vel gregariis; elateribus cylindraceis, membrana tenui, 4 μ . crassis, apicem versus leviter vel vix inflatis, apiculo leviter curvato, diametro elaterum duplo vel triplo longiori; tæniolis spiralibus duabus, interstitiis iisdem triplo vel quadruplo latioribus; sporis verrucosis, ochraceis, 10–14 μ . diam.

Hab. ad truncos mucidos, ad folia putrida etc. in Suecia, Germania, Italia, Hungaria, Belgio, Sibiria, Amer. bor. et Argentina. — Var. *sessilis* Rost. Mont. p. 253, *Trichia turbinata* Wgd. Morph. Syst. Trich. p. 31 p. p. Peridiis turbinatis, subinde rotundatis, basi lata substrato adnatis; stipite discoideo, applanato, brevi, vix conspicuo. — Var. *nigripes* Rost. Mon. p. 251, Cooke Myx. pag. 64, Schroet. Krypt. Fl. Schles. Pilze pag. 112, *Mucilago minima* Mich. t. 96, f. 4, *Embolus albissimus* Hall. Herb. p. 8, *Embolus* Hall. n. 2138, *Mucor piriformis* Scop. Fl. Carn. 492, *Mucor pomiformis* Leers Fl. Herb. 1136, *Mucor lacteus* Leers Fl. Herb. 1132, *Stemonitis piriformis* Will. Fl. Ber. 409, *Embolus lacteus* Hoff. Veg. Cr. t. II. f. 3, *Sphaerocarpus chrysospermus* Bull. t. 417, f. 4, *Trichia olivacea* Pers. Obs. I, p. 62, *Arctyria olivacea* Ransch., *Trichia cylindrica* Pers. Obs. II, p. 33, *Trichia cordata* Pers. Obs. II, p. 33, *Trichia nigripes* Pers. Syn. 178, α . *piriformis*, β . *cordata*, γ . *cylindrica*, δ . *vulgaris* Fl. Dan. t. 1313, f. 2, Curr. Micr. Journ. V, p. 128, Cooke Hdbk. n. 1185, *T. varia* v. *piriformis* Karst. Myc. Fenn. IV, p. 138, *Trichia craterioides* Corda Ic. II, f. 85. Peridiis gregariis vel sparsis, forma variis, flavescente vel argillaceo ochraceis; stipite brevi vel longiusculo, nigrescente. Ad corticem Abietinum nec non ad fimum equinum in Fennia, Germania, Italia, Gallia, Britannia et Bohemia.

6. *Trichia chrysosperma* (Bull.) De C. Flor. Franc. n. 673, Rost.

Mon. p. 255, f. 209, 213, 210, Cooke Myx. p. 74, f. 209, 213, 210, Schroet. Krypt. Fl. Schles. Pilze p. 113, Eng. Fl. V, 320, Cooke Hdbk. n. 1187, Fungi Britt. II, 524, 527, *Lycoperdon gregarium* Retz. Obs. I, 33, *Lycoperdon favogineum* Batsch f. 173, *Stemonitis piriformis* Roth. Fl. Germ. I, 548, *Sphaerocarpus chrysospermus* Bull. t. 417, f. 4, *Stemonitis favoginea* Gmel. Sys. 1470, *Trichia nitens* Pers. Obs. I, 62, *Trichia favoginea* Pers. Disp. 10, *Trichia turbinata* Purt. Brit. II, 1115, *Clathroides flave-scens* Hall. t. 1, f. 7, *Trichia* Hall. 2168, t. 48, f. 7. *Lycoperdon aggregatum* Retz. Fl. Scan. 1627, *Lycoperdon epiphyllum* Light. Fl. Sc. 1069, *Clathrus turbinatus* Huds. Fl. Ang. 632, Bolt. t. 94, f. 3, *Trichia piriformis* Vill. Fl. Dauph. 1060, *Stemonitis piriformis* Pers. in Gmel. Sys. 1468, *Trichia turbinata* With. Arr. IV, 480, Sow. t. 85, Eng. Fl. V, 320, Cooke Hdbk. 1186, *Trichia piriformis* Pers. Disp. 10, *Trichia olivacea* Pers. Obs. I, 62, in part. *Trichia ovata* Pers. Obs. II, 35, Schum. Saell. 1454, Fl. Dan. t. 1313, f. 1, *Trichia vulgaris* Pers. Obs. II, 32, *Phy-sarum contextum* Spr. Sys. IX, 20, *Trichia verrucosa* Berk. Fl. Tasm. p. 269. — Peridiis dense congestis, sessilibus, rotundis, flavis, subinde subcinnamomeis; elateribus cylindræis, 8, rarius 5 μ . crassis, apiculo levi, vix vel leviter curvulo; tæniolis spirali-bus 4-5, tenuibus, leviter prominentibus, venis tenerrimis, longi-tudinalibus junctis; sporis sphæroideis, læte aureo-ochraceis, reti-culatis, masculis polygoniis, 10 μ . diam. vel, protuberantiis inclu-sis, 12-15 μ .

Hab. in lignis mucidis humidis in Suecia, Gallia, Germania, Italia, Belgio, Fennia, America bor., Australia et Tasmania.

7. **Trichia affinis** De Bary in Rost. Mon. p. 257, Schroet. Krypt. 1499 Fl. Schles. Pilze p. 113. — Peridiis in acervulos aggregatis, sessilibus vel hypothallo valde evolutò adnatis; elateribus cylindræis, 4-5 μ . crassis, quam in *T. chrysosperma* tenuioribus, levibus, rectis vel vix curvis, tæniolis spiralibus in rete connexis; sporis 10-12 vel etiam 14 μ . diam., episporio areolis hexagonis prædito.

Hab. in ligno putri in Britannia, Germania et Gallia.

8. **Trichia Jackii** Rost. Mon. p. 258, Cooke Myx. fig. 242, Schroet. 1500 Krypt. Fl. Schles. Pilze pag. 113. — Peridiis typice in acervulos collectis, sessilibus vel hypothallo valde evolutò, communi insiden-tibus; elateribus cylindræis, 4 μ . crassis, apice attenuatis, rectis vel leniter curvulis; tæniolis spiralibus tribus vel quatuor, raro spinulosis, interstitiis latis distinctis; sporis globosis, limbo increas-

sato, lato, perforato, ramoso rete irregulare formante, 10-12 vel etiam 14 μ . diam.

Hab. in ligno putri in Germania, Helvetia, Britannia et in Italia.

9. **Trichia scabra** Rost. Mon. pag. 258, Schroet. Krypt. Fl. Schles. Pilze pag. 113. — Peridiis typice gregariis, sessilibus, hypothallo communi, valde evoluti insidentibus; elateribus cylindræis, apice acutis rectis vel vix curvis; tæniolis spiralibus 3-4, spinis brevibus, acutis, numerosis tectis, interstitiis levibus latiusculis; sporis 8-11 μ . diam.; episporio crassiusculo, verrucis obtusis, numerosis.

Hab. in ligno putri in Britannia et Germania.

10. **Trichia inconspicua** Rost. Mon. p. 259. — Peridiis, valde parvis, subsphæricis, fuscis, nitidis in acervulos collectis vel discretis, vix conspicuis, sine hypothallo; elateribus cylindricis, 3,3 μ . latis, in aculeos latitudine elateris bis longiores, in latus curvatos, aliquando circa finem inflatos elongatis, tæniolis spiralibus tribus aut quatuor, parum eminentibus angustioribus interstitiis separatis; sporis pariete delicate verruculoso, 10-12 μ . diam.

Hab. prope Freiburg in Germania et in Gallia.

11. **Trichia contorta** (Ditm.) Rost. Mon. p. 259, Schroet. Krypt. Fl. Schles. Pilze p. 113, *Lycogala contortum* Ditm. in Sturm. Deut. cr. F. t. 5, *Trichia reticulata* b, Grev. Scot. F. t. 266, *Perichæna contorta* Fr. S. M. III, p. 192, *Licea contorta* Wallr. Fl. cr. Germ. n. 2110, *Hemitrichia contorta* R. ap. Fuck. Symb. Myc. 2 Nach. p. 75. — Versiformis, nunc peridio manifesto, elongato, flexuoso, subcompresso, umbrino nunc plasmodiis venulosis repentibus, arcuatis, fuscis vel badio-fuscis, opacis subnitidisve; elateribus 2,5-3 μ . crassis, ad apicem conspicue incrassatis, spina tenui, levi terminatis; tæniolis spiralibus 2-4 vix distinctis; sporis luteis, 9-10 μ . diam.

Hab. in ligno putri pineo etc. in Germania, Britannia, Suecia et Australia. — Peridium primo serpens, cylindricum, semper curvatum, sæpe concrescens, irregulariter dehiscens, simplex et leve.

12. **Trichia Kicksii** Rost. Mon. App. pag. 40. — Peridiis sphæricis, sessilibus in stratos plures congestis et placentas aliquot mm. altas, et aliquando plura centimetra longas latasque formantibus; pariete peridiorum solitariorum rigido gilvo, splendide nitido; elateribus simplicibus aut diffluentibus aut in annulos convolutis, 4,2 μ . latis, tæniolis spiralibus duabus non nimis eminentibus præditis, apice obtusis; sporis protuberantiis in rete irregulare contextis ornatis, 14-15 μ . diam.

Hab. in Belgio (KICKX).

13. **Trichia heterotricha** Balf. in Grevillea X, pag. 117. — Peridiis sessilibus in acervulos collectis, obscure luteis, tunica crassa, dura et dermatica, intus late areolata; elateribus paucis, cylindraceis, 7 μ . crassis (exclusis partibus incrassatis), tunicâ mediæ crassitudinis præditis, irregulariter et varie incrassatis, utrinque spinis, sæpe diametro elateris duplo latiore, vel verrucis vel annulis completis vel incompletis vel subinde spiralibus irregularibus et interruptis, interstitia non incrassata, lata sæpe relinquentibus, sursum inflatis et apicibus attenuatis, raro levibus, arcuatis vel contortis, diametri elateris duplo longioribus ornatis; tubulis 3,5 μ . diam., ad incrassitudines elaterum evanescentibus vel subinde apicem attingentibus; sporis globosis, 16-18 μ . diam., membrana crassa, levi præditis. 1505

Hab. in corticibus loco ignoto (Herb. CURREY). — *T. varicæ* similis, a qua elaterum fabrica et sporis latioribus levibusque distinguenda.

14. **Trichia persimilis** Karst. in Not. Sällsk. pro Faun. et Flor. Fenn. Förh. 1868, IX, p. 353 et Myx. Fenn. IV, p. 139. — Peridiis aggregatis, sphæroideis vel subsphæroideis, subargillaceo-castaneis, aeneo-nitentibus, sessilibus; elateribus cylindraceis, flavis 4-6 μ . crassis, apiculo levi, vulgo curvulo, diametrum elaterum duplo longiori; tæniolis spiralibus, 3, 4 prominentibus, interstitiis iisdem duplo latioribus, aculeis sparsis, patentibus, curvulis, hyalinis, 8-10 μ . longis, 4-6 μ . crassis armatis; sporis sphæroideis, verrucosis, ochraceis, 12-14 μ . diam. 1506

Hab. supra lignum Betulæ prope Mustiala Fennicæ. — Facie externa *Tr. varicæ* sat similis, sed peridiis minoribus nec non partibus internis summopere recedens.

15. **Trichia proximella** Karst. Myc. Fenn. IV, p. 139. — Peridiis stipitatis, sessilibus, sphæroideis, sæpe irregulariter subsphæroideis, dilute sordide ochraceis, leviter nitentibus, circiter 0,4 mm.; elateribus cylindraceis, flavis, 4-5 μ . crassis, rarissime furcatis, apiculo obliquo, levi, diametrum elaterum æquante vel paullo longiori; tæniolis spiralibus, 3, 4, prominulis, interstitiis iis vix duplo latioribus; sporis sphæroideis, verrucosis, ochraceis vel ferrugineo-ochraceis, s. m. flavidis, 12-14 μ . diam. 1507

Hab. in ligno vetusto arborum frondosarum in dit. Aboënsi, Merimasku et prope Mustiala Fennicæ. — Ad *Trichiam inconspicuum* Rost. Sluzowc. p. 259 proxime accedit, sed differre videtur

peridiis, sporis et elateribus majoribus, tæniolis spiralibus magis prominentibus aliisque notis.

16. **Trichia purpurascens** Nyl. in Sällsk. pro Faun. et Flor. Fenn. Notis. Nyl. Ser. H. I, p. 126, et Myx. Fenn. IV, p. 137. — Peridiis stipitatis, ovoideis vel ovoideo-sphæroideis, solitariis simplicibus, gregariis, purpurascente-rubris, opacis; stipite striato-rugoso (sicco), erecto vel cernuo, firmulo, crassiusculo, concolori, longitudine peridii; elateribus flavis, medio 5 μ . crassis, utrinque pedetentim in apiculum leviter flexuosum, levem, longissimum (circiter 45 μ . longum) attenuatis; tæniolis spiralibus tribus, prominulis, interstitiis iisdem duplo vel subtriplo latoribus; sporis sphæroideis, verruculosi, ochraceo-flavis, flavescentibus (s. m.), 9–11 μ . diam.

Hab. in ligno vetusto abietino ad Helsingfors Fenniae (Prof. W. NYLANDER).

17. **Trichia pusilla** Schr. Krypt. Fl. Schles. Pilze p. 114. — Peridiis subglobosis, perexiguis, 0,3–0,5 mm. diam., gregariis, discretis vel in sôros congestis, hypothallo nullo fultis, aureis vel brunneo-flavis, levibus, nitidis fragilibus; capillitii tubulis brevissimis, circiter 100 μ . longis, 4–5 μ . crassis, hinc inde crassioribus, apicibus rotundatis, plerumque mucronibus 4–5 μ . longis, curvulis instructis; tæniolis spiralibus 2–3, parum evolutis, subinde aegre conspicendis; sporis globosis, 11–12 μ . diam., inæqualiter costulato-reticulatis.

Hab. in cortice putri *quercino* prope Oels Silesiae.

18. **Trichia reniformis** Peck 26 Rep. p. 76. — Peridiis gregariis vel aggregatis, sessilibus, subglobosis vel reniformibus, parvis, brunneis; floccis parvis, brevibus, parce ramosis; sporis globosis, minute echinulatis, ochraceo-lutescentibus, subinde virescentibus, 12 μ . diam.

Hab. in cortice emortuo *Aceris pensilvanici*, Postville Americae borealis.

Species incerta.

19. **Trichia abrupta** Cooke Brit. Myc. fig. 256. — Elateribus apice spinis 1–3 terminatis.

Hab. in ligno putri in Britannia et in insulis Portland Australiae.

HEMIARCYRIA Rost. Mon. p. 261, Cooke Myx. p. 67. Schroet. Krypt. Fl. Schles. Pilze p. 114 (Etym. *hemi* dimidius et *Arcyria*). Tubi capillitii reticulatim connexi.

1. **Hemiarcyria rubiformis** (Pers.) Rost. Sluzowc. p. 262, f. 201, 230, 1512
 231, Cooke Myx. Brit. p. 67, fig. 201, 230, 231, Schroet Krypt.
 Fl. Schles. Pilze p. 114, *Clathroides piriforme* Hall. tab. I, fig. 5,
Trichia Hall. t. 48, f. 5, n. 2167, *Lycoperdon vesparium* Batsch
 t. 30, f. 172, *Stemonitis cinnabarina* Roth. Fl. Germ. 347, *Lycop.*
faraceum Schr. Fl. Bav. II, 667, *Trichia piriformis* Hoffm. V, Cr.
 t. I, f. 1, *Stemonitis fasciculata* Pers. in Gmel. Sys. 1468, *Ste-*
monitis vesparia Gmel. Sys. 1070, *Trichia rubiformis* Pers. Disp.
 t. I, f. 3, t. IV, f. 3, Berk. Ann. N. H. n. 218, Cooke Hdbk. n.
 1177, *Trichia rubiformis* β . *minor* Pers. Disp. 54, *Lycoperdon*
ferrugineum Hedw. t. X, f. 1-4, *Trichia chalybea* Chev. Fl.
 Par. t. 9, f. 24, *Trichia Neesiana* Corda Ic. I, f. 288 c, *Trichia*
Ayresii B. et Br. Ann. N. H. n. 390, Cooke Hdbk. n. 1179. —
 Peridiis ut plurimum fasciculatis, stipitibus brevibus, connatis, cy-
 lindraceo-turbinatis, chalybeis, nitidis vel opacis; sporis et elate-
 ribus cinnabarinis vel rubiginosis; elateribus 4-5 μ . crassis, raro
 ramosis, ramis parvis, apicibus liberis aut acutatis, levibus aut
 inflatis tuncque spina brevi ornatis, raro obtusis; tæniolis spirali-
 bus 2-4, planis, spinulis numerosis armatis, interstitiis tæniolâ
 duplo latioribus; sporis levibus, 10-11 μ . diam.

Hab. in ligno emortuo putrescente in Suecia, Germania, Bohe-
 mia, Gallia, Italia, Belgio, Hungaria, Fennia, Britannia, Amer. bor.
 et austr. et Australia. — Variat peridiis nunc cylindraceis, atris,
 nitidis, sessilibus, hypothallo communi insidentibus (var. β . *Nee-*
siana Rost. l. cit. p. 263, *Trichia Neesiana* Cord. Icon. V, I,
 p. 23, t. VI, f. 288 C), nunc densissime stipatis mutuaque pressione
 angulatis, sessilibus, nitidis rubiginosis vel fuscis (var. γ . *tubuli-*
na Rost. l. c.) nunc difformibus, basi lata hypothallo adnatis (var.
 δ . *plasmodiocarpia* Rost. l. c.).

2. **Hemiarcyria clavata** (Pers.) Rost. Mon. pag. 267, Cooke Myx. 1513
 pag. 68, Schroet. Krypt. Fl. Pilze pag. 114, *Clathrus pedatus*
 Schm. Icon. tab. 33, fig. 1, 17, *Sphaerocarpus piriformis* Bull.
 t. 417, f. 2, *Stemonitis piriformis* Gmel. Sys. 1469, *Trichia pi-*
riformis Sibth. Fl. Ox. 406, Sow. 400, f. 6, *Trichia clavata* Pers.
 Disp. p. 11, Eng. Fl. V, 320, Cooke Hdbk. n. 1183, *Trichia ci-*
trina Schum. Saell. 1460, *Arcyria trichioides* Rudolph. Linnæa
 p. 120, *Trichia erythropus* Borszczow, *Trichia obtusa* Wigand.
 p. 30, t. 11, f. 4, *Trichia Thwaitesii* B. et Br. Ceylon Fungi
 n. 776. — Peridiis simplicibus, gregariis, stipitatis, plus minus
 clavatis, flavis, nitidis; stipite longiusculo, deorsum attenuato, ru-

goso, concolori vel basi rufescente; sporis et capillitio ochraceis aut olivascentibus vel fuscescente-ochraceis; elateribus 4 μ . crassis, furcatis, ramis sat parcis, apicibus liberis, obtusissimis, subinde leviter inflatis; tæniolis spiralibus 5, tenuibus, interstitiis iisdem duplo vel triplo latioribus; sporis verrucosis, 8-9 μ . diam.

Hab. in ligno emortuo in Italia, Hungaria, Belgio, Britannia, Vogesis, Gallia, Germania, Fennia, in America boreali, in Africa austr., in insula Ceylon. — Var. **simplex** Rost. l. cit. Schroet. Krypt. Fl. Schles. Pilze p. 115. Peridiis indistincte stipitatis; sporis et capillitio aureo-luteis; tubulis capillitii 7 μ . crassis, utrinque rugosis. In trunco cavo Pini in Germania et Polonia. Sec. cl. Raciborski (Cfr. Hedw. 1887, p. 110) var. hæc est specificè distinguenda et aptius ad *Trichiam* referenda.

3. **Hemiarcyria Serpula** (Scop.) Rost. Mon. pag. 267, Cooke Myx. p. 68, Schroet. Krypt. Fl. Schles. Pilze p. 115, *Mucor Serpula* Scop. Fl. Carn. t. 65, *Lycoperdon lumbricale* Batsch. f. 174, *Trichia spongioides* Vill. Fl. Dauph. 1061, *Stemonitis lumbricalis* Gmel. Sys. 1470, *Trichia reticulata* Pers. Disp. p. 10, Ic. et Desc. t. 12, f. 1, *Trichia Serpula* Pers. Disp. p. 10, Eng. Fl. V, 320, Cooke Hdbk. n. 1189, *Trichia Serpula*, β . *spongioides* Pers. Syn. 181, *Trichia venosa* Schum. Saell. 1456, *Hyporhama reticulatum* Corda Ic. V, p. 34, *Trichia retiformis* Payer Crypt. f. 574. — Peridiis effusis, venulosis, repentibus, ut plurimum reticulatim junctis; elateribus 4. μ . crassis, furcatis, ramis numerosis, apicibus liberis, apiculo diametrum elaterum æquante vel paullo longiore; tæniolis spiralibus, 3-4, leviter elevatis, spinulis numerosis, longis armatis, interstitiis tæniolis triplo vel quadruplo latioribus; sporis flavis, 9-11 μ . diam.

Hab. ad truncos et cortices arborum muscosos, in Italia, Germania, Britannia, Belgio, Suecia, in America boreali, prope Bombay et in insula Ceylon Indostaniæ.

4. **Hemiarcyria applanata** Cooke et Masee in Grev. XVI, p. 20. — Peridiis applanatis, discoideis, sæpe in plasmodium lobatum coalitis, extus glaucis, vel pallide cinereis, intus nitide luteis, primo obtutu sessilibus; tubulis capillitii furcatis vel anastomosantibus; protuberantiis mediam crassitudinem tubi occupantibus, diffuse spiraliter dispositis; sporis globosis, 12 μ . diam., verrucosis.

Hab. in reliquiis Cycadis, Brisbane. — Affinis *H. Serpula*.

4. **Hemiarcyria Karstenii** Rost. Mon. I, p. 41, Karst. Myx. Fenn. IV. p. 142, Schroet. Krypt. Fl. Schles. Pilze p. 115. — Peridiis effusis,

vermiformibus, serpentibus, subinde reticulatim junctis, umbrino-castaneis; tubulis capillitii 3-4 μ . crassis, hinc inde inflatis, usque ad 12 μ . crassis; tæniolis spiralibus, 3 vel pluribus, leviter prominentibus interstitiis earum latitudine, apicibus haud distincto attenuatis, truncatis vel clavato-incrassatis; sporis sphæroideis, levibus, 10-12 μ . diam.

Hab. ad lignum præcipue acerinum vetustum in regione Aboënsi, Fennia, Silesia et pr. Peradenya in insula Ceylon. — Peridia usque ad 4 mm. longa, circiter 300 μ . crassa.

5. **Hemiarcyria Wigandii** Rost. Mon. p. 267. — Peridiis clavatis, dis- 1517
scoideis, aut irregulariter subrotundis, valde parvis, fere sessilibus; massa sporarum et capillitii badia aut gilva in luteum vergente, elateribus, 7,2 ad 5 μ . altis, raro diffluentibus, tæniolis spiralibus flexuosis una v. binis, ad 1,7 μ . altis, aut separatis interstitiis ter quaterve latioribus aut confertis, et in annulos fere abeuntibus; apicibus elaterum vix angustatis, truncatis aut inflatis; sporis 10-10,8 μ . diam., leviter verruculosus.

Hab. in Thuringia et pr. Freiburg Germaniæ.

7. **Hemiarcyria calyculata** Speg. Fungi Argentini Pug. III, n. 92. — 1518
Peridiis simplicibus, gregariis, stipitatis, globosis vel ellipticis, sordide fulvo-fuscescentibus, 1-2 mm. diam., stipite longiusculo 3-5 mm. long., 200-250 μ . cr., tereti, glabro, tenacello, sursum in calyculum dimidium peridium æquantem dilatato, basi dilatato-fibrilloso, concolori; sporis et capillitio sordide fulvo-flavescentibus; elateribus 7-8 μ . crass., ramis parvis apicibus liberis vel acutatis, cylindræis, flavescentibus; tæniolis 3-5 planis, subinconspicuis, interstitiis æquilatis, spinulosis; sporis discoideo-lenticularibus, concavo-convexis, margine muriculatis, 10 $\approx$ 3.

Hab. in trunco putri salicino in paludosis de la Boca del Riachuelo in Rep. Argentina America australis.

8. **Hemiarcyria lejocarpa** Rost. Mon. p. 267, Cooke Brit. Myx. fig. 1519
252, 255. — Peridiis simplicibus, obovatis, vel piriformibus, raro fere globosis, pallidis; stipite concolori, longitudine diametrum peridii æquante; massa sporarum et capillitio concoloribus vel pallide ochraceis; capillitio rete laxum formante; floccis reticulatim ramosis; tæniolis spiralibus tribus, tenuibus, e latere convexo elaterum prominulis, spinis brevibus obtusis immixtis; sporis globosis, levibus, membrana tenui, 12-14 μ . diam.

Hab. in quisquiliis vegetabilium, Portland, Maine Amer. bor.

9. **Hemiarcyria Melanopeziza** Speg. Fungi Arg. Pug. IV. n. 268. — 1520

Peridiis sessilibus, repentibus, subteretibus, fere semper annulatis, 1-2 mm. long., *Pezizam* quamdam carbonaceam eximie simulantibus, aterrimis, non v. vix nitentibus, levissimis, tunica atra, opaca, sub-cellulosa, coriacea vestitis, longitudinaliter rimose valvato-dehiscens, capillitio luteo v. citrino elastice protrudente repletis: tubulis capillitii 4-5 μ . crass., teretibus, parce reticulatim connexis tæniolis carentibus, ubique aculeis, erectis, longiusculis 5-6 $\approx$ 1 densiuscule horridis, luteis; sporis elliptico-globosis v. globosis, 10-12 $\approx$ 10, ubique dense papilluloso-scabris, flavis.

Hab. in cortice vetusto, mucido, putrescente in nemorosis prope Apiahy in Brasilia meridionali (leg. cl. Dr. J. PUIGGARI). — Species pulcherrima coloratione tunicae, forma peridiorum, tubulis tæniolis carentibus mox distinguenda. — «Cl. Speg. speciem hanc et sequentem sub titulo *Hemitrichiae* refert».

10. **Hemiarcyria pusilla** Speg. Fungi Arg. Pug. IV, n. 269. — Peridis densiuscule gregariis, subcylindraneo-ellipticis, parvulis 0,4-0,5 mm. long. 0,15-0,25 mm. crass., antice obtusiusculis, deorsum abrupte coarctato-subtruncatis, centro pedicello non vel vix evoluto donatis, primo succineo-sanguineis, dein pulchre roseis, subnitentibus, capillitio densiusculo, reticulato, roseo; tubulis teretibus 3-4 μ . crass. 3 v. 4 tæniolis spiralibus, minute asperulo-sterigmatophoris donatis; sporis roseis v. carneis, globosis 7-9 μ . diam., levibus, crassiuscule tunicatis, granuloso faretis v. guttulatis.

Hab. in cortice dejecto putri Schini mollis, immatura (leg. cl. Dr. L. E. HOLMBERG.); et in sarmentis dejectis Rubi discoloris, matura, Banado San José de Flores in Argentina.

APPENDIX

SOROPHOREÆ Zopf Pilzth. p. 97.

Fructificatio in soris efformata. Pseudoplasmodia h. e. plasmodia aggregata. Zoosporæ nullæ.

Clavis familiarum.

- Guttulinæ*. Sori stipite nullo vel parum evoluto. Amœbæ pseudopodiis carentes. (*Guttulina*, *Copromyxa*).
Dictyosteliaceæ. Sori stipite distincte celluloso suffulti; amœbæ pseudopodiis acutis præditæ. (*Dictyostelium*, *Acrasis*, *Polysphondylium*).

Clavis generum.

- Guttulina*. Subsessilis. Amœbæ heterogenæ.
Copromyxa. Sessilis. Amœbæ homogenæ.

Dictyostelium. Stipitatum; stipite simplici celluloso. Sporæ non catenulatæ.
Acrasis. Stipitata; stipite simplici. Sporæ catenulatæ.
Polysphondylium. Stipitatum; stipite racemoso. Sporæ non catenulatæ.

Fam. 1. Guttulinæ Zorr Pilzth. Schleimp. p. 132.

Stipite nullo vel non evoluto; amœbæ simplices, h. e. pseudopodiis carentes.

GUTTULINA Cienk. in Zopf Pilzth. pag. 133 (Etym. a *guttula*). —
 Amœbæ partim in soros, partim sæpius in stipitem parum evolu-
 tum mutatæ; plasmodium hucusque ignotum.

1. **Guttulina rosea** Cienk. in Zopf Pilzth. p. 133. — Soris breviter 1522
 stipitatis sphæricis, roseis; stipite sorum in longitudine æquante,
 concolori; sporis globosis, episporio verruculoso.

Hab. in ligno putrido in Polonia et Germania. — Sec. cl. Rost.
 (App. p. 29), ad genus *Dictyostelium* spectat.

2. **Guttulina aurea** van Tiegh. Sur quelques Myx. a plasm. agrégé, 1523
 Bull. de la Soc. bot. de France 1880, p. 320 et Zopf Pilz. p. 134.
 — Soris stipitatis, aureis; sporis globosis 4–6 μ . diam.

Hab. in stercore equino in Gallia et Germania.

3. **Guttulina sessilis** van Tiegh. Sur quelques Myx. a plasm. agrégé, 1524
 Bull. de Soc. bot. de France 1880, p. 320 et Zopf Pilzth. p. 134.
 — Soris sessilibus, lacteis; sporis ovalibus 8 $\approx$ 4.

Hab. in Faba putrescente in Gallia et Germania.

COPROMYXA Zopf in Pilzth. p. 132 (Etym. *copros* finus et *myxa*
 mucus). — Amœbæ omnino tandem in soros mutatæ, sine stipitis
 formatione; plasmodium parum evolutum.

1. **Copromyxa protea** (Fayod) Zopf in Pilzth. pag. 132, *Guttulina* 1525
protea Fayod in Beitr. zur Kennt. nied. Mycet. Bot. Zeit. 1883,
 n. 11. — Amœbis in partes 2 globosas secedentibus, partibus de-
 num medio constrictis et tandem in soros mutatis; amœbis inter-
 dum, quoad alimentum insufficiens, in hypnocystras mutatis.

Hab. in excrementis equinis et vaccinis in Germania.

Fam. 2. Dictyosteliaceæ Rost.

Fructificatio (sori) stipitata, nuda, stipite distincte celluloso. Amœbæ pseu-
 dopodiis acutis præditæ.

DICTYOSTELIUM Brefeld Dictyost. muc. Neue Organ. Rost. Mon. p.
 217 (Etym. *Dictyon* rete et *stleon* manubrium (stipes)). — Sori

stipitati, nudi, capillitio et columella destituti. Stipes reticulato-cellulosus. Sporæ inordinate dispositæ.

1. **Dictyostelium mucoroides** Bref. in Abh. der Senkenb. naturf. Gesellschaft vol. VII, tab. IV, fig. 27-29 et Schimmelpilze, Heft VI, Coemans, Spicilège mycologique, Extr. des bull. de l'Académie roy. de Belg. Sér. 2, tom. XVI, *Ceratopodium elegans* Sorok. Mycol. ozerki tab. III, fig. 12-13. — Hypothallo indiviso; peridiis globosis vel late ellipsoideis; sporis elongato-ellipsoideis, $4 \approx 2,4$.

Hab. in excrementis mammalium phytophagorum e. g. Cuniculi, Equi etc. in Gallia. — Adest formatio microcystarum tantum ubi imperfectum sit nutrimentum.

2. **Dictyostelium roseum** Van Tieghem, Sur quelques Myxomycètes à plasmode agrégé, Bull. de la Soc. bot. de France 1880, p. 317. — Distinguitur a præcedente colore læte rubro sororum et dimensione sporarum quæ $8 \approx 4$.

Hab. in excrementis pluribus, præcipue Cuniculi, in Gallia.

3. **Dictyostelium lacteum** Van Tieghem, Sur quelques Myxomycètes à plasmode agrégé, Bull. de la Soc. bot. de France 1880, p. 317. — Peridio hypothallo uniseriato insidente, guttulam albo-lacteam, e sporis minutissimis 2-3 μ . diam. constitutam efformante.

Hab. in fungis pileatis quibusdam in Gallia.

1. **Dictyostelium sphærocephalum** (Oud.) Sacc. et March. Champ. coproph. Belg. p. 42, tab. III, fig. 1-4, *Hyalostilbum sphærocephalum* Oud. Aanw. Myc. Nederl. IX-X, p. 39, tab. IV, fig. 4. — Gregarium; stipitibus subflexuosis, erectis, cylindræis, æqualibus, inferne vix incrassatis, eximie cellulosi, 2-3,5 mm. longis, 70-90 μ . crassis; capitulis sicut stipitibus candidis, vitreis, subglobosis, haud pulveraceis, diffluentibus, 200-300 μ . diam.; sporis ellipsoideis, raro subinæquilateralibus, utrinque rotundatis, continuis, hyalinis, $7-8 \approx 3,5-4$.

Hab. in stercore murino, sociis *Thamnidio elegante* et *Charotcladio Jonesii*, Bruxelles Belgii. — A *Dictyostelio mucoroides* sporis fere duplo majoribus differre videtur.

ACRASIS Van Tiegh. Sur quelques Myxom. a plasm. agrégé, Bull. de la Soc. bot. de France 1880, p. 317 (Ety. *a* et *crasis* mixtio). — Sori stipite simplice præditi; sporæ catenulatæ.

1. **Acrasis granulata** Van Tiegh. in Bull. Soc. Bot. Fr. p. 317, Zopf Pilzth. p. 136. — Sori stipite e cellulis uniserialibus formati,

catenulam terminalem sporarum apice gerentibus; sporis circiter 10-15 μ . diam.

Hab. in fæce cervisiæ in Gallia et Germania.

POLYSPHONDYLIIUM Bref. Unters. Mykol. Heft VI. (Etym. *polys* multus et *sphondylos* verticillus). — Sori stipite racemoso; sporæ non catenulatæ.

Polysphondylium violaceum Bref. in Zopf Pflzth. p. 136. — Sti- 1531
pitibus racemoso-ramosis, e cellulis 1-2-3-serialibus formatis; soris globosis; sporis violaceo-cæruleis, numerosis, ellipsoideis, $8 \approx 5$.

Hab. in stercore equino in Italia.

MONADINÆ Cienk. in Schult. Arch. I, p. 203.

Hydromyxaceæ Klein. Bot. Centr. 1882.

Plantæ plerumque hydrophilæ, sæpeque parasiticæ, zoocystis sporocystis, plasmodio, zoosporis, amœbis et sporis perdurantibus præditæ. Zoocystæ maturitate 1-plures amœbas vel zoosporas emittentes. Zoosporæ ciliatæ; amœbæ actinophrysoideæ (radiantes). Plasmodium ex fusione duarum vel plurium zoosporarum vel amœbarum ortum. Sporocystæ sporas perdurantes continentes, sæpe præsentis. Sporæ perdurantes nec non zoosporæ et amœbæ subinde ex plasmodio ortæ, liberæ.

Clavis analytica familiarum.

A. Zoocystæ amœbas generantes. Zoosporæ nullæ (*Zoosporeæ*).

α . Hydrophilæ.

Empyrella. Plasmodium et zoocystæ præsentia.

Leucocystaceæ. Zoocystæ nullæ; sporocystæ tantum præsentis.

$\alpha\alpha$. Aërophilæ.

Pursullinæ. Plasmodium plerumque præsens; zoocystæ præsentis.

B. Zoocystæ zoosporas generantes (*Zoosporeæ*). Species ut plurimum, hydrophilæ.

α . Sporæ perdurantes intra sporocystas generatæ.

Pseudosporeæ. Plasmodium plerumque nullum, vel subinde (in *Protomonade*) ex fusione amœbarum formatum.

$\alpha\alpha$. Sporæ perdurantes numquam in sporocystis generatæ.

Gymnococcaceæ. Fructificatio in soris non disposita.

Plasmodiophoreæ. Fructificatio in soris disposita.

Clavis analytica generum.

I. Zoosporæ nullæ.

A. Sporæ perdurantes numquam intra sporocystas formatæ.

α . Zoocystæ præsentis.

Empyrellitium. Zoocystæ irregulariter erumpentes.

Haplococcus. Zoocystæ per punctos tenuiores membranæ erumpentes.

αα. Zoocystæ nullæ vel ignotæ.

Spirophora. Amœbæ pseudopodiis, apice spiraliter incurvatis præditæ.

B. Sporæ perdurantes intra sporocystas formatæ.

α. Zoocystæ præsentæ.

Vampyrella. Amœbæ uninucleatæ.

Leptophrys. Amœbæ plurinucleatæ.

αα. Zoocystæ nullæ vel ignotæ.

Myxasstrum. Plasmodia actinophrysoidea (radiata).

Enteromyxa. Plasmodia vermiformia, usque reticulata.

C. Sporæ perdurantes nullæ vel e plasmodio ortæ.

Bursulla. Amœbæ pseudopodiis 2- pluribus ornatæ.

Endyonema. Amœbæ forma variæ, 1-plurinucleatæ.

II. Zoosporæ præsentæ.

A. Sporæ perdurantes intra sporocystas formatæ.

α. Plasmodia nulla.

† Sporocystæ membrana simplici præditæ.

Colpodella. Amœbæ nullæ vel ignotæ.

Pseudospora. Amœbæ præsentæ.

†† Sporocystæ membranâ duplici præditæ.

Diplophysalis. Amœbæ præsentæ.

αα. Plasmodium præsens.

Protomonas. Sporocystæ membranâ simplici præditæ.

B. Sporæ perdurantes numquam intra sporocystas formatæ.

α. Plasmodium nullum.

† Zoosporæ intra zoocystas formatæ.

Gymnococcus. Corpuscula microcystæ idea nulla.

†† Zoosporæ intra zoocystas numquam formatæ.

Apheliidium. Corpuscula microcystoidea nulla.

Pseudosporidium. Amœbæ microcystas formantes.

αα. Plasmodium præsens.

Protomyxa. Plasmodium pseudopodiis præditum, reticulatum.

Plasmodiophora. Plasmodium tandem in solum zoosporarum mutatum.

Tetramyxa. Plasmodium tandem in cellulas, zoosporas 4 gerentes mutatum.

Phytomyxa. Plasmodia funiculis plasmaticis trans cellulas matricis exeuntibus, persistentibus prædita.

Sorosphera. Plasmodia dein sporas ellipsoideo-cuneiformes in soros cavos, parietibus lateralibus conjunctas formantia.

Ordo I. Monadineæ azoosporeæ Zopf.

Plantæ amœbis, plasmodio, zoocystis amœbiparis et sporocystis præditæ.

Fam. I. **Vampyrelleæ** Zopf. Pilzth. p. 99.

Hydrophyta, in organismis inferioribus viventibus vel emortuis parasitica: adsunt ut formæ evolutionis, plasmodium et zoocystæ amœbas generantes et demum cystæ (sporocystæ) sporas perdurantes generantes vel in *Vampyrellidio* adsunt tantum sporæ perdurantes nudæ.

VAMPYRELLIDIUM Zopf Pilzth. pag. 99 (Ety. a *Vampyrella*). — Sporæ perdurantes nunquam in sporocystis generatæ; zoocystæ amœbiparæ irregulariter erumpentes; zoocystæ et sporæ perdurantes per amœbam unicam germinantes.

1. **Vampyrellidium vagans** Zopf in Pilzth. p. 99. — Zoocystis sporis 1532 perdurantibus conformibus, ab his tantum parietibus tenuioribus distinctis; amœbis actinophrysoideis, pigmento rubro destitutis, hyaloplasmate minute granulato, pseudopodia exilia emittente; plasmodio ignoto.

Hab. in Schizophyceis, Oscillariaceis imprimis in *Lynbya* in Germania.

SPIROPHORA Zopf Pilzth. pag. 101 (Ety. *spira* et *phoreo* fero). — Sporæ perdurantes nunquam in sporocystes generatæ; zoocystæ ignotæ; forma amœboidea pseudopodiis apice subspiraliter tortis instructa.

1. **Spirophora radiosa** (Perty) Zopf Pilzth. p. 102, Zool. VII, *Amor-* 1533 *bia radiosa* Perty in Zeit. wiss., *Dactylosphaera radiosa* Hertwig? in Zool. l. c. — Amœbis pseudopodiis radiantibus, basi incrassatis, apice sæpe spiraliter tortis, nucleo inconspicuo; plasmodio copioso; sporis nudis tantum notis.

Hab. in Schizophyceis (*Tolypothrix*, *Glaucothrix*) in Germania.

HAPLOCOCCLUS Zopf in Pilzth. p. 102 (Ety. *haplos* simplex et *coccos*). — Sporæ perdurantes nunquam in sporocystis generatæ; zoocystæ amœbiparæ per punctos peculiare tenuiores membranæ erumpentes.

1. **Haplococcus reticulatus** Zopf Über einen neuen Schleimp. in Cent- 1534 tralbl. vol. III, n. 22. — Zoocystis circ. 16-22 μ . diam., globulosis, membrana levi, subincrassata, per punctos 3-plures non incrassatos erumpentibus; sporis perdurantibus globosis vel tetrahædricis, 2,5-3 μ . diam.

Hab. in corpore Suis in Germania.

VAMPYRELLA Cienk. Beitr., Klein in Bot. Centr. 1882, p. 254, Zopf Pilzth. p. 103 (Ety. a *Vampyro*, quia species parasitica). — Sporæ perdurantes in sporocystis generatæ; status amœboideus nucleo unico conspicuo instructus: adsunt etiam zoocystæ maculis e pallide aurantiaco brunneo-lateritiis tinctæ.

Clavis analytica specierum.

A. Amœbæ parietem cellulæ matricis perforantes.

α. Pseudopodia filiformia.

‡ Zoocystæ sessiles.

V. Spirogyræ. Parasitica in *Spirogyra*.

V. Gomphonematis. In *Gomphonemate* parasitica.

V. variabilis. In pluribus *Conserveis*.

V. multiformis. In *Desmidiaceis* et in *Chlamydomonade*.

‡‡ Amœbæ pedicellatæ.

V. pendula. In *Ædogonio*, *Bulbochete* et *Conserveis*.

αα. Pseudopodium elatum, non filiforme.

V. pedata. In *Ædogonio*.

B. Amœbæ cellulam matricis non perforantes.

V. polyblasta. Pseudopodia elongata; zoocystæ sessiles.

V. Euglenæ. Pseudopodia elongata; zoocystæ papillatæ (pedicellatæ).

V. Kleinii. Pseudopodia pauca, brevissima.

1. **Vampyrella Spirogyræ** Cienk. Beitr. Kenntn. Mon. p. 218, fig. 44-56, Klein in Bot. Centr. 1882, pag. 256, tab. I, fig. 1-33, Zopf Pilzth. p. 104. — Amœbis actinophrysoideis, pseudopodiis numerosis, acuminatis granulos motiles continentibus præditis; zoocystis sessilibus, membrana simplici, globosis vel ellipsoideis rarius, irregularibus, 60 μ . diam.; sporocystis e protoplasmatis divisionibus 2-pluribus formatis.

Hab. tantum in *Spirogyra* in Germania.

2. **Vampyrella Gomphonematis** Haeckel Biol. Stud. p. 163, tab. VI, fig. 1-4, Klein in Bot. Centr. 1882, p. 255, Zopf Pilzth. p. 108. Amœbis actinophrysoideis, pseudopodiis tenuibus acutis, granulis mobilibus præditis; zoocystis globosis, 60-70 μ . diam., sessilibus, membrana simplici.

Hab. in Bacillariis et præcipue in *Gomphonemate* devastato in Germania. — Inter *Vampyrellæ* species ob protoplasma in quatuor partes inter se ob mutuam pressionem tetrahædrice rotundatas divisum distincta.

3. **Vampyrella variabilis** Klein in Bot. Centr. 1882, p. 182, tab. I, fig. 1-33, Zopf Pilzth. p. 105. — Amœbis actinophrysoideis, pseudopodiis granulis mobilibus destitutis, minutis plerumque 12 μ . long., elongatis, irregulariter angulosis, raro sphaeroideis; zoocystis sessilibus, membrana simplici, forma variis globosis, 16-28 μ . diam., ellipsoideis, 32-60 et usque 90 μ . longis; plasmate colore lateritio, tenui-punctulato faretis; sporocystis membrana crassa minute tuberculoso-punctata obsitis, 12-28 μ . diam.

Hab. in *Conferva* quadam Budapest Hungariæ et in Germania.

4. **Vampyrella multiformis** Zopf in Pilzth. p. 107, fig. 39. — Amœbis actinophrysoideis, pseudopodiis filiformibus præditis; zoocystis sessilibus, membrana simplici, quam maxime variabilibus, reliquias chlorophyllæ nucleo non ingestas sub forma granulorum rubro-brunneorum continentibus; sporocystis sporas perdurantes 2-plures (raro 1) generantes. 1538

Hab. in Desmidiaceis et Chlamydomade in Germania.

5. **Vampyrella pendula** Cienk. Beitr. Kenntn. pag. 227, Zopf Pilzth. p. 105, Klein in Bot. Centr. 1882, p. 258 et Arbeit p. 199, tab. III, fig. 1-19. — Amœbis actinophrysoideis, 12-14 μ . diam., pseudopodiis granulis mobilibus destitutis; zoocystis stipitatis, piriformibus vel globosis, 16-36 μ . diam.; protoplasmate pallide lateritio minute granuloso; membrana duplici; sporocystis membrana secundariâ echinulatâ. 1539

Hab. in *Ædogonio*, *Bulbochæte* et *Confervis* in Hungaria et Germania. — Var. **inermis** Kl. l. c. (ut species), Zopf Pilzth. p. 105 in nota. Sporocystis membrana secundaria levi. In *Ædogonio*, Zurich Helvetiæ.

6. **Vampyrella pedata** Klein in Bot. Centr. 1882, p. 204 et 259, tab. IV, fig. 1-19, Zopf Pilzth. p. 106, fig. V-VIII. — Amœbis pseudopodiis brevibus vel obsoletis, irregulariter globosis; zoocystis stipitatis, 44-52 $\approx$ 28-32, membrana simplici, globosis, ellipsoideis vel piriformibus; hypnocystis præsentibus; sporocystis nondum observatis. 1540

Hab. in *Ædogonio* in Hungaria et Germania. — Ad hanc speciem spectant sine dubio *Hyalodiscus rubicundus* Hertwig et Lesser, et *Plakopus ruber* F. E. Schulze. Cfr. Zopf l. c.

7. **Vampyrella polyblasta** Sorokin Grundzüge der Myc. p. 495-497, Zopf Pilzth. p. 108. — Amœbis actinophrysoideis, pseudopodiis filiformibus elongatis, demum in plasmodium confluentibus; zoocystis sessilibus, membrana simplici; microcystis præsentibus. 1541

Hab. in *Euglenis* in Rossia et Germania.

8. **Vampyrella Euglenæ** Dang. in Ann. Sc. Nat. Bot. 1886, p. 245, tab. XI, fig. 1-13. — Amœbis plerumque sphæroideis, subinde forma variis 5-30 μ . diam., intus vacuolis 2-3 instructis; zoocystis sphæroideis, 12-14 μ . diam., subinde papillatis, protoplasmate centro rubro-faretis. 1542

Hab. parasitice in *Euglena viridi* quam enecat in Gallia.

9. **Vampyrella Kleinii** Dang. in Ann. Sc. Nat. 1886, p. 245, *Monad.* 1543

dopsis vampyrelloides Klein in Bot. Centr. 1882, p. 209 et 260, tab. IV, fig. 20-27. — Amœbis minutis pallide punctulato-rubentibus, pseudopodiis paucis, brevibus, acutis præditis; zoocystis globosis vel ellipsoideis, protoplasmate demum in amœbis 2-3 per situs varios erumpentibus diviso; sporocystis nondum observatis.

Hab. in Tretaspora quadam in Germania.

LEPTOPHRYS Hertwig et Lesser in M. Schult. Archiv. Bd. X, Suppl. p. 57, Zopf. Pilzth. p. 109 (Etym. *leptos* tenuis et *ophrys* cilium). — Sporæ perdurantes intra sporocystis generatæ; status amœboideus nucleis pluribus instructus; adsunt etiam zoocystæ et plasmodium.

1. **Leptophrys vorax** (Cienk.) Zopf Pilzth. p. 109, *Vampyrella vorax* Cienk. Beitr. Kenntn. Mon. p. 223, tab. 13, fig. 64-73, Klein in Bot. Centr. 1882, p. 195, tab. II, fig. 1-17 et p. 255, Dang. in Ann. Sc. Nat. 1886, p. 248, tab. XI, fig. 14-18, *Leptophrys cinerea* et *L. elegans* Hertw. et Less. in M. Schult. Archiv. Band. X, Suppl. p. 57, tab. II, fig. 3-4. — Amœbis magnis, nunc hyalinis nunc rubescentibus, granulis plasmaticis reticulatim dispositis repletis; sporis perdurantibus e plasmatis divisione formatis.

Hab. in Bacillarieis, Desmidiëis et in Chlorophyceis nonnullis in Germania.

ENDYONEMA Zopf in Pilzth. p. 111 (Etym. *endyo* induo et *nema* filum). — Inter status fructificationis zoocystæ tantum notæ; status amœboideus uni-plurinuclæatus.

1. **Endyonema polymorpha** Zopf in Pilzth. p. 111. — Amœbis uni-plurinuclæatis magnitudine variis, forma irregularibus; zoocystis multiformibus, sæpius cylindræis, minoribus 1-2-nuclæatis, majoribus plurinuclæatis.

Hab. in Schizophyceis nonnullis (Lyngbyæ, Tolypotricis etc.) in Germania.

Fam. 2. **Bursullineæ** Zopf Pilzth. p. 111.

Aërophilæ, in escrementis animalium herbivororum v. in partibus plantarum emortuarum; adsunt plerumque formatio plasmodii et species duæ fructificationis h. e. zoocystæ amœbas formantes, et sporæ perdurantes.

BURSULLA Sorok. in Ann. Sc. Nat. Bot. 1876, p. 40 (Etym. a *bursa*). — Plasmodium minutum e 2-pluribus amœbis formatum, zoocystas et sporas perdurantes generans.

1. **Bursulla crystallina** Sorok. in Ann. Sc. Nat. Bot. 1876, pag. 40, 1546
Zopf Pilzth. p. 112, fig. 41. — Plasmodio ex amœbis 2-pluribus, pseudopodiis longis, acutis præditis formato; zoocystis stipitatis, ovoideis vel globosis; sporis perdurantibus globosis, pachypleuris e plasmodio ortis.

Hab. in fimo Equi Caballi in Russia.

Fam. 3. Monocystaceæ ZOPF Pilzth. p. 112.

Hydrophilæ, in algis vel protozois viventes; formæ fructificationis ad sporocystas tantum reductæ.

ENTEROMYXA Cienk. in Zopf Pilzth. p. 114 (Ety. *enteron* intestinum et *myxa* mucus). — Plasmodium vermiculatum vel ramosum, usque reticulatum, pseudopodiis digitiformibus instructum. Cystæ demum polyhædricæ, sporas generantes.

1. **Enteromyxa paludosa** Cienkowski in Zopf Pilzth. p. 114, fig. 42. 1547
— Plasmodio plerumque vermiculato, interdum reticulatim ramoso, pseudopodiis digitiformibus, demum constricto-articulatis, articulis inter se secedentibus et tandem in sporocystas, sporas perdurantes 2-plures efformantes mutatis.

Hab. in Schizophyceis, præcipue Oscillariis et in Bacillariaceis in Germania.

2. **Enteromyxa cerebrina** Ces. Born. p. 13. — Plasmodio xylostromoide papyraceo nitente stratoso pallide-alutaceo, ramulos et frustula lignea mucida involvente et undique penetrante, tandem superficie tuberculis obsito, nunc singulis, nunc seriatim dispositis, nunc omnino applanatis confluentibus, plerumque Pisi magnitudine, anfractibus cerebrinis notatis, gleba helvola sporarum repletis; sporis simplicissimis, globosis $\frac{1}{5}$ mm.; nucleo nullo; capillitio nullo intertexto.

Hab. ad Sarawak Borneo (BECCARI). — Species per dubia generis homonymi sed diversi ab illo Cienk.

MYXASTRUM Haeckel Stud. Monad. p. 30, tab. II, fig. 13-24, Zopf Pilzth. p. 113 (Ety. *myxa* mucus et *astron* astrum). — Plasmodia actinophrysoidea; cystæ globosæ sporas generantes.

1. **Myxastrum radians** Haeckel Studien über Monaden p. 30, tab. II, fig. 13-24, Zopf Pilzth. p. 113. — Amœbis primo rotundatis, demum actinophrysoideis; plasmodio actinophrysoideo; sporocystis globosis, sporas numerosas, $30 \approx 15$ axi longiore sporocystæ centrum spectantes formantibus.

Hab. in Diatomeis, Peridinieis et formis Crustaceorum minorum in mare ad insulas Canarias. — Plasmodia $\frac{1}{2}$ mm. lat.

Genus incertæ familiæ.

CÆNONIA Van Tiegh. in Bull. Soc. Bot. Fr. 1884, p. 303 (Etym. a *coinonia* aggregatio). — Plasmodia ex myxoamœbis plurimis formata, basi filamentis repentibus cincta, cylindracea, sursum expansa, cyathoidea, globum sporarum gerentia. Sporæ sphæroidea.

1. **Cænonia denticulata** Van Tiegh. in Bull. Soc. Bot. Fr. 1884, p. 303. — Plasmodio e pluribus myxoamœbis formato; stipite cylindraceo, basi hypothallo, filamentis repentibus ramosis cincto, insidente, apice in cupulam, globulum gelatinosum, sphæroideum, luteolum gerentem expanso; cellulis stipitis ac cupulæ dente minuto recurvo præditis; sporis in globum collectis, sphæroideis, 6-8 μ . diam., subhyalinis.

Hab. in seminibus Viciæ Fabæ in Gallia.

Ordo II. Monadineæ zoosporeæ Zopf.

Plantæ zoosporis, amœbis, plasmodio, zoocystis zoosporiparis vel soris zoosporiparis et sporocystis vel sporis liberis præditæ.

Fam. I. Pseudosporeæ Zopf Pilzth. p. 115.

Sporæ perdurantes intra sporocystas generatæ.

COLPODELLA Cienk. Beitr. Kenntn. Mon. I, pag. 200, Zopf Pilzth. p. 115 (Etym. *colpos* sinus vel *colpoda* animal). — Desunt plasmodium et status amœboideus; sporocystarum membrana simplex.

1. **Colpodella pugnax** Cienk. Beitr. zur Kenntn. der Monaden. in Schultz Archiv. I, pag. 200, Zopf Pilzth. p. 116. — Zoosporis falcatis utrinque acutis, cilio terminali instructis, tandem globosis, membrana involutis et plasmate intra zoocystas diviso aut e contractione (in sporocystis) in sporas perdurantes, globosas vel ellipsoideas mutato; statu amœboideo et plasmodio nullis vel ignotis.

Hab. in Chlamydomonade Pulvisculo in Germania.

PSEUDOSPORA Cienk. Beitr. Kenntn. Mon. I, p. 203, Zopf Pilzth. p. 117 (Etym. *pseudes* falsus et *spora*). — Plasmodium nullum v. saltem ignotum; adest status amœboideus; sporocystarum membrana simplex.

1. **Pseudospora aculeata** Zopf in Pilzth. pag. 117. — Zoosporis in *Edogonii* cellulas penetrantibus, minutis, 3-4 μ . longis, unicilia-

tis; amœbis actinophrysoideis, plasmate parietali demum zoosporas formante; sporocystis sporas perdurantes minute echinulatas denique emittentibus.

Hab. in *Ædogonio* in Germania.

2. **Pseudospora parasitica** Cienk. Beitr. Kenntn. Mon. I, pag. 203, 1553
Zopf Pilzth. p. 118. — Zoosporis in *Zygnemearum* cellulas pervadentibus, 6-9 μ . longis, uni-biciliatis, e globo magno brunneo in centro amœbæ actinophrysoideæ formatis; sporocystis sporas perdurantes, leves generantibus.

Hab. tantum in *Zygnemeis*, præcipue in *Spyrogyræ* speciebus in Germania.

3. **Pseudospora Bacillariacearum** Zopf in Pilzth. p. 120. — Zoosporis 1554
in *Bacillariacearum* cellulas penetrantibus, 6-9 μ . longis, 1-2-ciliatis, globosis vel ellipsoideis; amœbis actinophrysoideis, globo centrali brunneo minuto e reliquiis chlorophyllæ digestis formato præditis; sporocystis et sporis perdurantibus hucusque ignotis.

Hab. in *Bacillariaceis* majoribus in Germania.

4. **Pseudospora maligna** Zopf Pilzth. pag. 120. — Zoosporis in *Mu-* 1555
scorum protonemata penetrantibus, 7 μ . longis, unciliatis, elongato-fusoideis; amœbis actinophrysoideis, globo centrali, minuto, e reliquiis chlorophyllæ digestis formato præditis; sporocystis et sporis perdurantibus ignotis.

Hab. in protonematibus *Muscorum* terrestrium v. aquaticorum e. g. *Hypno* in Germania.

PROTOMONAS Haeckel Biol. Stud. I, p. 71, Zopf Pilzth. pag. 120, *Monas* Cienk. in Pringh. Jahrb. III, p. 427, tab. XIX, fig. 7-17 (Ety. *protos* primus et *Monas*). — Adest plasmodium e fusione amœbarum formatum; sporocystarum membrana simplex.

1. **Protomonas Amyli** (Cienk.) Haeckel Biol. Stud. I, pag. 71, Klein 1556
Vampyr. in Bot. Centralbl. 1882, p. 260, Zopf. Pilzth. p. 121, *Sorelia Amyli* Dang. in Ann. Sc. Nat. Bot. 1886, p. 271, *Monas Amyli* Cienk. in Prings. Jahrb. Bot. III, p. 420, t. XIX, fig. 7-17 et Archiv. Schult. I, p. 213. — Zoosporis nunc utrinque uniciliatis nunc uno apice tantum biciliatis, forma variis, elongatis tum ciliatis vel amœboideis vel actinophrysoideis, pseudopodiis tenuibus, acutis præditis; plasmodio pseudopodiis destituto, e fusione plurium zoosporarum, amœboidarum orto; sporocystis membrana tuberculose incrassata; zoocystis globosis, protoplasmate hyalino faretis, membrana simplici, tenui cinctis.

Hab. in Algis variis aquarum dulcium in Germania. — Genus *Soretia* Dang. l. c. a *Protomonade* non bene distinctum videtur etiam in *Pr. Amyli* zoosporae sunt subiinde utrinque uniciliatae ut docet Zopf. l. c. Genus quoque *Heteromita* valde affine videtur generi *Protomonadi*, propter characteres expositos (Conf. Saville-Kent Manual of the Infusoria et Dangeard Les Organismes inférieures in Ann. Sc. Nat. 1886, p. 271).

2. **Protomonas Spirogyrae** (Borzi) Zopf Pilzth. p. 123, *Protochytrium Spirogyrae* Borzi in Nuov. Gior. Bot. It. 1884, p. 5. — Zoosporis cilio unico praeditis, piriformibus; amœbis non actinophrysoides, h. e. pseudopodiis parum evolutis, obtusis praeditis; plasmodio pseudopodiis destituto; sporocystis non tuberculate incrassatis.

Hab. in variis Zygnemeis e. g. in *Spirogyra crassa*, *Zygnemate cruciato* etc. in Italia. — Huc spectat *Prot. Spirogyrae* voluminis praesentis Syll. n. 1112.

3. **Protomonas Huxleyi** Haeckel Biol. Stud. I, p. 169, tab. VI, fig. 5-8, Zopf Pilzth. p. 124. — Zoosporis cilio unico praeditis, piriformibus; amœbis actinophrysoides, pseudopodiis evolutis; plasmodio nondum observato.

Hab. in Diatomeis (*Rhizosoleniis*) pelagicis in Mare Germanico.

DIPLOPHYSALIS Zopf Pilzth. pag. 124, *Barbetia* Dang. in Ann. Sc. Nat. 1886, p. 270 (Etym. *diploos* duplex et *physa* vesica). — Plasmodium nullum vel ignotum; adest status amœboideus; sporocystarum membrana duplex.

1. **Diplophysalis stagnalis** Zopf Pilzthier. p. 124. — Zoocystis zoosporas 1-2-ciliatas fusiformes efformantes; amœbis pseudopodiis longis exilibus; sporocystis membrana exteriori stellatim insculpta praeditis.

Hab. tantum in organis vegetativis Characearum in Germania.

2. **Diplophysalis Nitellarum** (Cienk.) Zopf Pilzth. p. 125, *Pseudospora Nitellarum* Cienk. Beitr. Kenntn. Mon. p. 212. — Zoocystis zoosporas 1-2-ciliatas efformantibus; amœbis pseudopodiis bene evolutis; sporocystis membrana exteriori nunquam stellatim insculpta praeditis.

Hab. in *Nitella flexili* et *N. mucronata* et in pluribus Charae speciebus in Germania.

3. **Diplophysalis Volvocis** (Cienk.) Zopf Pilzth. p. 123, *Pseudospora*

Volvocis Cienk. Beitr. Kenntn. Mon. II, pag. 213. — Zoosporis utrinque uniciliatis, globosis vel ovoideis; amœbis apophysibus acutis, parum numerosis, nucleo magno et vacuolis contractilibus instructis; e statibus fructificationis sporocystis tantum notis, 23 μ . diam., membrana secundaria non insculpta præditis.

Hab. parasitice in Volvoce Globatori in Germania.

Fam. 2. **Gymnococcaceae** Zopf Pilzth. p. 126.

Sporae perdurantes nunquam intra sporocystas generatae; fructificatio non in soris disposita.

GYMNOCOCCUS Zopf Pilzth. pag. 126 (Etym. *gymnos* nulus et *coccos*). — Zoosporae intra zoocystas formatae; desunt corpuscula microcystoidea.

1. **Gymnococcus perniciosus** Zopf Pilzthier. pag. 126. — Zoosporis 1562 demum in amœbam exilem reticulato-gelatinosam evolutis; sporis perdurantibus membrana non insculpta præditis.

Hab. in cellulis Cladophorae in Germania.

2. **Gymnococcus Fockei** Zopf Pilzthier. p. 126. — Zoosporis 9 μ . 1563 diam., 2-ciliatis; amœbis irregularibus; sporis perdurantibus membrana angulata, hyalina, 7-10,5 μ . diam.

Hab. in Diatomeis variis in Germania.

3. **Gymnococcus spermophilus** Zopf Pilzthier. pag. 127. — Sporis 1564 perdurantibus membrana rigida levi, hyalina, germinatione zoocystas generantibus

Hab. in Cylindrospermo in Germania.

APHELIDIUM Zopf Pilzth. pag. 127 (Etym. *apheles* simplex, tenuis). — Zoosporae nunquam intra zoocystas formatae; desunt corpuscula microcystoidea.

1. **Aphelidium deformans** Zopf in Pilzth. p. 127. — Zoosporis 1565 minutis, 2-3 μ diam., globosis, uniciliatis; amœbis sine membranae formatione, demum in sorum zoosporarum numerosarum mutatis; sporis perdurantibus singillatim intra amœbas tandem membrana involueratas formatis.

Hab. in Coleochæte soluta vel C. irregulari in Germania.

PSEUDOSPORIDIUM Zopf in Pilzth. p. 128 (Etym. *pseudēs* falsus et

spora vel denim a *Pseudospora*). — Zoospore verisimiliter intra zoocystas non formatæ; amœbæ microcystas efformantes.

1. **Pseudosporidium Brassianum** Zopf in Pilzth. p. 128. — Zoosporis 1-ciliatis; amœbis interdum hypnocystas formantibus; zoocystis ignotis; sporis perdurantibus globosis, hyalinis, interdum membrana duplici, per operculum dehiscente instructis.

Hab. in Algarum culturis variis in Germania.

PROTOMYXA Haeckel Biol. Stud. p. 11, Zopf Pilzth. p. 128 (Etym. *protos* primus et *myxa* mucus). — Genus ab aliis *Monadineis zoosporeis* ob plasmodium evolutum, pseudopodiis præditum, reticulatum, ramulosum distinctum.

1. **Protomyxa aurantiaca** Haeckel Biol. Stud. I, p. 70, tab. II-III, Zopf Pilzth. pag. 128. — Zoocystis globosis membrana stratosacriuscula obsitis, 120-200 μ . diam., intus protoplasmate granuloso lateritio faretis; zoosporis piriformibus, uniciliatis, 0,7 μ . cr.; plasmodio ex amœbis formato, 0,5-1 mm. diam., aurantiaco, pseudopodiis inter se pluries anastomosantibus

Hab. in *Spirula Peronii* in litoribus Insularum Canariensis.

Fam. 3. **Plasmodiophoreæ** Zopf Pilzth. p. 129.

Sporæ perdurantes nunquam intra sporocystas generatæ; fructificatio in soris disposita.

PLASMODIOPHORA Wor. in Pringsh. Jahrb. XI, p. 548, Zopf Pilzth. pag. 129 (Etym. a *plasma* vel *plasmodium* et *phoreo* fero). — Sporæ non quaternæ, liberæ, in soris dispositæ. Plasmodia maturitate in cellulas globosas, in cellulas matricis libere nidulantes divisa. Sporæ zoosporas germinatione emittentes.

1. **Plasmodiophora Brassicæ** Woronin in Pringsh. Jahrb. XI, p. 548, Kny Bot. Zeit. 1879, pag. 538, Zopf Pilzth. pag. 129. — Sporis globosis, 1,6 μ . diam., tenui-tunicatis, hyalinis, zoosporas germinatione emittentes; zoosporis antice cilio præditis; plasmodio hyalino, granulis et guttulis oleosis instructo, tandem in sorum zoosporarum mutato; tuberculis forma variis, usque ad 10 cm. diam.

Hab. in radicibus Cruciferarum nonnullarum (*Brassica*, rarius *Iberide umbellata*) in Germania.

2. **Plasmodiophora Alni** (Woron.) Möller in Berich. deutsch. Bot. Gesell. Jahrg. Heft. III, 1885, Schroet. Krypt. Fl. Schles. Pilze,

p. 131, *Schinzia Alni* Woron. Mem. Ac. Sc. Pet. 7, Ser. t. X, 1866. — Sporis globosis, appendiculā stipitiformi praeditis, circiter 8 μ . diam., membrana levi, hyalina cinctis; sporis botryose aggregatis et cellulam matricis incrassatam laxe implentibus; tuberculis coralloideis, ramosis, magnis, 2–10 cm. diam.

Hab. in radicibus lateralibus *Alni glutinosae* in Polonia, Germania, Italia.

Plasmodiophora Elæagni Schroet. Krypt. Fl. Schles. Pilze p. 134. 1570

— Sporis globosis, muticis, usque ad 3 μ . diam., episporio levi, hyalino cinctis, in sphaerulas, cellulam matricis omnino implentes collectis; tuberculis rotundis ut in *Pl. Alni*, sed minoribus circiter 1–1,5 μ . diam.

Hab. in radicibus *Elæagni angustifoli*, Breslau Silesiae.

TETRAMYXA Göbel in Flora 1884, n. 23, tab. VII, Zopf Pilzth. p. 131 (Etym. *tetra* quatuor et *myxa* mucus). — Sporae in acervulos quadrisporos primo membrana communi involutos coalitae.

1. **Tetramyxa parasitica** Göbel. in Fl. 1884, n. 23, tab. VII, Zopf 1571

Pilzth. pag. 131. — Zoosporis in acervulos quadrisporos collectis; plasmodio tandem in cellulis, zoosporas quatuor generantibus divisio.

Hab. in plantis aquaticis, praecipue in *Ruppia rostellata*, in Germania.

PHYTOMYXA Schroet. Krypt. Fl. Schles. Pilze p. 134 (Etym. *phyton* planta et *myxa* mucus), *Schinzia* Woronin p. p., nec Dennst. — Plasmodia intra cellulas matricis stratum parietale formantia, ex quo funiculi plasmatici trans cellulas exeruntur. Funiculi plasmatici saepius et post sporarum formationem, velut filamenta persistentia recognoscendi. Sporae baculiformes vel versiformes. — Genus hoc nec non *Plasmodiophora* et *Sorosphaera* sec. cl. Schroeter l. c. ordinem *Phytomyxini* constituunt, qui re vera characteribus nonnullis, ad familiam *Plasmodiophoreae* Zopf accedit.

1. **Phytomyxa Leguminosarum** (Frank) Schroet. Krypt. Flora Schles. 1572

p. 131 (Pilze), *Schinzia Leguminosarum* Frank in Bot. Zeit. 1879.

— Plasmodiis luteo-albis; funiculis plasmaticis numerosis intra cellulas juveniles matricis excurrentibus, dein velut filamentis, subinde inflatis persistentibus recognoscendis; sporis bacilliformibus, magnitudine variis, saepe incurvatis, angulosis et breviter ramosis, 2–4 $\approx$ 1, hyalinis; tuberculis 1–3 μ . crassis, rotundatis.

Hab. in radicibus variarum Leguminosarum h. c. Trifolii repentis, Loti corniculati, Orobi verni etc. in Germania.

2. **Phytomyxa Lupini** Schroet. Krypt. Fl. Schles. Pilze pag. 135. — Sporis plerumque simplicibus, iis *Ph. Leguminosarum* similibus; tuberculis gibbosis, usque 1 cm. diam.

Hab. in radicibus omnibus Lupini lutei et L. angustifolii in Silesia et Polonia.

SOROSPHERA Schroet. Krypt. Fl. Schles. Pilze p. 135 (Etym. *soros* sorus et *sphaera*). — Sporæ ellipsoideo-cuneatæ, plurime parietibus lateralibus in soros cavos arcte conjunctæ. Intra cellulas plantarum nutricum nidulantur.

1. **Sorosphaera Veronicæ** Schroet. Krypt. Fl. Schles. Pilze p. 135, *Tubercina Veronicæ* Schroet. olim. — Pulvere sporarum cinnamomea; soris sporarum globosis vel ellipsoideis, 18-28 $\approx$ 18-22; in cellulis parenchymaticis, valde incrassatis, numerose nidulantibus; sporis ovoideis, cuneiformibus, apice applanatis, cuticula communi tectis, parietibus lateralibus conjunctis et sorum cavum formantibus; sporis 8-9 $\approx$ 4-4,5 episporio levi, pallide brunneo, apice crassiori; tuberculis cylindraceis, sæpe curvulis 3 mm. crassis.

Hab. in caulibus et petiolis Veronicæ hederifoliæ et V. triphyllæ in Silesia.

GENERA DUBIA VEL EXCLUDENDA

BACTRIEXTA Preuss Hoyersw. pag. 730 (Etym. *bactron* baculus et *ectos* extus). — Peridium duplex, membranaceo-crustaceum (stipitatum) demum supra fissum. Columella intra peridium capitata. Capillitium, extus stylidiis geniculatis radiatum, columellam et peridium interius jungens. Sporæ glomeratæ, verrucis stylidii adfixæ, simplices.

1. **Bactriexta alba** Preuss. Hoyersw. n. 18. — Albida; peridio hemisphaerico, cernuo, subtus umbilicato, lobato-substellato fisso; stipite firmo nigrescente; sporis atro-purpureis, nucleis repletis.

Hab. in ramulis dejectis Hoyerswerda.

ENDOCALYX Berk. et Br. Ceyl. Fungi Suppl. p. 3 (Etym. *endon* intus et *calyx*). — Peridium calyciforme, pedunculatum, villosum, de-

mem ruptum, e basi crassa oriundum; sporæ subglobosæ, echinulatæ.

Endocalyx psilostoma Berk. et Br. Ceyl. Fungi n. 1204. — Ore 1576
primum integro, dein fisso; stipite brevi, crassiore; sporis 20-25
µ. diam.

Hab. in ramis putridis, Peradenya Ceylon.

Endocalyx Thwaitesii Berk. et Br. Fungi of Ceylon n. 1203, tab. 1577
II, fig. 2. — Ore insigniter laciniato, laciniis elongatis; stipite
gracili, elongato; sporis e globoso ovoideis, 15-20 µ. diam.

Hab. in ramulis putrescentibus, Peradenya Ceylon.

FICTODERMA Preuss. Hoyersw. p. 729 (Etym. *fictus* et *derma*). —

Hyphopodio floccoso suffultum, tenuissimum; peridium membrana-
ceum, furfuraceum, nucleo sporarum gelatinoso, dein pulveraceo
repletum; floccis internis septatis, ramosis, basi adscendentibus et
in catenas sporarum mutatis, tum singulatim secedentibus.

Fictoderma minus Preuss Hoyers. n. 17. — Pseudoperidiis grega- 1578
riis, globosis, membranacco-furfuraceo-pulveraceis, fragilissimis,
nigris; floccis internis crassis, ramosissimis, in catenas sporarum
mutatis; sporis globosis, minutis; episporio glabro, sæpe hylo in-
structo, nucleo repleto, fusco.

Hab. ad ligna excorticata arborum frondosarum, Hoyerswerda.

OSTRACODERMA Fries. Syst. Orb. Veg. 1. p. 150 (Etym. *ostracon*

testa et *derma*). — Peridium rotundatum, crustaceum, glabrum,
tenuè, fragile, in medio fatiscens. Sporæ coacervatæ, nullis floccis
intertextæ, laxæ. Thallus nullus conspicuus. — *Hypheliæ* generi et
præcipue *H. terrestri* tam affine, ut distinguere dubitarem, nisi
peridio minime villosa sed crustaceo, licet admodum tenui, disce-
deret; accedit porro differentia formæ subdeterminatæ, pulvinatæ.
Facile igitur crederes esse *Myxogastrem*, sed nec unquam fluxile
vidi, nec habitu cum *Liceis* afflinibusque convenit. Peridium omnino
spurium, ut velum *Trichodermaceis* solemne. Fr. Syst. Myc. III,
pag. 213.

Ostracoderma pulvinatum Fr. Syst. Myc. III. p. 214. — Sparsum 1579
aut gregarium, circumscriptum, rotundato-hemisphæricum, magni-
tudine varium; peridio crustoso, sed tenuissimo et fragilissimo, levi,
glabro, albido, in medio collabente et evanescente; sporis minutis,
globosis, argillaceis, laxè coacervatis, 7,5 µ. diam.

Hab. in silvis, locis deustis, ad terram inter muscos, Frieso aliquoties obvium; ineunte autumno in Suecia et Britannia. — Ob peridium leve (glabrum, ut videtur) facile huc duceretur *Trich. lece* Pers., sed majus est et pulvis flavus: cfr. A. S. p. 136. ut saltem specie diversum. In Carolina minus quidem occurrere notat Schw. Car. n. 522, sed hoc colore eleganter citrino dignoscitur: erit forsitan tertia generis species.

2. **Ostracoderma bicolor** B. et Br. Ceylon Fungi II, n. 1198. — Peridio globoso rubro, minute granulato; sporis flavis pulverulentis 5 μ . longis.

Hab. in cortice Nephelii lappacei in insula Ceylon.

TIPULARIA Chev. Fl. Par. I. p. 344. Journ. Phys. 1822, t. I, f. 3. (Ety. a *Tipula*). — Peridium liberum, adnatum, subglobosum tomentoso-glanduloso-subvillosum, intus pulveraceum. Sporae undae. Singularis est species cognita appendicibus 4-5, inaequalibus, cylindricis e peridio enatis. Pili glandulosi peridii aucti referunt corpuscula pedicellata ad basim alarum *Tipulae* cujusdam, unde nomen.

1. **Tipularia fulva** Chev. l. c., Fr. Syst. Myc. III, p. 218. — Peridio subrotundo, sessili, 2 mm. lato, una cum sporis appendiculisque fulvo; *Dichosporio* generi evidenter affini.

Hab. in cortice vetusto Ulmi, autumno.

DICHOSPORIUM Nees Syst. p. 105, f. 99, Fries Syst. Orb. Veg. I. p. 152. — Sec. Rost. est *Badhamia capsulifera* immatura.

SCHYPHIUM Rost. — *Badhamia*.

CYLICHNIIUM Wallr. — *Phelonitis*.

TRICHAMPHORA Jungh. — *Chondrioderma*,

ADDENDA *)

auctore Doct. J. B. DE TONI, Scholæ botanicæ patavinæ adjutore.

GASTEROMYCETÆ Willd.

Phalloideæ Fr.

* **S. Dictyophora? collaris** (Cragin) De Toni, *Phallus collaris* Cragin 1582
in Bull. of Washburn. College vol. 1, n. 2, p. 33, t. I, f. 6-7, Cat.
Hym. et Gasterom. of Kansas, n. 5. — Stipite superne attenuato,
basi 2,5 cm. crasso; pileo magno, ovato, longitudinem dimidiam
stipitis metiente, dein abrupte truncato; indusio brevi, a pileo
secedente, areolis polygonis, confertis exornato; receptaculo sor-
dide albo, parte superiori primo rotundata, levi, radiato-sulcata, in-
feriori ampliore et profunde in lobos dein irregulares rotundatos-
que constricta.

Hab. ad terram Kansas Amer. borealis. — Totus fungus 12-13
cm. altus, pileus 3,5-4 cm. altus, indusium 17-18 cm.; latitudo
stipitis ad apicem volvæ ruptæ 3 cm.; latitudo maxima pilei 3
cm., volvæ 5 cm. circ.

* **1. Ithyphallus purpuratus** Cragin in Bull. of Washb. Coll. vol. I, 1583
n. 2, p. 34. — Receptaculo subnapiformi, levi, firmo, obscure ru-
bro-purpureo, subnitente, foetidissimo; stipite spongioso-celluloso,
aquali, vel deorsum vix attenuato, albo, basi delicate purpurello;
pileo foveolato, pro ratione brevi, mox collapsio putrescenteque, mar-
gine foveolarum integro, mox flavido; indusio nullo.

Hab. Shawnee Co. Americæ borealis. — Receptaculum 3 cm.
diam., fungus 4,5 cm. altus, stipes basi 12-13 mm. crassus.

1. Simblum rubescens var. **kansense** Cragin in Bull. Washb. Coll. 41
vol. 1, n. 2, p. 34. — Stipite apice carneo-rufescente, basin ver-
sus albido-rubescente; stipite spongioso-celluloso, deorsum atte-

*) Quum impressio hujus *Syllo.,es* voluminis, varias ob causas, lentissime
processerit, nonnullæ, præcipue *Gasteromycetum*, species novæ nec non mo-
nographiæ generis *Lycoperdi* et *Polysacci* clarissimi Massee interea pro-
lierunt. Ne *Sylloge* nostra vero his novitatibus et observationibus perutilibus
in careat, appendicem ad *Gasteromycetes* in hoc ipso volumine inserere
existimavimus. Addenda ad ceteros ordines inter Additamenta totius Operis
dentur.

nuato, mox basi in pedicellum abrupte contracto; receptaculo albo, obconico vel piriformi; pileo globoso-depresso, stipitis apice paululo crassiore, interstitiis pentagonis, plerumque 9-18; ramis crispulis, cavis, flaccidisque; sporis globosis, 3,5-4 μ . diam.

Hab. ad terram Shawnee Co. Americae borealis. — Odor haud foetidus sed nauseoso-dulcis. Stipes 5-6 cm. altus, 12-13 mm. apice crass. Ex ipso auctore a typo forte specificè distinguendum.

Lycoperdaceae (Ehrenb.) Fr.

- * 3. **Cycloderma platysporum** Cooke et Massee in Grevillea XVI, p. 73. — Ovatum, ad apicem subumbonatum; exoperidio crasso, flexili, continuo, levi, ochraceo; endoperidio tenui, nitido; columella conica vel clavata, ad centro producta; capillitio cinereo-lilacino, radiante; floccis simplicibus, pallidis, sporarum diametro aequalibus; sporis globosis, minute granulato-asperulis, pallide griseis, subconcoloribus, 8 μ . diam.

Hab. ad terrain prope Melbourne Australiae (F. READER).

- * 4. **Tylostoma Jourdani** Pat. in Revue Mycologique 1886, p. 143, t. LIX a-c. — Peridio flavescenti, globuloso, glabro, inferne comento brevi denso oblecto osculo parum prominulo, 2 mm. circ. lato; stipite ex apice basin versus sensim regulariterque attenuato, albo-rufescente, apice glabro longitudinaliter striato, ceterum tomento leproso obsito; floccis hyalinis, ramosis, 5-7 μ . crass.; sporis rotundatis, subangulatis, 4-5 μ . diam., grasse 1-guttulatis, flavescentibus, coacervatis brunneo-fuscidulis.

Hab. ad terram, El Goleah Africae (Cnoisy). — Peridium circ. 1,5 cm. latum, partes omnes fungi villosae granulis arenosis incrustatae. Habitus *Tylost. Giovannellae* Bres. at stipitis apice striato diversum; *Tyl. Boissieri* Kalchbr. etiam affine videtur at stipitis characteribus distinctum. Speciem aff. algeriensem misit cl. TRABUT.

- * 7. **Tylostoma patagonicum** Speg. Fungi patagonici p. 22, n. 63. — Peridio e globoso hemisphaerico, cartilagineo-membranaceo, subfragili, glabro, levi, centro rotundato ac osculo latiusculo rotundo, marginato, integro, prominulo donato, sordide albo, inferne applanato ad stipitis confluentiam profunde umbilicato, fragmentis corticis exterioris arena implexi angulato-vestito; stipite tereti, fistuloso, concolori, compressulo ac subtorto, dein fragili, longitudinaliter fibroso-ruguloso, terra ad medium et ultra infosso; gleba e violascenti vel rubescenti grisea, columella destituta, peridio ubique adnata, e floccis tenuissimis, septulatis, ramulosis, laxissi-

me minuteque asperulis constituta; sporis globosis, 4-5 μ . diam., laxe grosseque rugoso-papillulatis, majusculæ 1-guttulatis, pallide fulvis.

Hab. ad dunas maritimas insulæ Leones de mar in Rio S. Cruz Patagoniæ. — Peridium 7-10 mm. diam., 5-8 mm. altum, osculum 1-1,5 mm. diam., stipes 5-15 mm. longus, 2-2,5 mm. crassus.

- * 3. **Geaster turbinatus** Cragin in Bull. Washb. Coll. vol. I, n. 2. 1587
p. 40 ex Massee. — Exoperidio usque fere ad medium 8-10-fisso, extus albido-griseo, intus brunneo; endoperidio obscure purpureo-brunneo, pedicellato, ad medium leniter constricto, superne depresso-globoso, elastico (sicco crustaceo), pruina flavescenti-grisea, farinacea adperso inferne late obconico, tunica crassa, obscure radiato-sulcato, furfure farinaceo brunneo obtecto; peristomio prominulo, brunneo, conico, radiato-plicato, plicis 18-25; pedicello compresso, plerumque obconico, basi annulo seu cupula rigida undulata ab exoperidio verisimiliter efformata aucto; capillitio sporisque obscure umbrinis; sporis globosis, granulatis, 4,5-5 μ . diam.

Hab. ad terram Shawne Co. Americæ borealis.

- * 11. **Geaster campester** Morgan in Americ. Naturalist 1887, p. 1027 1588
cum icone. — Exoperidio crasso, multifido, laciniis 8-10, revolutis, extus albidis, intus rufescentibus; endoperidio globoso, subpedicellato, verrucoso, griseo vel brunneolo, peristomio conico, sulcato-plicato, disco circulari marginato insidente; sporis globosis, 5,5-7 μ . diam., verruculosis, brunneis.

Hab. gregatim ad terram, primitus subinversus, prope Lincoln Nebraska Americæ borealis (C. E. Besser). — Endoperidium 6-13 mm. diam., laciniae expansæ 2,5-5 cm. Sectioni «*Striati*» meæ revisionis ab ipso auctore relatus.

- * 12. **Geaster Thwaitesii** Berk. in Herb. n. 40, 45, 54, Massee in litt. — 1589
Exoperidio multifido, laciniis acutis, extus rugulosis, intus strato crassiusculo rimoso donatis; endoperidio brevi-pedicellato, globoso, umbrino, nitente; peristomio conico, elongato, plicato-sulcato; capillitio brunneo; sporis globosis, tuberculoso-echinulatis, 5-6 μ . diam.

Hab. ad terram in insula Ceylon. — 2,5-4 cm. diam.

- * 13. **Geaster Archeri** Berk. Fl. Tasm. vol. II, p. 264, pl. 83, fig. 9 1590
bis, valde incorrecta. — Exoperidio usque ad medium 6-7-fido, laciniis flaccidis, acuminatis, revolutis; endoperidio globoso, purpureo-umbrino; peristomio elongato-conico, sulcato-plicato, indistincte marginato; capillitio umbrino; sporis globosis, rufo-olivaceis, levibus, 5 μ . diam.

Hab. ad terram in Tasmania. — Videtur *G. striato* DC. peraffinis et ad eundem (speciminibus haud visis) in mea revisione generis *Geasteris* relatus fuit.

4. **Geaster radicans** Berk. (Syll. n. 213). — Sporæ 4-5 μ . diam. (Massee in litt.).
10. **Geaster bicipatus** B. et C. (Syll. n. 219). — Sporæ globosæ, 4 μ . diam. verruculosæ (Massee in litt.).
17. **Geaster Drummondii** Berk. (Syll. n. 226). — Sporæ subglobosæ, olivaceæ, 6-7 μ . diam., echinulatæ (Massee in litt.).
20. **Geaster lignicola** Berk. (Syll. n. 229). — Sporæ globosæ, leves, 3 μ . diam., fuliginæ (Massee in litt.).
18. **Geaster mirabilis** Mont. (Syll. n. 227). — Sporæ globosæ, leves, 3-5 μ . diam., olivaceo-fuliginæ (Massee in litt.).
- * 31. **Geaster Readeri** Cooke et Massee in Grev. XVI, p. 73, *Geaster australis* Reader nec Berk. — Exoperidio tenui, 7-9-fido, laciniis acute triangularibus, inæqualibus, intus umbrinis; endoperidio substipitato, globoso, tenui, ochraceo-umbrino; peristomio fimbriato (nec linea circumscripto) vix prominulo; sporis capillitioque obscure umbrinis; floccis simplicibus, pallidis, apice attenuatis, quam sporis crassioribus; sporis globosis, levibus, fuscis, 3 μ . diam.

Hab. ad terram, Melbourne Australiæ (READER).

- * 37. **Geaster australis** Berk. Fl. Tasm. vol. II, p. 265, t. CLXXXIII, fig. 10. — Exoperidio coriaceo, rigido, usque ad medium 8-10-fido, laciniis ovatis, revolutis, intus violaceis, strato interno venoso-reticulatis; endoperidio subgloboso, sessili, pallide umbrino; peristomio plano-conico, demum dentato-lacero; capillitio lato, brunneo-lo; sporis globosis, olivaceo-fuscis, levibus, 3 μ . diam.

Hab. ad terram in Tasmania. — Videtur *G. fimbriato* Fr. peraffinis et ad eundem in mea revisione generis *Geasteris* relatus fuit. Peristomium, teste Massee in litt., dentibus acutis fibrillis adhærentibus efformatis constitutum.

- * 12. **Geaster Guilfoylei** Müll. in Herb. Berk. Kew. n. 45-64 Massee in litteris. — Exoperidio usque ad medium 5-6-fido; laciniis obtusis siccitate revolutis, exiliis velutinis, ferrugineis, intus umbrinis, rimosis; endoperidio subgloboso, sessili, tenuissimo, umbrino; peristomio subplano, dentato-lacero; capillitio rufo-olivaceo; sporis globosis, levibus, olivaceis, 6-7 μ . diam.

Hab. ad terram in Australia. — 3,5-5 cm. diam. *Geasteri rufescenti* affinis at distinctus.

- * 14. **Geaster delicatus** Morgan in Americ. Naturalist 1887, p. 1028

c. icone. — Exoperidio tenui, multifido, laciniis 6-10, inaequalibus revolutis, extus albidis, intus alutaceis; endoperidio depresso-globoso, sessili puberulo, pallido, osculo lacerato; sporis globosis, 5-6 μ . diam., verruculosis, fuscis.

Hab. in pratis prope Lincoln Nebraska Americæ borealis (C. E. BESSEY). — Endoperidium 6-13 mm. diam., laciniæ expansæ 2.5 cm. et ultra, siccitate involutæ ut in *G. hygrometrico*. — *G. Bovistæ* Klotzsch. proximus dicitur ex ipso auctore.

- * 47. **Geaster Menziesii** Berk. in Herb. n. 4573, Massee in litt. — 1595
Exoperidio tenui, usque ad basin, 4-fido, laciniis rigidis, extus pallidis, intus rufescentibus, levibus; endoperidio globoso-compres-
so, sessili, brunneo; peristomio pallido, erecto, conico, demum ir-
regulariter dentato-lacero; capillitio denso, fuligineo-fusco, e floccis 10-12 μ . latis, rufescentibus efformato; sporis globosis, levibus,
4 μ . diam.

Hab. ad terram Owyhee Amer. bor. — 3.5-5 cm. diam.

- * 9. **Bovista pachydermica** Speg. Fungi patagonici p. 25, n. 72. — 1596
Mediocris, globosa vel globoso-depressa, ubique levis, arrhiza; exo-
peridio primo crassiusculo, carnosulo, albo, sursum angulose dif-
fracto, dein tenuissime membranaceo-pelliculoso, sordide albescenti-
cinerascente, plus minusve laxè squamuloso-atomato, endoperidio
arcte adnato evadente; endoperidio subcoriaceo, crassiusculo tena-
ci, subfragili, diu tecto, superne subostiolatim-lacero ac dehiscente
e murino plumbeo, frustulatim evanescente; gleba laxissime floc-
cosa, gossypina, peridio adnata, obscure olivacea, pulvere spori-
fero repleta, floccis olivaceis, continuis, levissimis, 2-3 μ . diam.,
tenuibus efformata; sporis globosis, 3 μ . diam., grosse uni-guttu-
latis, dense majusculæque papilluloso-asperis, obscure olivaceo-fu-
ligineis, caudula hyalina, vix evoluta, auctis.

Hab. in collinis graminosis parcissime prope Punta Arenas
Americæ australis. — Fungus 2-4 cm. diam., endoperidium 500 μ .
ad 1 mm. crassum. Species primo visu pro *Sclerodermate chilensi*
(Mont.) De Ton. facillime sumenda sed mox peridio tenuiore gle-
ba non pulverulenta et ceteris characteribus dignoscenda.

- * 10. **Bovista echinata** Hazsl. Peitr. Ung. Pilzflora IV, pag. 226. — 1597
Peridio e globoso compresso, tenui-membranaceo, basi plicato;
cortice aculeis mollibus instructo; sporis globosis, 4 μ . diam., le-
vibus, pedicello usque 30 μ . longo.

Hab. ad terram in Hungaria — « An *B. nigrescentis* varietas? ».

- * 11. **Bovista arachnioides** Speg. Fungi patagonici p. 24, n. 69. — 1598

Parvula, irregulariter globosa, superne regulariter convexa inferne subcoarctato grosseque rugoso-plicata, centro subumbilicato-radiculata; exoperidio absente; endoperidio autem sordide pallideque griseo, levissimo non nitente, crassiusculo, tenacello, coriaceo, apice irregulariter per ætatem lacero-dehiscente; gleba peridio adnata, flocculoso-grumosa, pallidissime fulvella; floccis tenuissimis, hyalinis, parce ramulosis, non vel laxissime septulatis; sporis globosis, 2,5-3 μ . diam., levissimis, ecaudatis, grosse guttulatis, chlorinulis.

Hab. ad terram sabulosam sub umbra dumetorum insulæ Pavon in Rio Santa Cruz Americæ australis. — Species primo obtutu facillime pro *Arachnio* quodam sumenda, mox tamen cortice tenaci, gleba grumosa sed non granulosa dignoscenda. Peridium 6-12 mm. diam.

- * 14. **Bovista amethystina** Cooke et Massee in Grevillea XVI, p. 69. — Globosa, cortice evanescenti; peridio tenui, papyraceo, nitido, fragili, in areas rupto; sporarum massa læte amethystino-violacea, pallide violaceis; floccis sporarum diametrum subæquantibus, æqualibus, ramosis, plerumque hyalinis; sporis globosis, levibus, 5-6 μ . diam.

Hab. ad terram ex Niger Exped. (BARTER). — Peridium 2,5-4 cm. diam.

- * 19. **Bovista olivacea** Cooke et Massee in Grevillea XVI, p. 77. — Globosa, basi brevi, valida, radicante instructa, cortice tenuissimo et evanescente; peridio crasso, primo molli et corii ad instar plicato, dein fragili et in fragmenta rupto, pallide ochraceo, demum albido; gleba læte citrina, dein olivacea; floccis tenuibus, flavidis simplicibus; sporis globosis, levibus, subinde pedicellatis, 5 μ . diam., pallide flavis.

Hab. ad terram Durdham Down Britannicæ (C. E. BROOME) nec non prope Vinmera Vict. (READER). — Peridium 4-5 cm. diam.

- * 20. **Bovista magellanica** Speg. Fungi patagonici p. 23, n. 68. — Subparvula, subglobosa, superne regulariter convexa, inferne obtuse rotundata, centro non vel vix radiatim rugulosa; exoperidio absente; endoperidio autem tenui-membranaceo, papyraceo-subcartilagineo, tenacello, levissimo, subnitente, deorsum sordide fusconigrescente, sursum albescenti-griseo vel subargenteo, per ætatem centro irregulariter ac modice subostiolato-dehiscente; gleba gossypina, compactiuscula, mollissima, homogenea, pulvere sporifero inspersa, tabacino-olivascens; floccis olivaceo-fulvescentibus, gra-

cillimis, simplicibus, levibus, 1-3 μ . crass., non vel parcissime septulatis; sporis globosis, guttulatis, 3-3,5 μ . diam., episporio crassiusculo, laxissime minutissimeque asperulo-papilluloso, cauda praelonga, 8-9 $\approx$ 1 appendiculatis, olivascenti-tabacinis.

Hab. in collinis graminosis prope Punta Arenas Americæ australis. — Peridium 1-3 cm. diam.

- *22. **Bovista antarctica** Speg. Fungi patagonici p. 24, n. 71. — Sub. 1602
parvula, e turbinato globosa, superne convexa, levis, inferne turbinato-coarctata, ruguloso-plicata, basi in radicem pro ratione longiusculam crassamque duram, e fibris mycelialibus terra inmixtis efformatam abiens primo alba, dein griseo-murina, atomata; exoperidio tenui, albo, subcarnoso, mox irregulariter minuteque diffracto ac evanescente; endoperidio papyraceo, cartilagineo, tenui, tenacello, subrigidulo, murino-griseo vel subsericeo-nitente, superne laxè subminuteque atomato, inferne minute denseque papilluloso asperulo, papillis sæpius albicantibus; gleba peridio adnata, olivaceo-tabacina, gossypino-compactiuscula, e floccis tenuibus, 2-4 μ . crass., levibus, concoloribus, subcontinuis composita; sporis globosis, 2,5-3-5 μ . diam., grosse guttulatis, episporio minutissime subimperspicue granuloso, caudula papilliformi vix evoluta donatis, olivaceis.

Hab. vulgatissima in collinis freti magellanici Cabo Possession, Gregory Bay, Elisabeth is., Punta Arenas Americæ australis. — Peridium 2-2,5 cm. diam., basis 5-15 mm. longa, 2-3 mm. crassa. Species habitu fere *Lycoperdi* cujusdam et potissimum *Lycoperdi asperi* (Lév.). Speg. a quo recedit statura minore, peridio tenuiore, rigidiores, sporis asperulis coloreque glebæ. — «An tantum eiusdem varietas?».

- *29. **Bovista cinerea** Ellis in Bull. Washb. Coll. vol. I, n. 2, p. 40, 1603
Massee in litt. — Globosa (?), 5-6 cm. diam., basi brevi subfusoides-radiciformi instructa; peridio coriaceo, circ. 1 mm. crasso, levi vel sublevi, integro; capillitio cinérascenti-griseo, copioso; floccis 3-4 μ . diam., plus minus ramulosis, peridio undique adnatis; sporis globosis, 4-5 μ . diam., echinulatis, argillaceis v. cinereis.

Hab. ad terram Kansas Americæ borealis.

- *30. **Bovista ovalispora** Cooke et Mass. in Grevillea XVI, p. 33. — 1604
Subglobosa, sessilis; cortice tenui, albo vel subochraceo, subpersistente; peridio tenui, flaccido, glabro, cinereo, osculo irregulari; capillitio sporisque umbrinis; floccis 12-16 μ . diam., vage ramosis, apicibus attenuatis, pallide umbrinis; sporis ovalibus, 6 $\approx$ 4,5

fusco-umbrinis, pedicellatis, episporio crassiusculo, hyalino, pedicellis elongatis, crassis, hyalinis.

Hab. ad terram in Nova Zelandia et S. Carolina Amer. bor. nec non in horto Kewensi Britanniae.

- *31. **Bovista hyalothrix** Cooke et Massee in Grevillea XVI, p. 73. — Cortice tenuissimo fibrosoque, ad peridii basin cupulae ad instar persistente; peridio subtiliter ruguloso, osculo apicali minuto dehiscente; floccis simplicibus, firmis, valde intertextis, hyalinis, aequalibus, circ. 5-6 μ . crassis; sporis globosis, grosse spinulosis, 10-12 μ . diam., coacervatis umbrinis.

Hab. ad terram prope Lacum Allacutya in Victoria Australiae.

- *B. circumscissae* B. et C. proxima. Peridium 2,5-4 cm. diam.
- *37. **Bovista debreceniensis** (Hazsl.) De Ton., *Globaria Debrece- niensis* Hazsl. Beitr. Ung. Pilzflora IV, p. 226. — Peridio globo- so, levi, pergameneo, apice osculo rotundato, promiculo instructo; gleba tota fertili; capillitio sparse ramoso, e floccis tunica crassa instructis, 3 μ . latis efformato; sporis sessilibus, valde verru- cosis, 6 μ . diam., subimpellucidis.

Hab. ad terram in Hungaria.

LYCOPERDON Tournef. (p. 106).

NB. Species sunt dispositae secundum Monographiam el. Massee (G. Massee *A Monograph of the genus Lycoperdon* in Journ. R. Microsc. Society, 1887), additae nonnullae hoc loco laud descriptae et hic asterisco notatae. Numeri post nomen specificum respondent numeris *Sylloges*.

A. Stratum basilale sterile bene evolutum, cellulare vel compactum.

I. Sporae globosae, rugosae, purpureae, lilacinae vel brunneolae.

1. **Lycoperdon Hoylei** B. et Br. (n. 320). — Sporae 5 μ . diam., late lilacinae verrucosae.
2. **Lycoperdon echinatum** Pers. (n. 401 ut var.). — Sporae 6 μ . diam., purpureo-umbrino, verrucosae.
3. **Lycoperdon constellatum** Fr. (n. 408). — Sporae 5-6 μ . diam., purpureo-brunneae, verrucosae.
4. **Lycoperdon pulcherrimum** B. et C. (n. 338). — Sporae 5 μ . diam., brunneolo-purpureae, subtiliter verruculosae.
5. **Lycoperdon Fröstii** Peck (n. 403). — Sporae circ. 5 μ . diam., purpureo-brunneae, verrucosae.
6. **Lycoperdon hirtum** Mart. (n. 357). — Sporae 5 μ . diam., brunneolo-purpureae, subtiliter verruculosae.

7. *Lycoperdon atro-purpureum* Vitt. (n. 392). — Sporae 6-7 μ . diam., 392
atro-purpureae, verrucosae.
8. *Lycoperdon velatum* Vitt. (n. 407). — Sporae 4-5 μ . diam., brun- 407
neo-purpureae, verrucosae.
9. *Lycoperdon cyathiforme* Bosc. (n. 391). — Sporae 8 μ . diam. id. 391
- 10 *Lycoperdon lilacinum* (Berk.) Speg. (n. 403). — Sporae 6 μ . diam., 403
violaceae, ochraceo-tinctae, echinulatae.
1. *Lycoperdon violascens* Cooke et Massee Monogr. of Lycop. p. 6, 1607
t. XIII, f. 21-23. — Globosum, sessile, subinde inferne subplicatum
et in radicem brevem gracilem abiens; peridio papyraceo, persi-
stenti, initio verrucis granulatis minutis oblecto, dein glabro niti-
doque, semper albido, sursum irregulariter dehiscente; floccis va-
riæ crassitudinis, sæpe nodulosis, e basi sterili cellulari magna con-
vexa liberis exsurgentibus; sporis globosis, 6 μ . diam., subtiliter
verrucosis, lilacinis.
- Hab.* ad terram in Australia. — Peridium 3,5-4 cm. latum.
12. *Lycoperdon Welwitschii* De Ton. (n. 406, L. Curreyi Massee Mo- 406
nogr. of Lycop. p. 6). — Sporae 6 μ . diam., violaceae, verrucosae.
13. *Lycoperdon fucatum* Lév. (n. 400). — Sporae 5 μ . diam., e sor- 400
dide lilacinæ brunneo-vinosæ, echinulatae.
4. *Lycoperdon fragile* Vitt. (n. 402). — Sporae 5 μ . diam., atro- 402
purpureae, subtiliter verrucosae.
15. *Lycoperdon Caffrorum* K. et C. (n. 417). — Sporae brunneae, 417
echinulatae.
16. *Lycoperdon glabellum* Peck (n. 396). — Sporae circ. 6 μ . diam., 396
purpureo-brunneae, rugosae.
17. *Lycoperdon asterospermum* D. et M. (n. 410). — Sporae 7 μ . 410
diam., brunneo-purpureae, verrucosae.
18. *Lycoperdon decipiens* D. et M. (n. 411). — Sporae 6 μ . diam., 411
purpureo-umbrinae, verrucosae.
19. *Lycoperdon cupricum* Bonord. (n. 395). — Sporae purpureo-um- 395
brinae, echinulatae.
20. *Lycoperdon elongatum* Berk. (n. 393). — Sporae 6 μ . diam., um- 393
brinae, echinulatae.

II. Sporae globosae, rugosae, brunneo-olivaceae, olivaceae vel flavescentes.

21. *Lycoperdon saccatum* Vahl (n. 412). — Sporae sphaeroidae, 6 412
 μ . diam.
- *21. *Lycoperdon pseudo-lilacinum* Speg. (n. 415). — Sporae globosae, 415

exappendiculatæ, minute denseque asperq-papillosæ, 4-5 μ . diam., glauco-fumosæ.

**21. *Lycoperdon montanum* Quél. (n. 421). — Sporæ globosæ, 3,5 μ . diam., granulatæ, flavescentes.

***21. *Lycoperdon macrorrhizum* Speg. (n. 425). — Sporæ globosæ, 4,5-5 μ . diam., asperulo-papillulosæ, olivaceæ.

22. *Lycoperdon excipuliforme* Scop. (n. 321). — Sporæ 4-5 μ . diam., sordide olivaceæ, subtiliter verrucosæ.

23. *Lycoperdon cinereum* Bonord. (n. 397). — Sporæ olivaceæ, spinulosæ.

*23. *Lycoperdon Turneri* E. et E. (n. 418). — Sporæ globosæ, brevissime pedicellatæ, 4-5 μ . diam., flavido-olivaceæ.

**23. *Lycoperdon rima-spinosum* Cragin in Bull. Washb. Coll. vol. I, n. 2, p. 38, Massee in litt. — Mediocre, globoso-depressum, dein piriforme, rarius sublentiforme; peridio osculo apicali dehiscente, spinis deciduis stellatim aggregatis, longis, incurvis dense obsito, primo albo, dein sordide brunneo; spinis 4-8-constellatis, apice incurvis, basi patenti composito-multifidis; peridio denudato obscure brunneo, levi et nitido, sub lente albido-furfuraceo, obsolete foveolato; capillitio sporisque luride brunneis, ex olivaceo subumbrinis; sporis globosis, 4 μ . diam., echinulatis, pedicellatis.

Hab. ad terram Shawne Co. Americæ borealis. — 2,5-7,5 cm. latum, 2,5-6 cm. altum, rarius ultra.

III. Sporæ globosæ, leves, purpureæ, lilacinæ vel brunneolæ.

24. *Lycoperdon marginatum* Vitt. (n. 405). — Sporæ 5 μ . diam., leves (an revera?) purpureo-brunneæ.

*24. *Lycoperdon sigillatum* Cragin in Bull. Washb. Coll. vol. I, n. 2, p. 37, Massée in litt. — Magnum, sursum explanatum, deorsum in basin stipitiformem angustatum, peridio albo, levi, vel basi tantum parum conspicue ruguloso vel foveolato, areolis polygonis e lineis depressis efformatis ornato, basi sterilis distincta; capillitio sporisque purpureis; sporis globosis, guttulatis, pedicellatis, circ. 4 μ . diam.

Hab. ad terram in pratis prope Ellis Americæ boreali. — 10-12 cm. latum.

25. *Lycoperdon natalense* Cooke et Massee Monogr. of Lycop. p. 9, t. XIII, f. 18-20. — Globosum, sessile, abrupte in radicem brevem angustatam abiens; peridio crasso, subtiliter verrucoso, dein glabro, osculo minuto, irregulariter lacerato; capillitio denso, e basi

sterili, cellulosa bene evoluta convexaque libero; floccis crassissimis, firmis, flexuosis, simplicibus; sporis olivaceis, purpureo-tinctis, globosis, 3 μ . diam., levibus.

Hab. ad terram Inanda Natal Africae. — Ochraceum, 12-17 mm. diam.

26. **Lycoperdon bicolor** W. et C. (n. 368). — Sporae 5-6 μ . diam., 368
brunneae.

27. **Lycoperdon aestivale** Bonord. (n. 335). — Sporae 6 μ . diam., ob- 335
scurae umbrinae.

28. **Lycoperdon Rubecula** B. et Br. (n. 361). — Sporae 3-4 μ . diam., 361
ochraceo-brunneae.

29. **Lycoperdon sericellum** Berk. (n. 353). — Sporae 4 μ . diam., cin- 353
namomeae.

*29. **Lycoperdon Scleroderma** Speg. (n. 350). — Sporae globosae, 3-4 350
 μ . diam., violascentes, apiculatae.

IV. Sporae globosae, leves, brunneo-olivaceae, olivaceae vel flavescentes.

30. **Lycoperdon elatum** Massee Monogr. of Lycop. pag. 10, t. XIII, 1611
f. 13-15. — Stipitatum; peridio globoso, subumbonato, tenui, squamulis paucis evanescentibus instructo, deorsum lacunoso; stipite elongato, aequali, cellulari, lacunoso; capillitio denso, persistenti, continuo, basi magna, cellulosa, floccis laxis; floccis diametro tenuioribus, sparse ramulosis, firmis; sporis globosis, ferrugineo-brunneis, olivaceis, 5 μ . diam., levibus, breviter pedicellatis.

Hab. ad terram New-England Americae borealis. — Peridium 5 cm. latum; stipes 15 cm. longus, 18 mm. circ. crassus, siccitate rufo-ochraceus. *L. perlato* proximum videtur.

31. **Lycoperdon perlato** Pers. (n. 320 ut var.). — Sporae globosae, 320
olivaceae, 4 μ . diam.

32. **Lycoperdon gemmatum** Batsch (n. 320). — Sporae olivaceo-um- 320
brinae, globosae, 4 μ . diam.

*32. **Lycoperdon Kalchbrenneri** De Ton. (n. 323). — Sporae globosae, 323
subleves, 2,5 μ . diam., cinereo-umbrinae.

33. **Lycoperdon delicatum** B. et C. (n. 347 = *L. Berkeleyi* Massee). 347
— Sporae globosae, 3 μ . diam., ochraceae, rufo tinctae; peridium circ. 6,5-7 cm. latum, basis cellularis stipitiformis 2,5-4 cm. longa et crassa.

34. **Lycoperdon Colensoi** Cooke et Massee Monogr. of Lycop. p. 11, 1612
t. XII. f. 1-3. — Subcylindraceum; peridio tenui collapsio, osculo minuto apicali dehisciente, superne verrucis spiniformibus, sparsis,

inferne minoribus, brevioribus minusque confertis obsito, sicco ochraceo; capillitio denso, floccis spor. diametro crassioribus flaccidis; strato basilari sterili bene evoluto eximie celluloso; sporis olivaceo-brunneis, globosis, 4 μ . diam., levibus.

Hab. ad terram in Nova Zelandia. — 3,5-6 cm. altum, 18-19 mm. latum, 18-19 mm. latum; peridium saepe subclavatum basi-que plicatum.

35. **Lycoperdon echinulatum** B. et Br. (n. 345). — Sporae globosae, 3 μ . diam., citrinæ; peridium 2, 5-3 cm. latum.

36. **Lycoperdon piriforme** Schaeff. (n. 359). — Sporae globosae, 4 μ . diam., olivaceae; peridium 2,5-8 cm. altum.

37. **Lycoperdon glabrescens** Berk. (n. 386). — Sporae globosae, saepe pedicellatae, 5-6 μ . diam., obscure cinnamomeae, olivaceo tinctae; peridium 3,5-4 cm. lat.

38. **Lycoperdon hiemale** Bull. (n. 351). — Sporae globosae 3-4 μ . diam., olivaceo-umbrinae.

39. **Lycoperdon molle** Pers. (n. 320 ut var.). — Sporae globosae, 4 μ . diam., ochraceo-olivaceae. Magnit. peridii ut in *L. piriforme*.

* 39. **Lycoperdon gemmatum** var. **molle** f. **occidentale** Cragin in Bull. Washb. Coll. vol. I, n. 2, p. 39, Massee in litt. — Varie *mollite* majus, 6-7 cm. latum altumque; sporis 6 μ . diam., brevissime pedicellatis, rugosis; peridio capillitio sporarumque colore ut in var. *molli*.

Hab. ad terram in pratis prope Shawne Co. Americae borealis. — An ob sporas verruculosas, suadente ipso Massee, huic sectioni adscribendum?

40. **Lycoperdon Curtisii** Berk. (n. 348). — Sporae globosae, sordide ochraceae, 3-4 μ . diam.; peridium 8-9 mm. diam.

41. **Lycoperdon leucotrichum** D. et M. (n. 339). — Sporae flavescenti-olivaceae; peridium circ. 2,5 cm. latum.

42. **Lycoperdon pedicellatum** (n. 337). — Sporae 4 μ . diam., longe pedicellatae, ochraceo-virides, olivaceo tinctae; peridium 1,5-4 dm. latum.

* 42. **Lycoperdon tabacinum** Ellis in Bull. Washb. Coll. vol. I, n. 2, p. 37, Massee in litt. — Obovatum, in stipitem validum abiens; peridio albo, glabro, superne tantum squamulis paucis, minutis, obscuris, triangularibus, adpressis tecto; basi sterili porosa; capillitio sparse ramuloso, floccis circiter 2-4 μ . diam., sordide flavis; sporis globosis, levibus (?) 3-4 μ . diam., sordide flavescentibus.

- Hab.* ad terram Ellis Co. Americæ borealis. — 7-3 cm. altum, 5 cm. latum.
43. **Lycoperdon Bonordenii** Mass. — Sporæ minutæ, olivaceæ, globosæ (videtur *L. hirtum* Mart. p. p.) 357
44. **Lycoperdon Kakavu** (Zipp.) Lév. (n. 340). — Sporæ olivaceo-brunneæ, globosæ; perid. 1 cm. circ. alt. 340
45. **Lycoperdon Bovista** L. (n. 324). — Sporæ magnit. variabiles, pl. 5-6 μ . diam., globosæ leves sordide olivaceæ; peridium usque ad 3 cm. et ultra latum. 324
46. **Lycoperdon Fontanesii** D et M. (n. 344). — Sporæ olivaceo-ferrugineæ, 4 μ . diam. 344
47. **Lycoperdon cælatum** Bull. (n. 352). — Sporæ sordide olivaceæ, longiuscule pedicellatæ, 5 μ . diam.; peridium 2,5-10 cm. latum. 352
48. **Lycoperdon favosum** (Rostk.) Bonord. (n. 380). — Sporæ globosæ atro-olivaceæ; peridium 5-8 cm. lat. 380
49. **Lycoperdon capense** Cooke et Massee Monogr. of Lycop. p. 14, t. XII, f. 4-5. — Globosum, sessile; peridio subtiliter furfuraceo, dein glabro, inferne plicato, radice valida longa angustata; capillitio denso, floccis ubique æquicrassis strato basilari compacto continuis; sporis globosis, ochraceo-citrinis, levibus, 4 μ . diam. 1614
- Hab.* ad terram Caput B. Spei Africæ australis. — Peridium circ. 5 cm. diam.
50. **Lycoperdon depressum** Bonord. (n. 354). — Sporæ globosæ. olivaceo-umbrinæ, 3-4 μ . diam.; peridium 2,5 cm. altum. 354
- * 50. **Lycoperdon annularium** Beck (n. 356). — Sporæ globosæ, ochraceæ vel paullo virescentes, 3,7-4 μ . diam.; peridium 4 cm. lat. 356
51. **Lycoperdon calvescens** B. et C. (n. 344). — Sporæ sordide ochraceæ, 3-4 μ . diam., globosæ. 344
52. **Lycoperdon Cookei** Massee Monogr. of Lycop. p. 11, t. XIII, f. 24 26, *Lycoperdon pusillum* Cooke Scienc. Gossip, 1886, Decemb. 1615
- Hemisphæricum vel globosum, abrupte in basium brevem stipitiformem contractum; peridio superne fumoso-brunneo, inferne albo, subtiliter areolato-furfuraceo, osculo parvo irregulari dehiscente, capillitio cum basi sterili cellulosa bene evoluta continuo; floccis crassitudine variis, simplicis, firmis; sporis globosis, levibus, subinde pedicellatis, 4 μ . diam., amœne citrinis, dein olivaceo-umbrinis.
- Hab.* gregatim ad terram in Britannia. Amer. bor, et Port Jackson Australiæ. — 12-19 mm. diam.
53. **Lycoperdon rugosum** B. et C. (n. 363). — Sporæ ochraceæ, globosæ leves 4 μ . diam.; peridium 5-8 cm. latum. 363

54. **Lycoperdon polymorphum** Vitt. (n. 325 nom. *L. furfuracei* Schaff.). — Sporæ obscure olivaceæ, globosæ, pedicellatæ, 3-4 μ . diam.; peridium magnitudine varium.
55. **Lycoperdon ericæum** Bonord. (n. 346). — Sporæ minutæ, globosæ, olivaceæ.

V. Sporæ ellipticæ vel subglobosæ (leves).

56. **Lycoperdon radicatum** D. et M. (n. 360). — Sporæ late ellipsoideæ, leves, umbrinæ, $6 \approx 4$, sæpe pedicellatæ; peridium usque ad 4 cm. diam.
57. **Lycoperdon phlebophorum** B. et Br. (n. 374). — Sporæ late ellipsoideæ, leves, ochraceæ, $5 \approx 3-4$.
58. **Lycoperdon Sinclairii** Berk. in Masee Monogr. of Lycop. p. 16. — Globosum, in basin radicantem brevem crassam productum; peridio glabro, plerumque polito, cortice rufo, in fragmenta adnata rumpente, interstitiis pallide ochraceis, basi reticulato-plicato, parte superiori evanescente, osculum magnum laceratum efformante; capillitio e basi sterili leniter cellulosa distincto; floccis ramosis; sporis læte obovatis, levibus, late obovatis, sæpius leviter pedicellatis, $5 \approx 4$.

Hab. ad terram in Nova Zelandia.

59. **Lycoperdon Gardneri** Berk. (n. 416). — Sporæ subglobosæ, pedicellatæ, leves, 5 μ . longæ, pallide ochraceæ; peridium 7,5-12,5 cm. latum.

Species minus notæ.

I. Sporæ purpureæ, lilacinæ vel brunneo-umbrinæ.

60. **Lycoperdon laxum** Bonord. (n. 402). — Sporæ purpurascenti-brunneæ (suadente Winter, videtur potius ob sporas verrucosoechinulatas in sectione A, I inserendum).
61. **Lycoperdon rusticum** Bonord. (n. 423). — Sporæ obscure argillaceæ.
62. **Lycoperdon clavatum** (Fr.) Bonord. (n. 304 ut Bovista). — Sporæ brunneæ; peridium 10 cm. alt. 5 cm. superne lat.
63. **Lycoperdon pistilliforme** Bonord. (n. 424). — Sporæ brunneæ, subpedicellatæ.
64. **Lycoperdon alveolatum** Lév. (n. 375). — Sporæ fulvæ; peridium 4-5 cm. latum.
65. **Lycoperdon aculeatum** (Rostk.) Bonord. (n. 377). — Sporæ umbrinæ; peridium circ., 6,5-6 cm. alt., 2,5 cm. lat.

66. **Lycoperdon areolatum** (Rostk.) Bonord. (n. 379). — Sporæ brun- 379
neæ; peridium 6 altit., 3,5-5 cm. lat.

67. **Lycoperdon flavescens** (Rostk.) Bonord. (n. 378). — Sporæ brun- 378
neæ. Fungus 5 cm. alt. 4 cm. lat.

68. **Lycoperdon punctatum** (Rostk.) Bonord. (n. 376). — Sporæ brunneæ. 376

69. **Lycoperdon pertusum** Sow. Brit. Fung. t. 412, f. 2 (n. 438?). — 438
Subglobosum vel leniter in basim brevem crassam stipitiformem
contractum; peridio membranaceo, superne evanescente, primo ver-
rucis minutis furfuraceis obsito, demum glabro, lacunis numerosis
irregularibus pertuso; capillitio pallido.

Hab. inter muscos in Britannia.

2. Sporæ olivaceæ vel subflavescentes.

70. **Lycoperdon suberosum** (Fr.) Bonord. (n. 284 sub *Bovista*). — Spo- 284
ræ obscure olivaceæ; peridium 5 cm. lat.

71. **Lycoperdon candidum** (Rostk.) Bonord. in Botan. Zeit. 1847, *Lan-* 1617
germannia candida Rostk. in Sturm D. C. Fl. t. XI. — Album;
peridio sphaerico-depresso, superne fragilissimo et rumpente, oscu-
lum latum irregulare efformante; capillitio evanescente; sporis fla-
vis; basi sterili bene evoluta in radicem validam intricatam con-
tinua.

Hab. ad terram in Europa. — Circ. 4 cm. lat., 18-20 mm. alt.

72. **Lycoperdon lætum** Berk. in Hooker Journ. 1843, p. 419, Massee 1618
Monogr. of Lycoperdon p. 18. — Peridio subgloboso vel lenticu-
lari, in basim cellulosa stipitiformem validam producto, primo
verrucis pyramidalis tecto, subcoriaceo, dein rimoso-areolato, su-
perne evanescente et cupulari aperto; sporis primo flavis, dein fu-
moso-flavis.

Hab. ad terram ad Caput Bonæ Spei Africae australis. — Pe-
ridium circ. 4 cm. altum, 5 cm. lat., pallidum; stipes 18-19 mm.
altum, 2,5 cm. cr., rufo-brunneus, furfuraceus «An *Areolaria*
species?».

B. Stratum basilare sterile rudimentale vel obsoletum.

1. Sporæ globosæ, purpureæ, lilacinæ vel brunneolæ.

73. **Lycoperdon tephrospermum** B. et C. (n. 419). — Sporæ 3-4 2. 419
d., globosæ, verruculosæ, obscure brunneæ; peridium 12-25 mm. lat.

74. **Lycoperdon velutinum** Berk. et Curt. in Massee Monogr. of Lycop. 1619
p. 18. — Subglobosum vel late obovatum, sessile; peridio crasso,
persistenti, læte brunneo, velutino, radice e fibris numerosis ob-

scuris constituta; capillitio denso; floccis cum sporis fere aequicrassis; basi sterili obsoleta; sporis ochraceo-lilacinis, globosis, minutissime verruculosi, 4 μ . diam.

Hab. ad terram Venezuela Amer. austr. — Peridium circ. 2,5 cm. latum.

75. **Lycoperdon Berkeleyi** De Ton. (n. 394). — *L. delicatum* Berk. 1854). — Sporae globosae, echinulae brunneo-purpureae, 6 μ . diam., saepe longe pedicellatae; peridium 2,5-5 cm. lat.

76. **Lycoperdon epixylon** B. et C. (n. 427). — Sporae umbrinae, globosae, echinulae, 6 μ . diam.; peridium 1,5-2,5 cm. lat.

II. Sporae globosae, rugulosae, brunneo-olivaceae, olivaceae vel flavescentes.

77. **Lycoperdon fuligineum** B. et C. (n. 426). — Sporae pallide rufescenti-ochraceae, globosae, echinulae, 4 μ . diam.; peridium 2,5 cm. et ultra lat.

78. **Lycoperdon Vittadinii** Massee Monogr. of Lycop. p. 19 (n. 298? sub *Bovista*). — Globosum, sessile; peridio rigido, lanoso, sicco rufescente, osculo angusto, irregulari dehiscente; capillitio denso, floccis firmis, flexuosis, sporis diametro subaequicrassis; basi sterili obsoleta; sporis echinulatis, brunneo-olivaceis, globosis, 4 μ . diam.

Hab. ad terram in Italia. — Peridium vix 2 cm. latum.

79. **Lycoperdon subincarnatum** Peck (n. 412). — Sporae globosae, rugulosae, e flavo viridulae, dein olivaceae, 4-6 μ . diam.; peridium 12-25 mm. lat.

* 79. **Lycoperdon pseudo-gemmatum** Speg. (n. 420). — Sporae globosae, 2-2,5 μ . diam., chlorinae, laxae verruculoso-asperae, apiculatae; peridium 6 cm. long. 3 cm. lat.

III. Sporae globosae, leves, purpureae, lilacinae vel brunneolae.

80. **Lycoperdon Pusio** B. et C. (n. 370). — Sporae purpureo-umbrinae, 2-3 μ . diam.; peridium 8-9 mm. lat.

81. **Lycoperdon Astrocaryi** B. et Cooke (n. 369). — Sporae sordide ochraceae, subinde lilacinae, globosae, 3 μ . diam.; peridium 6-12 mm. lat.

82. **Lycoperdon emodense** Berk. (n. 328). — Sporae brunneo-umbrinae, globosae, 4 μ . diam.; peridium 2,5 cm. alt. 2, cm. lat.

83. **Lycoperdon australe** Berk. (n. 387). — Sporae globosae, umbrinae, plerumque longe pedicellatae, 5 μ . diam.; peridium 2,5 cm. et ultra latum.

84. **Lycoperdon rubellum** B. et C. (n. 362). — Sporæ umbrinæ, glo- 362
bosæ, 5 μ . diam; peridium 12-19 mm. lat.
85. **Lycoperdon brasiliense** Fr. (n. 294 ut Bovista). — Sporæ glo- 294
bosæ, brunneæ, 3-4 μ . diam. 12-20 mm. latum.
86. **Lycoperdon Wrightii** B. et C. (n. 331). — Sporæ umbrinæ, 3-4 331
 μ . diam.; peridium 18-20 mm. diam.

IV. Sporæ globosæ, leves, brunneo-olivaceæ vel olivaceæ vel subflavescentes.

87. **Lycoperdon stellatum** C. et M. (n. 333) Massee Monogr. of Ly- 333
cop. p. 20, t. XII, f. 10-12. — Sporæ globosæ 5 μ . diam., sordide olivaceæ; peridium 3,5-4 cm. lat.
88. **Lycoperdon substellatum** Berk. et Curt. in Massee Monogr. of 1621
Lycop. p. 20. — Globosum, sessile; peridio albido, spinis delicatis flocculosis obsito, dein deorsum angustato; floccis collapsis, simplicibus; basi sterili obsoleta; sporis ochraceis, globosis, levibus, 3,5. diam.

Hab. ad ligna emortua in insula Cuba. — Peridium 7-12 mm. latum.

89. **Lycoperdon cruciatum** Rostk. (n. 332). — Sporæ ochraceo-cinna- 332
momeæ, globosæ, 4 μ . diam.; peridium usque 2,5 cm. altum.
90. **Lycoperdon grumosum** B. et C. in herb. Massee Monogr. of Ly- 1622
cop. p. 21. — Globosum, sessile, deorsum plicatum et in radicem gracilem abrupte transiens; peridio tenui, duro, plerumque glabro; capillitio densissimo, basi sterili compacta continuo; floccis sporis æquicrassis, valde intricatis; sporis globosis, levibus, 4 μ . diam., ochraceo-olivaceis.

Hab. ad terram in insula Cuba. — 4 cm. circ. latum.

91. **Lycoperdon muricatum** Bonord. (n. 336). — Sporæ umbrinæ, oli- 336
vaceo tinctæ globosæ, sæpe longe pedicellatæ, 5 μ . diam.; peridium 2,5-5 cm. lat.
92. **Lycoperdon turbinatum** B. et C. (n. 366). — Sporæ sordide cin- 366
namomeæ, globosæ, 4 μ . diam.; peridium usque ad 4 cm. latum.
- *92. **Lycoperdon asperum** (Lév.) Speg. (n. 367). — Sporæ globosæ, 367
2-3 μ . diam., dilute fulvo-olivascens; peridium 15-25 mm. diam.
93. **Lycoperdon microspermum** Berk. (n. 327). — Sporæ brunneolo- 327
olivaceæ, globosæ, 2-3 μ . diam.; peridium usque ad 2,5 mm. latum.
94. **Lycoperdon citrinum** B. et Br. (n. 385). — Sporæ pallide oliva- 385
cæ, globosæ, 5 μ . diam., sæpe pedicellatæ; peridium 12-16 mm. diam.

95. **Lycoperdon flavum** Massee Monogr. of Lycoperd. p. 21, f. XIII, f. 27-29. — Globosum, fuscescens-olivaceum, fibrillosum vel subtiliter furfuraceum; peridio osculo minuto apicali dehiscente; floccis crassitudine variabilibus, spinulis sparsis gracilibus instructis, raro ramosis; basi sterili obsoleta; sporis flavo-citrinis, globosis, 5 μ . diam., levibus.

Hab. ad terram ad Caput Bonæ Spei Africæ australis. — Peridium circ. 2,5 cm. diam.

98. **Lycoperdon dermoxanthum** Vitt. (n. 296 sub *Bovista*). — Sporæ globosæ, ochraceo-olivaceæ, leves (an ?), 3-4 μ . diam; peridium 1-4 cm. lat.
97. **Lycoperdon defossum** Vitt. (n. 298 sub *Bovista*). — Sporæ ochraceo-olivaceæ, dein umbrinæ, globosæ, pedicellatæ, 5 μ . diam.; perid. 1-2 cm. circ. lat. Cfr. *Lyc. Villadini* Mass.
98. **Lycoperdon conspurcatum** B. et Br. (n. 388). — Sporæ olivaceæ globosæ, 4 μ . diam. (nec 12 = 4 ex diagnosi); peridium vix 2,5 cm. latum.
99. **Lycoperdon reticulatum** Berk. (n. 330). — Sporæ pallide griseo-flavescentes, globosæ, 4 μ . diam.; peridium 18-19 μ . diam.
100. **Lycoperdon cepiforme** Bull. (n. 325 ut *L. furfuraceum* Schaefl.). — Sporæ læte citrinæ, globosæ, breviter et crassiuscule pedicellatæ, 4 μ . diam.; peridium circ. 2,5 cm. lat.
101. **Lycoperdon cubense** Berk. in herb. Massee Monogr. of Lycoperdon p. 22. — Subglobosum; peridio crasso, tomentoso, radice e fibris albis dense adnatis efformata; floccis flaccidis, simplicibus strato sterili plerumque obsoleto; sporis ochraceis, globosis, levibus, 3 μ . diam.
- Hab.* inter folia putrescentia in insula Cuba. — Peridium 12-25 mm. diam.
102. **Lycoperdon leprosum** B. et Rav. (n. 326). — Sporæ globosæ, flavescenti-olivaceæ, 3 μ . diam.; peridium 1-13 mm. diam.
103. **Lycoperdon tephrum** Berk. in herb. (n. 437 nomen), Massee Monogr. of Lycop. p. 23. — Sessile, globosum; peridio crasso, rigido, brunneo, subtiliter velutino; capillitio parco; floccis delicatis; basi sterili obsoleta; sporis pallide ochraceo-olivaceis, globosis, levibus, 3-4 μ . diam.
- Hab.* ad terram Brisbane Australiæ. — Peridium 12-16 mm. diam., sæpe basi ramosa radicans.
101. **Lycoperdon scrobiculatum** Ces. (n. 305 sub *Bovista*). — Sporæ globosæ, leves, flavescentes (12 μ . diam.).

105. **Lycoperdon albinum** Cooke in Herb. Massee Monogr. of Lycop. 1625
p. 23. — Sessile, globosum, album, subtiliter farinosum; floccis
parcis, gracilibus, flaccidis; basi sterili plerumque obsoleta; spo-
ris argillaceis, levibus, globosis, 3 μ . diam.
Hab. ad ligna et ramos emortuos in Brasilia. — Peridia 8-
12 mm. diam.
106. **Lycoperdon pusillum** Fr. (n. 325, *Lyc. furfuraceum* Schaeff.). 325
— Sporæ ochraceo-olivaceæ, globosæ, 4 μ . diam.; peridium 6-16
mm. diam.
107. **Lycoperdon calyptriforme** Berk. (n. 358), Massee Monogr. of 358
Lycop. p. 23, t. XIII, f. 16-17. — Sporæ sordide ochraceæ, glo-
bosæ, 3 μ . diam.; peridium 8-9 mm. diam.

V. Sporæ ellipticæ vel subglobosæ (leves).

108. **Lycoperdon oblongisporum** B. et C. (n. 384) Mass. Monogr. 384
p. 23, t. XII, f. 8-9. — Sporæ brunneæ, elliptico-oblongæ, leves,
6 $\approx$ 3; peridium 2,5 cm. circ. lat.
109. **Lycoperdon hongkongense** B. et C. (n. 381). — Sporæ ellipticæ, 381
leves, pedicellatæ subferrugineæ, 4 $\approx$ 2; peridium 16 mm. diam.
110. **Lycoperdon plicatum** B. et C. (n. 335). — Sporæ late ellipticæ, 335
leves, sæpe breviter pedicellatæ; peridium 12-16 mm. diam.
111. **Lycoperdon gautieroides** B. et Br. (n. 383). — Sporæ olivaceæ, 383
late ellipticæ, leves, 5 $\approx$ 4; peridium 2,5-3 cm. lat.
- * 111. ? **Lycoperdon pachydermum** Peck (n. 389). — Sporæ late el- 389
lipsoideæ vel subglobosæ, 5-6 μ . diam., ochraceo-brunneæ.
112. **Lycoperdon coloratum** Peck (n. 349). — Sporæ subglobosæ, le- 349
ves, circ. 4 μ . diam.; peridium vix 2,5 cm. lat.
- * 112. **Lycoperdon rubro-flavum** Cragin in Bull. Washb. Coll. vol. I, 1623
n. 2, p. 30, Massee in litt. — Obconicum, deorsum sensim attenua-
tum et in basim stipitiformem radicantem contractum; peridio ten-
nui, superne ex toto evanescente ibique aurantiaco-rufa vel au-
rantiaco-brunneo, æqualiter rotundato, farinaceo, spinis granulisve
conicis, sparsis, e griseo-albo nigrescentibus, inferne brunneo-ru-
bescente, nudo, nitido, irregulariterque rugoso; capillitio sporisque
olivaceo-aurantiacis; sporis subglobosis, uno latere depressis, 3
 μ . diam.
Hab. ad terram Shawne Co. Americæ borealis. — Parvum,
2,5-4 cm. altum latumque.
113. **Lycoperdon xanthospermum** Berk. (n. 349). — Sporæ obscure 349

e flavo olivaceo tinctæ, leves, subglobosæ, plerumque pedicellatæ, circ. 5 μ . diam.; 2,5 μ . diam.

Species forte hujus sectionis.

114. **Lycoperdon tomentosum** Vitt. (n. 281 sub *Bovista*). — Sporæ olivaceo-brunneæ.
 115. **Lycoperdon purpurascens** B. et C. (n. 282 sub *Bovista*). — Sporæ flavo-olivaceæ.
 116. **Lycoperdon mundulum** Kalchbr. (n. 286 sub *Bovista*). — Sporæ carneo-rufescentes, 4 μ . diam.

Species sequentes sunt incertæ sectionis ob descriptionem imperfectam atque ob exemplarium authenticorum defectum.

117. **Lycoperdon asperrimum** W. et C. (n. 398). — Sporæ 4 μ . diam., subrubiginosæ, minutissime echinatæ.
 118. **Lycoperdon Welwitschii** Massee (nec De Ton. — *L. tomentosum* W. et C. n. 414). — Sporæ 2,5 μ . diam., fuscæ, echinulatæ.
 119. **Lycoperdon Novæ-Zelandiæ** Lév. (n. 372). — Sporæ violaceæ, leves.
 120. **Lycoperdon cæspitosum** W. et C. (n. 371). — Sporæ 2,5-5 μ . diam., argillaceo-lilacinæ, leves.
 121. **Lycoperdon serotinum** Bonord. (n. 365). — Sporæ flavido-brunneæ, leves.
 122. **Lycoperdon fuscum** Bonord. (n. 343). — Sporæ minutæ, flavo-brunneæ, leves.
 123. **Lycoperdon cretaceum** Berk. (n. 373). — Sporæ 5-7,5 μ . diam.
 124. **Lycoperdon gossypinum** Bull. (n. 390). — Sporæ brunneæ.

2. Sporæ subolivaceæ vel varie flavescentes.

125. **Lycoperdon fœtidum** Bonord. (n. 322). — Sporæ minutæ, olivaceo-rufæ, vel fusco-virescentes, leves.
 126. **Lycoperdon sculptum** Harkn. (n. 364). — Sporæ 5-8 μ . diam., flavescentes, leves. Forte, teste Massee, *Arcolariam* sistit at sporis levibus differt.
 127. **Lycoperdon Gunnii** Berk. (n. 341). — Sporæ 4-5 μ . diam., olivaceæ, leves.
 128. **Lycoperdon golungense** W. et C. (n. 382). — Sporæ haud visæ.
 129. **Lycoperdon furfuraceum** Batsch. (n. 325). — Sporæ?
 *129. **Lycoperdon granulatum** Wallr. (n. 342). — Sporæ cinereo-olivaceæ.

4. **Scleroderma flavo-crocatum** Sacc. et De Toni in Sacc. et Paol. 1627
Myc. Malac. n. 82, tab. V, f. 8. — Peridio globoso-depresso, coriaceo indurato, extus ruguloso, 1,5-2 cm. diam., stipiteque æquilongo, tereti, ruguloso-sulcato, intus extusque croceo-flavo tinctis; gleba minutissime locellata, ochracea, flavo-venulosa; floccis basidiisque parum distinctis (in specimine præmature exsiccato); sporis ovoideis, $5 \approx 4$, levibus, hyalinis (immaturis).

Hab. ad terram in pœninsula Malacensi (SCORTECHINI). — Stipes radicans, incrassatus. Fungus alcohole immersus colorem flavum edit quo chartam tingit; species stipite et colore distincta.

5. **Scleroderma sinnamariense** Mont. Centuria II, p. 331, tab. 19, 452
fig. 12, Sacc. et Paol. Myc. Malac. n. 83. De Ton. Gaster. in Sacc. Syll. VII, 137.

Hab. inter fragmenta lignea in Guyana (LEPRIEUR) et pœninsula Malacensi (SCORTECHINI). — Sporæ globosæ, echinulatæ, 7-8 μ . diam., fusco-rufescentes; flocci e flavido hyalini. *Sclerodermati pandanaceo* Müller affine.

21. **Scleroderma bovistoides** Cooke et Massee in Grevillea XVI, p. 26 1628
(*Mycenastrum*). — Peridio globoso, sessili, tenui, circ. 2,5 cm. diam., primitus spinulis albis evanescentibus superne tecto, demum nudo, fusco, glabro, poro apicali pertuso, capillitio densissimo, subferrugineo; floccis utrinque attenuatis, multî-furcatis, sparse spinulosis; sporis olivaceo-fuscis, globosis, levibus, longe pedicellatis, 5 μ . diam.

Hab. ad terram inter muscos Neilgherries (in Herb. BERKELEY).

25. **Scleroderma olivaceum** Cooke et Massee in Grevillea XVI, p. 33 1629
(*Mycenastrum*). — Peridio subgloboso 7-8 cm. diam., sessili, rigido, in lobulos acutos triangulares (5-6) dehiscente, extus glabro, levi, cinereo-livido; sporis capillitioque olivaceis; floccis 15-20 μ . crassis, irregulariter ramosis, ubique spinulosis; sporis sphæricis, asperulis, 15 μ . diam.

Hab. ad terram, Queensland Australiæ.

1. **Xylopodium Aitchisoni** Cooke et Massee in Grevillea XVI, p. 69. 1630
— Peridio clavato, dein pyriformi, deorsum in stipitem rigidum attenuato; stipite æquali vel basi leniter bulboso, longitudinaliter sulcato-striato, squamuloso, solido; sporis læte ochraceo-fuscis, globosis, 6-7 μ . diam., asperulis.

Hab. ad terram Afghanistan (Dr. J. E. T. AITCHISON).

1. **Areolaria? venosa** (Boud.) De Ton., *Scleroderma venosum* Boud. 1631
in Bull. Soc. Bot. Fr. 1877 et in Hedwigia 1879, p. 35. — Pe-

ridio crasso, flavescenti-fuligineo vel olivaceo, levi, superne haud verrucoso sed venis 6-10 rectis, explanatis, basi melius evidentibus, 1-2-ies ramosis ornato; cortice exteriori tenui demum fisso et in areolas plus minus latas secedente, cortice interiori crasso, flavo; gleba atro-purpurea, venulis albis dein flavis instructa; sporis rotundatis, 8-10 μ . diam., verrucosis, 1-guttulatis, atro-vio-laceis.

Hab. ad terram in Gallia. — Peridium 4-7 cm. diam. et ultra. «Teste Massee in litt. etiam *Lycoperdon sculptum* Harkn. *Areolaria* species videtur».

1. **Polysaccum herculeum** (Pall.) Fr. Teste Massee in litt. potius ad genus *Podaxxon* pertinere videtur.
2. **Polysaccum turgidum** Fr. — Sporæ 7-8 μ . diam., echinulatæ (ex Massee).
- *2. **Polysaccum confusum** Cooke in Grevillea XVI, pag. 76, *Poly-saccum australe* Cooke in Grevillea V, pag. 29, Massee Revis. of *Polysaccum* in Grevillea XVI, pag. 29, non Lèveillé. Cfr. Syll. n. 490. — Peridio subgloboso, deorsum leniter in basin stipitifor-mem brevem, crassam angustato vel piriformi, ruguloso-olivaceo-umbrino, pruina flavescenti consperso; sporangiolis parvis, 2-3 mm. diam., polygonis, dissepimentis tenuissimis; sporis sphaericis, 5-6 μ . diam., levibus, læte ochraceo-brunneis.

Hab. ad terram in S. W. Australia. — Peridium circ. 5 cm. latum, stipes 12-13 mm. longus, 2,5 cm. crassus.

4. **Polysaccum crassipes** DC. — Sporæ sphaeroidæ, 9-12 μ . diam., verrucosæ, umbrino-fuscae (ex Massee).
7. **Polysaccum Pisocarpium** Fr. — Sporæ globosæ, 9-13 μ . diam., verrucosæ, fusco-terreæ (ex Massee).
- *7. **Polysaccum microcarpum** Cooke et Massee Revis. of *Polysac-cum* p. 28. — Peridio subgloboso, grosse tuberculato, ochraceo-brunneo, basi stipitifor-mi brevi, valida, læte citrino; sporangiolis minutis, angulatis, circ 2 mm. diam., dissepimentis tenuissimis fra-gilibusque; sporis sphaericis subtiliter verrucosis, 6-7 μ . diam., ex ochraceo olivascentibus.

Hab. ad terram Torwoomba Queensland Australiae. — *P. Pi-socarpio* proximum at magnitudine peridii et sporis præcipue dif-ferre videtur. — Peridium 3,5-5 cm. diam. metiens.

10. **Polysaccum Cranium** Lév. forte est cum *Sclerodermate Bovista* Fr. identicum. — Cfr. Grevillea XVI, p. 76.
12. **Polysaccum marmoratum** Berk. — Sporæ sphaericæ, rugulosæ,

7-8 μ . diam.; peridium 2,5-5 cm. lat., stipes 12-35 mm. longus (ex Massée).

Hymenogastraceæ (Vitt.) Tul.

8. **Octaviania lutea** Hesse in Pringsh. Jahrb. XVI, (1885), p. 255, 533 tab. VI, fig. 7-9 ex Passerini. — Mycelio albo, subfloccoso, sub folia faginea in terra plus minus late expanso, e filamentis tenuibus, tæniæformibus, septatis, valde ramosis constituto; peridio rotundato, reniformi vel omnino irregulari, prima ætate niveo-albo, levi, dein sordidulo rimosoque, odore subnullo donato, glebæ arcte adnato; gleba, loculis nitentibus numerosis, sæpe leabyrinthiformibus, medio angustioribus (septis albidis facile inter se jungentibus), flavis vel aurantiaco-flavis, dichotome ramosis; basidiis clavatis cylindræisve, septatis, ad septum terminale lateraliter appendiculam crassam subglobosam gerentibus, 4-sterigmicis, sterigmatibus sporas longitudine subæquantibus; sporis globosis, 12-14 μ . diam., episporio flavescenti, aculeolato, endosporio hyalino donatis, maturitate fuscidulis.

Hab. sub folia faginea in terra subimmersa in Germania. — Ab *Octaviania asterosperma* toto cœlo diversa.

2. **Octaviania galathea** (Quél.) De Ton., *Hydnangium galathejum* 1634 Quél. Enchir. p. 247, Champ. Jura III, t. I, f. 9. — Peridio gibboso, rivuloso, ex hyalino lacteo, dein isabellino, resticulis parvis, albis instructo; gleba coriaceo-gelatinosa, hyalina; cellulis amplis, sinuosis, citrinis, lacte albo, mox citrino; sporis crebre aculeatis, 13 μ . diam., citrinis.

Hab. sub terra Jura. — Peridium 2-3 cm. diam. — Ad genus *Octavianiam* pertinere videtur, teste ipso Quélet, *Hydnangium virescens* Quél. Cfr. Syll. n. 582.

1. **Hymenogaster flavidus** Bonord. Beitr. I, pag. 49 et in Hedwigia 1635 1876, p. 49. — Peridio vario, plerumque globoso, tenui, papyraceo, molli, impolito et radicato, primo maculis roseis albidisque variegato, demum fusco-albido; sporis oblongis, albidis, minutissimis.

Hab. ad terram prope Heidelberg in Germania.

1. **Hysterangium rubricatum** Hesse in Pringsh. Jahrbücher für wissenschaftl. Botanik, Band XV, Heft 4, p. 631, t. XXXII. — Plerumque numerose gregarium; mycelio niveo, floccoso, in funiculos latos expanso, ex hyphis septulatis, longis, tenuibus, ramosis, sæpe insimul laxè intricatis, appendiculis crebris obsitis efformato; peridio globoso, rotundato, in specimina majora subinde inferne con-

chiformi-depresso et ubique plicis plus minus distinctis ornato, primo albo, dein sordide rufescente; gleba argillacea subrufescente, maturitate cartilaginea, venulis cœruleo-nitentibus exornata; cellulis irregularibus, variæ magnitudinis, plerumque angustissimis, raro rotundatis; basidiis hyalinis, brevibus, cylindraceis, bi-, raro trisporis; sterigmatibus brevissimis; paraphysibus tenuissimis, sparsis; sporis ex oblongo ellipticis, 11-13 $\approx$ 5, subhyalinis, episporio tenui, intus subtiliter granulatis, plerumque 3-guttulatis.

Hab. sub terra in Germania. — Peridium maturitate coriaceum, subleve, 1,2-1,5 mm. cr., facile a gleba secedens. Ab *H. clathroide* Vittad. cui peridio coriaceo, glebæ structura, sporarum forma et magnitudine proximum est, differt peridii glebæque colore. Etiam *H. Pompholyci* Tul. affine videtur. Odor debilis, subacidus.

REPERTORIUM

MUCORACEARUM, PERONOSPORACEARUM, SAPROLEGNIACEARUM, CHYTRIDIACEARUM, PROTOMYCETACEARUM, MONADINEARUM

SECUNDUM MATRICES *).

Obs. A. indicat *Achlya*. — Achl. *Achlyogeton*. — Ær. *Ærophyton*. — Am. *Amæbochytrium*. — Anc. *Ancylistes*. — Aph. *Aphanomyces*. — Aphel. *Aphelidium*. — B. *Basidiobolus*. — Br. *Bremia*. — C. *Cystopus*. — Cæn. *Cænonia*. — Ch. *Chordostylum*. — Chyt. *Chytridium*. — Caul. *Caulogaster*. — Chæt. *Chætocladium*. — Clad. *Cladochytrium*. — Colp. *Colpodella*. — Comp. *Completozia*. — Con. *Conidiobolus*. — D. *Dictyuchus*. — Di. *Diamphora*. — Dip. *Diplophysa*. — Dipl. *Diplophysalis*. — Ect. *Ectogella*. — Emp. *Empusa*. — End. *Endyonema*. — Endodr. *Endodromia*. — Ent. *Enteromyxa*. — Entom. *Entomophthora*. — Gymn. *Gymnococcus*. — Hem. *Hemiscyphæ*. — Lag. *Lagenidium*. — Lep. *Leptomitæ*. — M. *Mucor*. — Mor. *Mortierella*. — Myx. *Myxastrum*. — Myz. *Myzocytiæ*. — Now. *Nowakowskia*. — Ob. *Obelidium*. — Ol. *Olpidium*. — Olp. *Olpidiopsis*. — P. *Peronospora*. — Ph. *Phycomyces*. — Pip. *Piptocephalis*. — Phlyet. *Phlyctidium*. — Phys. *Physoderma*. — Phyt. *Phytophthora*. — Phytom. *Phytomyxa*. — Pl. *Plasmopara*. — Plasmod. *Plasmodiophora*. — Pleo. *Pleotracheles*. — Pol. *Polyphagus*. — Poly. *Polyrhina*. — Pr. *Prolomyces*. — Prot. *Protochytrium*. — Proto. *Protomonas*. — Protom. *Protomyxa*. — Pseud. *Pseudospora*. — Pseudosp. *Pseudo-sporidium*. — Pyt. *Pythium*. — Re. *Reessia*. — R. *Rhizopus*. — Rh. *Rhizidium*. — Rhi. *Rhizogaster*. — Rhiz. *Rhizophidium*. — Rhizid. *Rhizidiomyces*. — Roz. *Rozella*. — Sacc. *Saccopodium*. — Sap. *Saprolegnia*. — Sel. *Sclerospora*. — Siph. *Siphopodium*. — Sorosph. *Sorosphaera*. — Sph. *Sphaerita*. — Sphaer. *Sphaerostyli-dium*. — Spin. *Spinellus*. — Spir. *Spirophora*. — Spo. *Sporodinia*. — Syn. *Syncephalis*. — Synch. *Synchytrium*. — Tetr. *Tetramyxa*. — Th. *Thamnidium*. — Tiegh. *Tieghemella*. — Ur. *Urophlyctis*. — Vamp. *Vampyrella*. — Vampyr. *Vampyrellidium*. — W. *Woronina*.

bsidia — Syn. 775.

cer — Caul. 740.

chlya — Rh. 1029. — Olp. 1041, 1042, 1043. — Rhizid. 1111.

conitum — Pl. 807.

corus — Clad. 1022.

chnida — C. 797.

Adoxæ — Synch. 991.

Ægopodium — Pl. 808. — Pr. 1120.

Agaricus — M. 648, 668. — Spin. 699, 700, 701. — Spo. 704. — Syn. 776.

Agrimonia — P. 842.

Agrostemma — P. 822.

Alchemilla — P. 842.

*) Matrices ceterorum fungorum in hoc volumine descriptorum, ut nimis vagæ (*humus, stercus, ligna, folia* etc.), in hoc repertorio consulto omituntur.

- Alectorolophus* — Pl. 814.
Algæ — Ol. 1088, 1089. — Proto. 1556.
 Pseud. 1566.
Alisma — Phys. 1113.
Allium — M. 625. — P. 857.
Alnus — Plasm. 1569.
Alonsoa — Phyt. 803.
Alsine — P. 820.
Alyssum — C. 792. — P. 830.
Amaranthus — C. 797, 798.
Ambrosia — C. 793. — Pl. 810. —
 Pr. 1120.
Amphicarpa — Synch. 1008.
Anagallis — P. 828, 860.
Androsaces — P. 869.
Anemones — Pl. 807. — Synch. 988.
Angelica — Pl. 808.
Anthemis — P. 847, 848.
Anthriscus — Pl. 808.
Antirrhinum — P. 850, 851.
Antithamnion — Chyt. 1070.
Aphanomyces — Olp. 1044.
Aphis — Emp. 973. — Entom. 975.
Apodya — Roz. 1047.
Aposeris — Pr. 1123.
Arabis — C. 792. — P. 830.
Arenaria — C. 796. — P. 823.
Arum — M. 652. — R. 724. — Pr.
 1133.
Artemisia — P. 847.
Artocarpus — M. 672, 690.
Atriplex — C. 797. — P. 854. — Ur.
 1056.
Asperugo — P. 825.
Asperula — P. 817.
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SYLLOGE

USTILAGINEARUM ET UREDINEARUM

OMNIUM HUCUSQUE COGNITARUM.

DIGESSIT

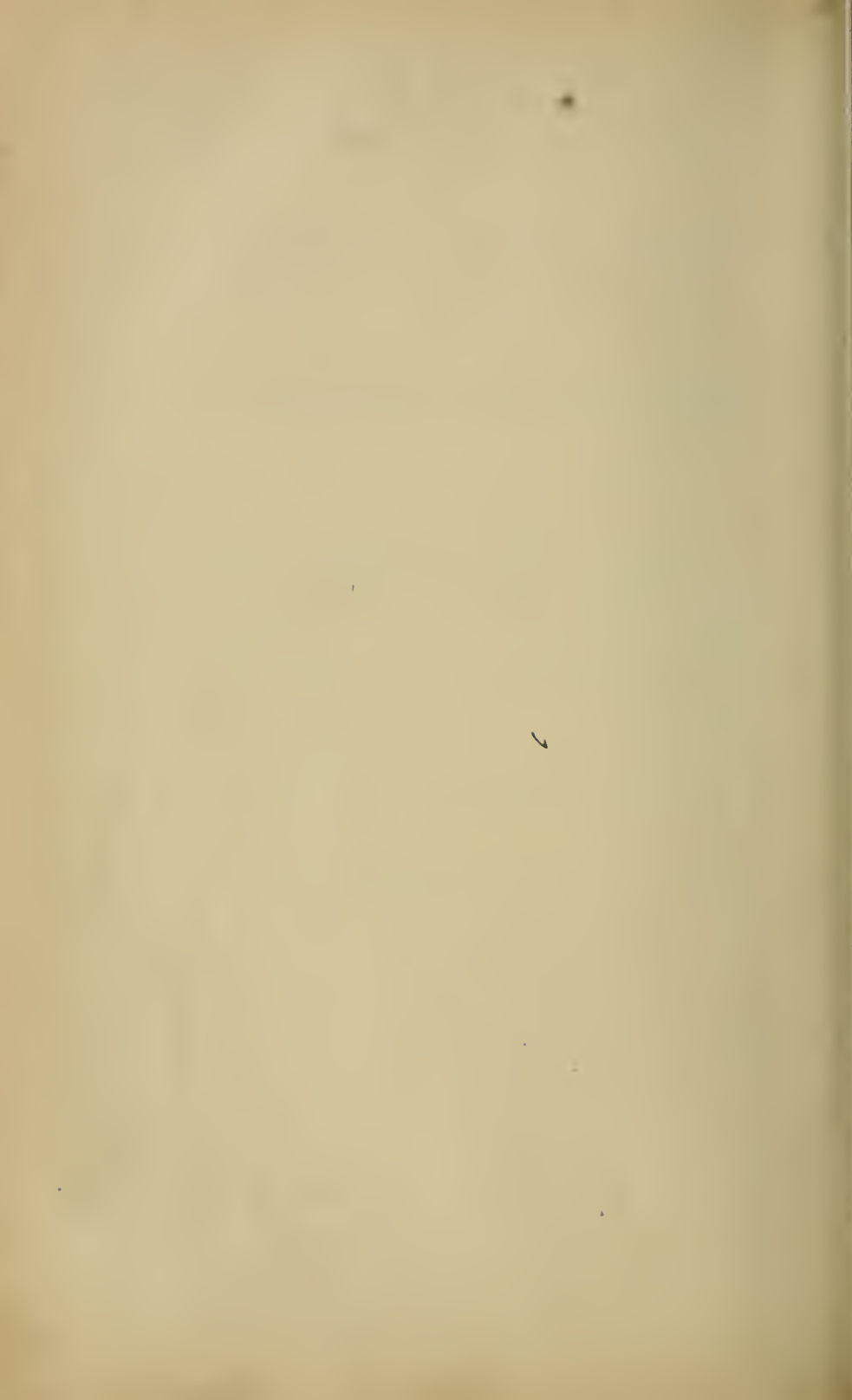
DOCT. J. B. DE-TONI

PATAVII

XXVIII OCTOBRI MDCCCLXXXVIII

SUMPTIBUS AUCTORIS

TYPIS SEMINARII.



USTILAGINÆ Tul.

in Ann. Scienc. Nat., Botanique 1847, p. 11.

auctore DOCT. J. B. DE-TONI, scholæ botanicæ patavinæ adiutore.

Fungi mycelio late expanso sed mox evanescente instructi, plerumque intra partes aereas plantarum viventium parasitici, ascis vero vel peritheciis vel ascomatibus genuinis carentes; sporæ promycelium simplex vel transverse pauci-septatum, sporidiola generans gignentes; sporidiola saepe sese copulantia, dein fila mycelica germinantia aut sporidiola secundaria generantia. Status secundarii, Uredineis sollemnes, nulli; conidia in paucis præsentia.

Clavis analytica generum.

1. Amerosporæ SACC. et DE-TONI.

Sporæ continuæ, subsolitariae.

A. Sori æquales, involuero e fungilli elementis constante destituti.

† Promycelium sporidiola plerumque pleurogena, rarius aerogena gerens.
Ustilago. Sori maturitate pulverulenti; sporæ leves, verruculosæ vel aculeolatæ.

Contractia. Sori ut in Ustilagine; sporæ e stromate compacto subgelatinoso diu fertili pedetentim natæ et a recentioribus rejectæ.

†† Promycelium sporidiola numerosa (rarissime tantum duo) coronæ ad instar aerogena gerens.

§ Sori maturitate pulverulenti.

Tilletia. Sporæ plerumque areolatæ.

§§ Sori maturitate haud pulverulenti.

a. Caulicolæ vel foliicolæ.

Entyloma. Sori pustuliformes vel plaguliformes, pallidi vel ferrugineo-brunnei.

Melanotlenium. Sori explanati, late expansi, atri.

b. Radicicolæ.

? *Entorrhiza*. Sporæ hyphis radiantibus fultæ, intracellulares, tuberculos bullosos efficientes.

c. Ovariicolæ.

? *Ustilagopsis*. Sori primo compacti, dein deliquescentes.

B. Sori involuero e fungilli elementis constante præditi; sporidiola pleurogena.

Sphacelotheca. Sporæ leves.

2. *Didymosporæ* Sacc. et DE-TONI.

Sporæ composito-biloculares, rarissime triloculares vel, si mavis, sporæ simplices geminatim conjunctæ.

Schizonella. Promycelium sporidiola pleurogena gerens; sporæ binatim isthmo laterali angusto conjunctæ.

Schroeteria. Promycelium sporidiola acrogena gerens; sporæ binatim superficie lata horizontaliter conjunctæ.

3. *Dietyosporæ* Sacc. et DE-TONI.

Sporæ compositæ, reticulato-pluricellulares vel, si mavis, sporæ plures in glomerulos arcte conglobatæ.

A. Sporæ (vel cellulæ) in quoque glomerulo uniformes.

† Sporidiola acrogena vel pleurogena. Promycelium breve, septatum.

Tolyposporium. Sori atri, cauli- pedunculi- vel ovaricolæ.

†† Sporidiola tantum acrogena; promycelium septatum; sori maculas brunneolas efformantes, plerumque foliicolæ.

* Sporidiola numerosa.

Doassansia. Glomeruli strato cellularum sterilium tecti.

Tubercinia. Glomeruli tegumento proprio destituti; sori atri folii- v. caulicolæ.

** Sporidiola solitaria.

Promycelium filiforme, subinde ramosum.

? *Thecaphora*. Sori rufescentes, plerumque fructi- vel seminicolæ.

††† Sporidiola ignota; promycelium filiforme.

Sorosporium. Sori plerumque aterrimi.

B. Sporæ (vel cellulæ) in quoque glomerulo difformes.

Urocystis. Sporæ centrales majores, germinantes, sporæ periphericæ minores, haud germinantes.

**Genera quoad locum systematicum dubia vel (asterisco notata)
inter Hyphomyceteas recensita et ibi descripta.**

Cerebella Ces. — **Paipalopsis* Kuhn. — *Graphiola* Poit. — **Tuberculina* Sacc.

Dispositio Schroeteriana ex characteribus præcipue biologicis.

A. Germinatio promycelio brevi determinato, septis transversalibus instructo; sporidiola pleurogena, sæpe etiam acrogena. *Ustilaginaceæ*.

† Sporæ solitariae.

a. Massa sporarum æqualis, tegumento e fungilli elementis constante destituta. *Ustilago* (et *Contractia*).

b. Massa sporarum corpus fructiferum efformans, tegumento e fungilli elementis sterilibus constante instructa. *Sphacelotheca*.

†† Sporæ geminatae. *Schizonella*.

††† Sporæ in glomerulos numerosæ conglobatæ. *Tolyposporium*.

B. Germinatio promycelio simplici, in parte fructifera septis nullis instructo; sporidiola tantum in promycelio acrogena. *Tilletiaceæ.*

† Sporidiola numerosa (raro tantum duo) in promycelio acrogena, coronæ ad instar disposita. *Tilletiæ.*

§ Sporæ solitariae, simplices.

* Sporæ ad apices ramulorum evolutæ; massa sporarum pulverulenta, in fructibus pustulas pulverulentas, in foliis strias, pulverulentas efformans. *Tilletia.*

** Sporæ hinc illinc in mycelio intercalares; massa sporarum haud pulverulenta.

a. Sporæ in pustulas vel tumores bullatos, pallidos vel ferrugineo-brunneos congregatæ. *Entyloma.*

b. Massa sporarum atra, stratos explanatos, late expansos efformans. *Melanotenum* (et *Entorrhiza* et *Ustilagopsis*?).

§§ Sporæ conglobatæ, numerosæ in glomerulos arete conjunctæ.

* Glomeruli una vel pluribus sporis centralibus, majoribus, saturatius coloratis et pluribus periphericis minoribus, pallidioribus constituti. *Urocystis.*

** Sporæ uniformes, numerosæ in glomerulos arete conglobatæ.

a. Glomeruli tegumento carentes. *Tubercinia.*

b. Glomeruli stratu cellularum sterilium circumtecti. *Doassansia.*

†† Sporidiola solitaria (vel catenulata) in promycelio acrogena.

Thecaphoræ.

a. Sporæ geminatæ. *Schræteria.*

b. Sporæ numerosæ in glomerulos conglobatæ. *Thecaphora.*

C. Promycelium filiforme; sporidiola ignota; sporæ in glomerulos conglobatæ. *Sorosporium.*

USTILAGO Pers. Syn. Fung. p. 224 ut subgenus, Fries Syst. Myc.

III, p. 517 (Etym. *ustus*). *Reticulariæ* sp. Bull., *Farinariæ* sp.

Sow., *Cæomalis* sp. Link, *Uredinis* sp. auct., *Erysibes* sp. Wallr.

— Mycelium vegetativum matricem penetrans, mox evanescens; mycelium sporogenum ramosum, gelatinoso-turgescens. Sporæ in ramulis terminalibus botryoideis mycelii seriatim, generatæ maturitate massam pulverulentam vel granulosam demum erumpentem efformantes. Sporidiola solitaria, plerumque in promycelio pleurogena.

A. Sporæ leves.

1. **Ustilago longissima** (Sow.) Tul. Mém. sur les Ustilag. in Ann. 1637 Scienc. Nat. 1847, p. 76. Fisch. Aperç. p. 11, Winter Die Pilze p. 85, Schroet. Pilz. Schles. pag. 266, Bref. Untersuch. V, t. 8, fig. 1-14, tab. 9, fig. 8-16, *Uredo longissima* Sow. Engl. Fung.

t. 130⁹, *Cæoma longissimum* Schlecht. Fl. Berol. II, p. 129, *Erysibe longissima* Wallr. Fl. Crypt. Germ. II, p. 215, n. 1664, *Uredo fusco-virens* Ces. in Klotzsch-Rabenh. Herb. myc. I, n. 1497. *Uredo culmorum* Schum. Saell. II, p. 233. — Amphigena; soris pulverulentis, olivaceo-brunneis, secus foliorum nervos excurrentibus, strias elongatas, parallelas, plerumque epiphyllas efformantibus; sporis globosis vel ellipsoideis, 4-8 $\approx$ 3,5-5, episporio dilute olivaceo-brunneo, levi instructis; sporidiolis fusiformibus; promycelio fusideo, pedicellato.

Hab. in foliis Glyceriæ aquaticæ, fluitantis, plicatæ, nemoralis, spectabilis in Italia, Germania, Belgio, Gallia, Britannia, Hungaria, Bohemia, Neerlandia (OUDEMANS), in America boreali et in Rep. Argentina Amer. austr. (SPEGAZZINI).

2. **Ustilago grammica** B. et Br. Ann. N. H. n. 33, Cooke M. F. t. 6, f. 120-122, Fisch. Aperçu p. 10. — Soris in strias transversas breves, parallelas, atras dispositis; sporis globosis, circiter 2 μ diam. metientibus.

Hab. in caulibus Airæ aquaticæ et cæspitosæ nec non Glyceriæ aquaticæ in Britannia.

3. **Ustilago Ornithogali** (Schm. et Kunze) Kühn in Rabenh. F. E. n. 1996, Fisch. Aperç. p. 17, Winter. Die Pilze p. 86, Schroet. Pilz. Schles. p. 296, *Uredo Ornithogali* S. et K. Deutsch. Schwämme 217, *Cæoma Ornithogali* Schlecht. Fl. Berol. II, pag. 125, *Ustilago umbrina* Schroet. Brand-und Rostp. p. 3, *Ustilago heterospora* Niessl Beitr. p. 8, t. VII, f. 4. — Soris ex atro olivaceo-brunneis, in scapis foliisque pustulas lividas bullatas. usque ad 10 cm. longas, sæpe confluentes, primo clausas, dein epidermide cinerescenti subvelatas pulveraceasque efformantibus; sporis irregularibus, sphæroideis, oblongo-angulatis vel ellipsoideis, subinde uno vel pluribus lateribus in apiculum abeuntibus, 13-22 (rarius -25) $\approx$ 10-18, episporio olivaceo-brunneo, levi instructis.

Hab. in foliis scapisque Ornithogali umbellati, Gageæ luteæ, stenopetalæ, arvensis, bohemicæ, saxatilis, Liottardi, spathaceæ, minimæ, pusillæ, fibrosæ prope Bologna Italiæ borealis (F. MORINI) nec non in Austria, Germania, Bohemia. — Forma **Erythronii** (Clinton), *Ustilago Erythronii* Clint. Cfr. *Ust. Ornithogali* (Schm. et Kunze) Kühn. in Ellis N. Am. Fungi n. 1095. In foliis Erythronii americani Fairmount Park, Philadelphia Amer. bor. (W. C. STREVENSON).

4. **Ustilago Tulipæ** (Heufl.) Winter Die Pilze p. 86, *Cæoma Tulipæ*

Heufl. in litt., *Urocystis pompholygodes* (Kl.) Rabenh. forma *Tulipæ* Rabenh. in F. E. n. 1099, *Ustilago Heufleri* Fuck. Symb. p. 39, Fisch. Aperç. p. 14. — Soris ellipticis, convexis, 4-8 mm. longis, sub epidermide nidulantibus, demum liberis, aterrimis; sporis globosis vel irregulariter rotundatis, rarius breviter ovoideis, 16-20 μ . diam., brunneo-fuscidulis, subpellucidis, episporio crasso, tubulis pororum irregulariter ornato, levi instructis.

Hab. in foliis *Tulipæ silvestris* in Austria, Germania, Gallia. — Habitus *Ustilaginis Ornithogali* at in hac specie pustulæ majores.

5. **Ustilago hypodytes** (Schlecht.) Fr. Syst. Myc. III, p. 518, Fisch. 1641
Aperç. p. 11, Winter Die Pilze p. 87, Schroet. Pilz. Schles. p. 267, *Cavoma hypodytes* Schlecht. Fl. Berol. II, p. 129, *Erysibe hypodytes* Wallr. Fl. Crypt. Germ. II, p. 216, n. 1666, *Uredo hypodytes* Desm. Crypt. Fr. 2 ed. n. 473, *Ustilago Lygei* Rabenh. in Unio itin. crypt. 1866, IV. — Soris pulverulentis, atris, angustis, parallelis, spatium inter culmos vaginasque occupantibus; sporis globosis aut ellipsoideis, sæpe irregularibus, oblongis vel angulatis, 3-6 $\approx$ 3-4,5, episporio e flavescenti olivaceo-brunneo, levi instructis.

Hab. in culmis vaginisque *Glyceriæ fluitantis*, *Diplachnidis fuscae*, *Agropyri repentis*, *Arundinariæ* sp., *Ammophilæ*, *Calamagrostidis epigeæ*, *Psammæ arenariæ*, *Stipæ pennatæ* et *capillaris*, *Bromi erecti*, *Triticici repentis* et *vulgaris*, *Elymi arenarii*, *Lygei Sparti*, *Panici repentis*, *Phragmitis communis*, in Gallia, Germania, Hungaria, Italia, Neerlandia, Britannia, Belgio, in Africa boreali et in America boreali.

6. **Ustilago grandis** Fries Syst. Myc. III, p. 518, Winter Die Pilze pag. 87, Schroet. Pilz. Schles. pag. 268, Bref. Untersuch. V, pag. 116, tab. 9, fig. 17-26, *Erysibe typhoides* Wallr. Fl. Crypt. Germ. II, pag. 215, n. 1666, *Ustilago typhoides* Berk. et Br. Not. of Brit. Fungi n. 480, Fisch. Aperç. p. 13. — Soris atris, grosse pulverulentis, culmicolis, epidermide turgida tectis eaque secedente denudatis, laxis, longissimis; sporis globosis, ovoideo-oblongis vel ellipticis, subinde angulatis, 7-12 $\approx$ 6-9, episporio flavo-brunneo, levi instructis; promycelio cylindraceo, pedicellato, 2-3-septulato; sporidiolis terminalibus vel lateralibus, ellipsoideo-fusoides, pedicellatis; cellulis germinantibus fusiformibus.

Hab. in contextu culmorum sub epidermide nec non in vagi-

nis Phragmitis communis et Typhæ latifoliæ et minoris in Britannia, Fennia, Belgio, Germania, Hungaria.

7. **Ustilago Ischæmi** Fuck. Enum. Fung. Nass. p. 22, f. 13, Winter Die Pilze p. 88, Fisch. Aperç. pag. 16, Bref. Untersuch. V, p. 96, t. 11, f. 1-2. — Soris brunneo-fuscis; sporis globosis vel plerumque irregulariter sphaeroideis vel oblongis, usque ad 12 μ . longis, 7-10 μ . diam., pellucidis, levibus, pallide brunneis.

Hab. in inflorescentia Andropogonis Ischæmi, pubescentis et hirsuti in Germania, Gallia, Nederlandia, Italia, Hungaria, Lusitania nec non in Cymbopogonis speciei incertæ ovariis pr. Geriba-Ghaldas in terra Dijus Africae centralis, Flores destruit.

8. **Ustilago Digitaliæ** (Kunze) Rabenh. F. Eur. n. 1199, Fisch. Aperç. p. 13, Winter Die Pilze p. 88, *Uredo Digitaliæ* Kunze in Flora 1830, p. 369. *Ustilago pallida* Körn. in Hedwigia 1877, p. 34 non Schroet., *Ust. Digitaliæ* f. *Panici repentis* Körn. in Rab. F. E. n. 2099. — Soris atris; sporis globosis vel angulato-ovoideis, 6-9 μ . diam., levibus, brunneo-aurantiacis.

Hab. in floribus, rachidibus et culmi superiori parte, quæ fere ex toto destruit, Panici glabri, repentis et sanguinalis in Italia, Germania.

9. **Ustilago Panici-miliacei** (Pers.) Wint. Die Pilze p. 89, Schroet. Pilz. Schles. p. 268, Bref. Untersuch. V, pag. 97, tab. 7, fig. 9-24, *Uredo (Ustilago) segetum* var. *Panici-miliacei* Pers. Syn. Fung. pag. 224, *Uredo Carbo* var. *d.* DC. Fl. Franc. VI, pag. 76, *Cavoma destruens* Schlecht. Fl. Berol. II, p. 130, *Uredo destruens* Duby Bot. Gall. II, pag. 901, *Erysibe Panicorum* β . Wallr. Fl. Crypt. Germ. II, p. 216, n. 1670, *Ustilago Carbo* var. *destruens* Tul. in Ann. Scienc. Nat. 1847, III, 7, pag. 81, *Tilletia destruens* Lév. in Ann. Scienc. Nat. 1848, III, 8, pag. 372, *Ust. destruens* Schlecht. in Rabenh. Herb. myc. nov. n. 400. — Soris atris, pulverulentis, flores paniculasque inquinantibus ovariaque destruentibus; sporis globosis vel ellipsoideis, 9-12 $\approx$ 8-10, raro angulatis, episporio flavo-brunneo, levi vel punctulato instructis; promycelio filiformi, cylindræo, plerumque 3-septulato, articulis anastomosantibus; sporidiolis lateralibus vel terminalibus, oblongo-ellipticis vel ovoideis.

Hab. in floribus paniculisque Panici miliacei, chartaginiensis et Crus-galli in Italia, Gallia, Germania, Amer. bor.

(RAVENEL) nec non pr. Montevideo Americæ australis (ARECHAYA-LETA sec. WINTER).

10. **Ustilago cruenta** Kühn in Hamburger Garten-und Blumen-Zeitung XXVIII, pag. 177, Winter Die Pilze pag. 89, Schroet. Pilz. Schles., p. 268, Bref. Untersuch. V, pag. 91, tab. 7, fig. 1-8. — Soris ex atro olivaceo-brunneis, ad apicem culmorum in paniculis et rachidibus, rarius in seminibus pustulas rufo-brunneas, sæpe in plagulas lividas late expansas confluentes efformantibus et rachidem curvam contortamve relinquentibus; sporis globosis vel breviter ellipticis, 5-12 $\approx$ 5-9, episporio rufo-brunneo, dein olivaceo-brunneo. levi instructis; promycelio cylindraceo, plerumque 3-septulato; sporidiolis lateralibus vel terminalibus, elliptico-fusoideis; cellulis germinantibus fusiformi-oblongis.

Hab. in paniculis Sorghi vulgaris et saccharati in Germania.

11. **Ustilago Crameri** Körn. in Fuck. Symb. Myc. II, p. 11, Winter Die Pilze p. 90, Fisch. Aperç. p. 13, Bref. Untersuch. pag. 101, t. 7, f. 18-21. — Soris atro-olivaceis, ovaria incolentibus; sporis valde irregularibus, rotundatis vel oblongo-angulatis, pellucidis, 10-12 $\approx$ 6-9, brunneis, olivaceis, levibus, quam maxime auctis subtilissime reticulato-undatis, nec revera reticulatis.

Hab. in ovariis Setariæ italicæ, viridis et ambiguae in Germania et Hungaria. — Panicula plantæ nutricis haud deformata.

12. **Ustilago pamparum** Speg. F. Patagonici n. 75, Cfr. Speg. Fungi guaranitici in Obs. ad n. 105, *Ust. Setariæ* Speg. nec Niessl. — Sporis subglobosis, 9-11 μ . diam., levibus vel vix granulosis, fuligineo-olivaceis.

Hab. ad spicas Setariæ ejusdam in pratis secus Rio Negro, Patagoniæ aliisque Americæ australis locis. — Ovaria spicarum tota infecta, hypertrophica, glumis exserta ac duplo longiora subcylindracea, apice 3-4 laciniato-aperta, involucro membranaceo crassiusculo sordide-albo vel subroseo donata, intus pulvere aterimo laxe farta ac fibris (columellam fere simulantibus) instructa. — Ab *U. Setariæ* (Rab.) Niessl diversa videtur.

13. **Ustilago Kolaczekii** Kühn in Hedwigia 1886, p. 260 et in Rabenh. Wint. F. E. n. 3401. — Sporis rotundatis vel rotundato-angulatis rarius ovatis vel oblongis, pellucidis, brunneis, 8,8-11 vel μ . diam., 12-14 $\approx$ 8-10, levibus.

Hab. in germinibus Setariæ geniculatæ (e seminibus chi-

lensibus cultæ) in horto botanico Berlin Germaniæ. — Ab *U. Crasmeri* Körn. distincta videtur.

- § 14. **Ustilago Sorghi** (Link) Pass. in Thüm. Herb. myc. æc. n. 63, F. parm. n. 553, Winter Die Pilze p. 90, Schroet. Pilz. Schles. p. 267. *Sporisorium Sorghi* Link Sp. II, p. 86, *Tilletia Sorghi-vulgaris* Tul. Mém. sur les Ustilag. in Ann. Sc. Nat. 1847, p. 116, t. V, f. 17-22, *Ustilago Tulasnei* Kühn in Sitz. nat. Ges. Halle 1874 et in Rabenh. F. E. n. 1997, Fisch. Aperç. p. 12, *Ustilago condensata* Berk. mscr. — Soris atris vel atro-brunneis, pulveraceo-rudibus; sporis globosis, oblongis, sæpe angulatis, 5-9,5 = 4-5,5, episporio e flavescenti olivaceo-brunneo, levi instructis; promycelio cylindraceo, prope originem constricto; sporidiolis numerosis, oblongis.
- Hab.* in ovariis, rarius in staminibus *Sorghi vulgaris* et saccharati in Italia, Germania et pr. Cairo Africae borealis. — Fungillus ovaria staminaque infestat et destruit.
15. **Ustilago Sacchari** Rabenh. in Isis 1870, IV, Fisch. Aperç. p. 16. — Soris atris; sporis globosis, subangulatis, 8-18 μ . diam., olivaceo-brunneis vel rufescentibus, episporio crasso, levi instructis.
- Hab.* in caulibus paniculisque *Sacchari cylindrici* et officinalis et *Erianthi*, Ravenna Italia et ad Port Natal Africae (Wood).
16. **Ustilago lineata** Cooke in Rav. F. Am. n. 789 (nomen) Ellis N. 1097. — Soris elongatis, secus nervos decurrentibus, brunneis, macula pallidiori circumcinctis, præcipue hypophyllis; sporis globulosis, 7-9 μ . diam., levibus, dilute brunneis.
- Hab.* in foliis *Zizaniæ*, Darien Georgia (H. W. RAVENEL). — Diagnosin erui ex speciminibus exsiccatis in herbario Saccardiano.
17. **Ustilago mexicana** Ell. et Everh. in Journal of Mycology, 1887, p. 56, N. Am. Fungi n. 1891. — Soris atris vel violaceo-atris, globosis, levibus, 5-6 μ . diam. vel subelongatis, 6-8 = 5.
- Hab.* in ovariis *Muehlenbergiæ* pr. Batopilis Mexico Amer. borealis in altit. 2900 m. circ. (PALMER).
18. **Ustilago? leonina** Speg. F. Guaran. n. 100. -- Soris totam paniculam ambientibus eaque in massam pulveraceam fibris densis gracilibusque parallele et densiuscule percursam transformantibus, pallide fulvis; sporis globosis, majusculis, 12-20 μ . diam., liberis (an primo glomerulatis?), subhyalinis vel pallidissime fulvescentibus, levibus vel episporio minutissime subimperspicueque ruguloso, non vel grosse 1-guttulatis, inferne sæpe verrucula minuta ornatis.

Hab. in paniculis Graminaceae elatioris cujusdam in Pastoreo de Caá-guazú Amer. austr. (BALANSA). — Species nonnihil dubiosa, et evolutionis studio peracto, facile ad genus Thecaphoram referenda.

19. **Ustilago austro-americana** Speg. Fungi Argentini pugillus IV, 1655
n. 45. — Soris hypodermicis, primo buloso-prominulis, suborbicularibus, parvulis, 0,2-0,5 mm. diam., saepius confluentibus matricem irregulariter contorto-tumefactam efficientibus, dein erumpentibus, udis diffuenti-viscidulis, siccis compactis, tenacibus, duris, aterrimis, opacis; sporis globosis vel irregulariter ovato-ellipticis, episporio crassiusculo, levissimo, amœne fuligineo-subviolaceis, 10-14 $\approx$ 8-11, strato mucoso obvolutis.

Hab. ad folia, caules nec non perigonia Polygoni acris in paludosis prope la Recoleta in Republica Argentina rarissime. — Pulcherrima species, certe ad Ustilaginearum familiam pertinens, sed mucis praesentia a genere Ustilagine nonnihil recedens; tertia jam species in eadem planta vicens, cum ceteris tamen non comparanda, facillime observationibus sedulioribus in Europa etiam detegenda.

20. **Ustilago strumosa** Cooke in Grevillea IX, p. 98. — Stromate noduloso, globoso, duro, pallido, punctato, sclerotiformi, intus concolori; sporis olivaceis, globosis, obovalibus, ovoideis, regularibus vel subirregularibus, 6-8 μ . diam., olivaceo-brunneis, episporio tenui, levi instructis. 1656

Hab. in culmis Chusqueae abietifoliae in Jamaica. — Sori nodulosi, 6-8 mm. diam.

21. **Ustilago australis** Cooke Undescr. Fungi of Kew. Herb. in Grevillea. — Sporis atris, in germinibus enatis, subglobosis vel angulatis et difformibus, levibus, 8-9 μ . diam. 1657

Hab. in ovariis Eriachnes in Australia (MÜLLER).

22. **Ustilago schweinfurthiana** Thüm. in Mycoth. Univ. n. 726. — 1658
Ovaria floresque ex toto replens et demum minime deformans; sporis plus minusve globosis, episporio tenui, sublevi, vix subgranulosulo, fascis, solitariis, 10-12 μ . diam., raro tantum 8 μ . diam.

Hab. in spicis Imperatae cylindricae, Talcha pr. Mansurah in Aegypto inferiori Africae.

23. **Ustilago Ficuum** Reich. in Verh. Zool. bot. Wien. XVIII, 1867, 1659
p. 335, Fisch. Aperç. p. 15, Thüm. Fungi pomicoli p. 71. — Soris atro-fuligineis, in receptaculis semper inclusis, fructum obtinentibus; sporis globosis, 3,8 μ . diam., atro-violaceis episporio crasso, levi, nucleo centrali solido.

Hab. in receptaculis (syconis), *Ficus Caricæ* in Asia minori (?). — *Ustilagini Phœnicis* Corda peraffinis.

24. **Ustilago Passerinii** Fisch. de Waldh. *Aperçu* p. 12, Pass. F. parm. n. 552. — Soris atris; sporis globulosis, ovatis vel obtuse ovoideis, levibus, 4-5 $\approx$ 4, pallide olivaceis.

Hab. in inflorescentia, quam destruit, *Ægilopis ovata* in Italia boreali.

25. **Ustilago plumbea** Rostr. in Thüm. *Mycoth. univ.* n. 531. — Soris epidermide semper tectis, plumbeis, valde irregularibus, tuberculatis; sporis globosis ovatisve, simplicibus, fuscis, 14-16 μ . diam., episporio levi instructis.

Hab. in foliis petiolisque vivis *Ari maculati* prope Tiselholt in ins. Fionia Daniæ.

26. **Ustilago ocrearum** Berk. in Hook. *Journ.* 1854, pag. 207, Dec. 1 of *Fungi* n. 468. — Ocreas in laminas petaliformes purpureas, spathulatas deformans; sporis subovatis, irregularibus, lilacinis, 7 μ . diam., levibus, tenuibus, floccis nullis immixtis.

Hab. in ocreis *Polygonorum* nonnullorum, Nangki, East Nepal Indiæ 3000 m. et ultra alt. (Dr. HOOKER).

27. **Ustilago peribebuyensis** Speg. F. *Guaran.* n. 104. — Soris basim pedunculorum spiculæ infestantibus eamque sæpe majusculè tumefacientibus, primo compactis, epidermide tenui plumbea vel albu-pruinosa tectis, dein nudis, modice pulverulentis, atris vel fusco-atris; sporis lenticularibus vel globoso-compressis, margine late obtuseque rotundatis, 12-13 $\approx$ 8-9, intense ac subopace fuligineis, levibus, dense nubiloso-farctis.

Hab. ad basim pedunculorum in spicis *Cyper*i species cujusdam in mont. Sierra de Peribebuy vocatis, Paraguay Amer. austr. (BALANSA).

28. **Ustilago muelleriana** Thüm. in *Mycoth. univ.* n. 623, *Symb. Mycol. Austral.* II, n. 100. — Sporis irregulariter rotundatis vel multangularibus vel fere quadrangulis vel sphaericis vel subglobosis, tandem agglomeratis, fuscis, episporio levi obsolete punctulato, 6,5-11 μ . diam., semina exedentibus et demum implentibus.

Hab. in seminibus immaturis *Junci planifolii* pr. River Loddon Victoria Australiæ (F. MÜLLER).

29. **Ustilago piluliformis** (Berk.) Tul. in *Ann. Sc. Nat.* 1847, p. 93, t. V, f. 27-30, *Uredo piluliformis* Berk. *Fungi Uitenh.* p. 507, t. XXII, f. 6. — Soris compactis, atris; sporis ovatis vel ovoideo-angula-

tis, 16-20 $\approx$ 12-16 μ . diam., levibus, episporio inæqualiter incrasato, atro, partim hyalinulo.

Hab. in ovariis Juncorum pr. Uitenhage in Africa meridionali (ZEXNER). — A *Cintractia Junci* Trel. plane distincta. Species ob sporas maxime glomerato-coalitas, teste Tulasne, forsan aptius inter *Thecaphoras* militare videtur.

30. **Ustilago Phœnicis** Corda Icon. Fung. IV, p. 9, t. III, f. 26, Thüm. 1666
Fungi pomicoli p. 70, t. I, f. 19, Fisch. Aperçu p. 19. — Soris atro-violaceis, effusis, endocarpeis, pulveraceis; sporis subglobosis, interdum elongatis, 3,5-4, 5 μ . diam., dilute griseo-violaceis, episporio tenui, levi nucleo colorato, intus cavo, semihyalino.

Hab. in fructibus maturis Phœnicis dactyliferae, Cairo «Mohättel», in Mahas, «Kök-Tussati», in Chartum «Msöhfîn» Africæ nec non ad Constantinopolim (D. H. SCHUNDT).

31. **Ustilago guaranitica** Speg. F. Guaran. n. 99. — Soris atris, spiculas totas implentibus sed eas vix deformantibus, parum manifestis, rachide persistenti percursis, epidermide tenuissima, pallide fusca, pellucida diu tectis; sporis primo ellipticis vel globosis, dein e mutua pressione angulosis, 10-12 $\approx$ 9-10, levissimis, subopacis, fuliginis. 1667

Hab. in paniculis evolutis Andropogonis condensati pr. Paraguari et Valenzuela Amer. austr. (BALANSA).

32. **Ustilago vittata** Berk. in Hook. Journ. 1854, p. 206, Decad. of 1668
Fungi n. 467, Fisch. Aperçu p. 18. — Germinis basim vittato-elongati occupans; soris atris; sporis globosis raro ovoideis, 14-20 μ . diam., levibus, demum brunneis, primo hyalinis sæpeque pedicellatis.

Hab. in ovariis Oplismenoidæ pr. verticem Paras Nath Indiæ 1300 circ. m. alt. (Dr. HOOKER). — Sec. Fischer sporarum episporium esset granulatum.

33. **Ustilago Gynerii** Vize Californian Fungi in Grevillea 1877, n. 35. 1669
— Soris linearibus, demum confluentibus; sporis atris, globosis, subglobosisve, pulverulentis, levibus, 10 μ . diam.

Hab. ad culmos Gynerii argentei in California.

34. **Ustilago Fimbristylis** Thüm. in Bull. Torr. Bot. Club. 1876, Jan. 1670
— Soris simplicibus, plus minusve globosis vel paucis irregulariter rotundis vel sphaericis, haud raro ellipsoideis, paucis pellucidis, episporio levi, non punctato, tenui, 12-14 μ . diam., fuscis.

Hab. in seminibus maturis Fimbristylis autumnalis in Virginia et pr. Melbourne Australiæ (MÜLLER). — «An eadem ac *Cintractia axicola* (Berk.) Cornu?»

35. **Ustilago leucoderma** Berk. Fungi S. Domingo n. 54, Fisch. Aperç. p. 16. — Soris atris, maculis magnis insidentibus, crusta albida inæquali subvelatis; sporis rotundatis, rarius irregularibus, 13-17 μ . diam., opacis, atris, levibus.

Hab. in vaginis foliorum Caricis et Cyperaceæ (?) cujusdam in St. Domingo et in insula Borneo; in vaginis Rhynchosporæ aureæ ad Ratnapoora.

36. **Ustilago? dubiosa** Speg. Fungi Argentini pugillus IV, n. 48. — Soris corollam tumefacientibus ac eam strato tenui interne, precipue ad basim induentibus, compactiusculis, fusco-griseis vel fusco-subviolascens; sporis primo in hyphis tortuoso-intestiniiformibus, irregulariter ramuloso-capitatis, dense geniculato-incrassatis, strigose intertextis, mucro vestitis coalescentibusque acrogenis, dein liberis, globosis, e mutua pressione angulosis, episporio tenui, levissimo, dilute fumoso-subviolascens tectis, protoplasmate granuloso faretis, 15-20 μ . diam.

Hab. ad flosculos capitulorum Conyzæ graminifoliæ in herbosis campestribus secus el Rio de la Plata, Recoleta in Republica Argentina. — Species valde dubia, corollam bulloso-inflatam, extus tamen perfecte colore naturaque immutatam, efficiens; cavum internum a larva *Dipteri* speciei cujusdam semper habitatum. — «An *Cintractia?*»

37. **Ustilago Carphæ** Speg. Fungi Fuegiani n. 128. — Soris ovaria tantum implentibus eaque globose inflantibus, mox denudatis, compactiusculis, friabilibus, aterrimis; sporis globosis e mutua pressione obtuse angulatis, 18-20 μ . diam., levissimis, opace atro-fulgineis, nucleo subpellucido donatis.

Hab. ad spicas juveniles Carphæ schoenoidis prope Port Cook in alpinis Hatens Irlandiæ Australioris.

38. **Ustilago Maclagani** Berk. North Amer. Fungi n. 572, Fisch. Aperç. p. 18. — Soris atris; sporis in spicis nidulantibus, obovatis, levibus angulatisque, 18-22 μ . diam.

Hab. in paniculis, quarum flores deformat, Panici virgati pr. Montreal Amer. borealis (Dr. MACLAGAN).

39. **Ustilago marmorata** Berk. Australian Fungi n. 204. — Compacta, epidermide nondum fracta marmorata; sporis ovatis, 12-16,5, levibus.

Hab. in foliis Isolepidis proliferæ ad M. Gambrier Australiæ.

B. Sporæ granulatae, papillose vel verrucosæ, raro leviusculæ, brunneæ.

40. **Ustilago segetum** (Bull.) Dittm. in Sturm. D. C. Fl. III, 67, t. 33, 1676
Fisch. Aperç. p. 12, Winter Die Pilze p. 90, Schroet. Pilz. Schles.
p. 267. *Reticularia segetum* Bull. Hist. Champ. Fr. I, p. 90, t.
472, f. 2, *Uredo segetum* Pers. Disp. meth. p. 56, *Uredo Carbo*
DC. Fl. Franc. VI, p. 76, *Erysibe vera* Wallr. Fl. Crypt. Germ.
II, p. 217, n. 1672, *Cavoma segetum* Link Sp. II, p. 1, *Reticu-*
laria Ustilago L. Syst. nat. II, p. 1172. — Soris ex atro olivaceo-
brunneis, pulverulentis, epidermide tectis, eaque cito rupta, liberis;
sporis globosis aut oblongis, sæpe irregulariter angulatis, $4,5-8 \approx$
 $4,5-6$, episporio e flavo olivaceo-brunneo, levi vel punctulato in-
structis; promycelio cylindræo, plerumque 3-septulato; sporidio-
lis ellipticis, minutis, ut plurimum ad parietes septulorum vel ad
apicem sitis; cellulis germinantibus ellipsoideis.

Hab. in paniculis pedicellisque earum nec non in ovariis, quæ
ex toto destruit, Polypogonis interrupti, Andropogo-
nis hirsuti, Festuæ pratensis, Arrenatheri elatio-
ris, Cynodontis Dactyli, Elymi sybinei, Lepturi in-
curvati, Danthoniæ Forskili, Avenæ sativæ, flave-
scentis, vulgaris, orientalis et pubescentis, Airæ cæ-
spitosæ, Tritici vulgaris, turgidi et Speltæ, Hordei
vulgaris, hexastichi, marini et distichi, Syntheri-
smæ sanguinalis, Lolii perennis et temulenti, Meli-
cæ sp. in Italia, Gallia, Fennia, Germania, Britannia, Austria,
Belgio, Lusitania, Hungaria, Neerlandia in America boreali et
Brasilia (BALANSA), in Chili (WINTER) et Patagonia (SPEGAZZINI),
Cairo aliisque Africæ borealis locis, pr. Somerset East Afr. austra-
lis, in Japonia nec non pr. Minussinsk Sibiricæ asiaticæ et in Queens-
landia (SCORTECHINI).

41. **Ustilago bromivora** Fisch. de Wald. Aperçu pag. 22, Winter 1677
Die Pilze pag. 91, Schroet. Pilz. Schles. pag. 269, Bref. Unter-
such. V, pag. 123, tab. 10, fig. 1-8, *Ustilago Carbo* var. *vul-*
garis d. *bromivora* Tul. in Mem. Scienc. Nat. 1847, pag. 81. —
Soris atro-brunneis, primo pustuliformi-bullatis, dein pulverulen-
tis; sporis globosis vel ellipsoideis, raro ovatis, $8-14 \approx 6-10$, epi-
sporio obscure brunneo, papillulis vix distinctis ornato vel sublevi
instructis; promycelio cylindræo-fusiformi, mox evanido, ut plu-
rimum 1-septato; sporidiolis terminalibus et lateralibus, fusoideis,

mox crescentibus, plerumque ut promycelio bipartitis sporidiola-
que nova secundaria evolventibus.

Hab. in floribus paniculisque nondum evolutis Bromi secalini, unioidis, macranthi, mollis, lanceolati, madritensis, maximi, rubentis, macrostachyos et longiflori in Germania, Carniola et in Republica Argentina, Patagonia et Ushuvaja Amer. austr. (SPEGAZZINI). — Sec. Speg. F. Patag. n. 76 forma patagonica a typo nonnihil recedit sporis intus non vel subimperspicue granulosis (an minutissime muriculatis?) e globoso-angulosis, 8-12 $\approx$ 7-8, opace fuligineis.

42. **Ustilago lorentziana** Thüm. F. aus Entre Rios in Flora 1880, n. 2 et in Mycoth. Univ. n. 1711. — Ovaria implens, paullulum inflans et nigrificans, in massam pulverulentam mutans, cuticulam membranaceam tantum relinquens; sporis globosulis sed plerumque irregulariter ellipsoideis, fumoso-fuscis, intus homogeneis, episporio tenui, subtilissime sed densissime granulato, 8-12, plerumque 10 μ . diam.

Hab. in ovariis Hordei compressi prope Concepcion del Uruguay Americæ australis (LORENTZ). — *Ust. bromivoræ* Fisch. Waldh. proxima sed sporarum magnitudine et forma valde diversa.

43. **Ustilago Aristidæ** Peck in Bull. Torr. Bot. Club. Vol. XII, in 4, p. 35. — Sporis minutis, subglobosis, 8-9 μ . diam., plus minusve angulatis, æqualibus, nigris.

Hab. intra paniculas Aristidæ, El. Paso, Texas, Amer. bor. (JONES). — *Ust. Lorentzianæ* Thüm. et *Ust. Penniseti* Rabenh. proxima.

44. **Ustilago Penniseti** Rabenh. in Hedwigia 1871, pag. 18, Fisch. 1. Aperç. p. 14, p. p. *Uredo* (*Ustilago*) *trichophora* var. *Penniseti* Kunze in Flora 1830, p. 369, *Ustilago Carbo* γ . *columellifera* b. *trichophora* Tul. in Ann. Scienc. Nat. 1847, p. 81. — Soris clausis, firmulis, atris, columella rigida a basi divisa instructis; sporis magnitudine diversissimis, 5,5-12 μ . diam., valde irregulariter globosis, sæpe subangulosis, conglobatis non vel vix punctulatis, episporio crassissimo, 1,8-2 μ . crasso, brunneis.

Hab. in ovariis Penniseti dichotomi, vulpini, cenchroidis et fasciculati in Ægypto (SCHWEINFURTH) et insula Madeira (SCHROETER).

45. **Ustilago trichophora** (Link) Kunze Flora 1830, p. 369 (*Uredo*) 1 Körn. Myk. Beitr. in Hedwigia 1877, p. 36, *Cwoma trichophorum* Link Sp. II, p. 3, n. 5. — Germina occupans et granum clau-

sum hirsutum ovato-globosum columella carens mutans; sporis plerumque globosis, interdum breviter ellipticis, 9-10 μ . diam., punctato-tuberculatis, fusco-nigris.

Hab. in ovariis Panici coloni et Tricholane Teneriffæ in Africa boreali (EHRENBERG). — Ab *U. Penniseti* Rabenh. notis allatis diversa.

16. **Ustilago olivacea** (DC.) Tul. in Ann. Scienc. Nat. 1847, p. 88, 1682
Fisch. Aperçu pag. 25, Winter Die Pilze pag. 91, Schroet. Pilz. Schles. pag. 269, Berf. Untersuch V. pag. 120, tab. 10, fig. 9-26, *Uredo olivacea* DC. Fl. Franc. VI, pag. 78, *Ceoma olivaceum* Link Sp. II, pag. 78, *Erysibe olivacea* Wallr. Fl. Crypt. Germ. II, pag. 215, n. 1665. — Soris ex olivaceo-brunneo atris, pulverulentis, ovaria destruentibus; sporis irregularibus, sphæroideo-angulatis, ovatis, oblongis, subcylindræis, 5-16 $\approx$ 3.5-5.5, episporio flavo-brunneo, vix olivaceo, sublevi vel verruculoso-aculeolato instructis; promycelio minuto, fusoides, eseptato; sporidiolis cellulisque germinantibus conformibus.

Hab. in ovariis Caricis arenariæ, rostratæ, acutæ, ampullacæ, vesicariæ, ripariæ et filiformis in Gallia, Germania, Britannia, Belgio. — Forma **Pseudocyperi**, *Ustilago olivacea* Speg. F. Argent. Pug. IV, n. 51. — A typo differt sporis 6-12 $\approx$ 6-10, minute denseque verruculosi, olivaceis. In spicis præcipue foemineis Caricis Pseudocyperi in Republica Argentina Amer. australis.

17. **Ustilago Thuemenii** Fischer. v. Waldh. in Hedwigia 1878, p. 40. 1683
— Soris brunnei; sporis difformibus, rotundatis, 6-8 μ . diam., ovoideis, 8-10 $\approx$ 6 vel ovato obtusiusculis, 10-12 $\approx$ 6-8, fabæ- vel piriformibus usque ad 14 longis, 6 μ . latis, pallide olivaceo-brunneis, episporio verruculis papilliformibus, numerosis, vix prominulis obsito.

Hab. in ovariis immaturis Caricis procæræ prope Conception in Republica Argentina Amer. australis (P. G. LORENTZ).

18. **Ustilago Luzulæ** Sacc. Myc. Ven. specimen pag. 73, tab. XVII, 1684
f. 33-34, Fisch. Aperçu p. 22, Winter Die Pilze p. 92. — Soris atris, ovaria occupantibus; sporis sphæroideis, majusculis, 20 μ . diam., atro-brunneis, episporio crassiusculo minute sed conspicue papillato, mox secedentibus et pulverem atrum efformantibus, filamentis tenuissimis hyalinis intermixtis.

Hab. in ovariis Luzulæ Forsteri, pilosæ et spadiceæ, quæ tandem in sphæras atras pulveraceas (pari modo ac *Ust.*

Caricis) mutantur, in silva Cansiglio Italiæ bor. (DE BÉRENGER), Linz Austriæ superioris (SCHIEDERMAYER) et in monte Cresta-mora Rheticiæ (WINTER). — Socium adest sæpe *Fusisporium Schiedermayeri* Thüm.

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49. **Ustilago Caricis** (Pers.) Fuck. Symb. myc. p. 39, Winter Die Pilze p. 92, Schroet. Pilz. Schles. pag. 270, *Uredo Caricis* Pers. Syn. Fungi p. 225. *Uredo urceolorum* DC. Fl. Fr. VI, p. 78, *Cecoma Caricis* Link Sp. pl. VI, n. 5, *Erysibe baccata* Wallr. Fl. Crypt. germ. II. p. 214, n. 1662, *Uredo Pseudocyperi* Rabenh. Krypt. Fl. n. 120, *Uredo carpophila* Schum. Pl. Saell. II, p. 234, *Uredo segetum* var. γ . DC. Encycl. VIII, p. 227, *Uredo decipiens* var. β . Strauss. in Wett. Ann. II, p. 111, *Ustilago urceolorum* Tul. in Ann. Sc. Nat. 1847, p. 86, t. IV, f. 7-10, *Ustilago Rhynchosporæ* Saut. in Klotzsch-Rabenh. Herb. myc. n. 1896, *Ustilago Scirpi* Kühn in litt. et Fischer. de Waldh. Aperçu p. 20? *Ustilago Montagnei* Tul. l. c. p. 88, *Microbotryum Montagnei* Lév. in Ann. Sc. Nat. 1847, p. 372, *Cecoma urceolorum* Schlecht. Fl. Berol. II, p. 130, *Cecoma decipiens* Mart. Erl. p. 315? *Ecidium urceolorum* Schum. sec. Wallr. — Soris atris, intra ovaria ortis, subinde etiam extra, compactis; sporis irregularibus, 12-24 $\approx$ 7-20, globosis, ellipticis, oblongatis, angulatis, plerumque compressis, episporio obscure atro-brunneo, subopaco, vix conspicue granulato-punctatis.

Hab. in ovariis Caricum variarum, nec non Rhynchosporæ albæ et fuscae, Elynæ spicatae et Scirpi caespitosis in Austria, Helvetia, Germania, Belgio, Britannia, Fennia, Lapponia, Italia, Hungaria, Dania, in America boreali, Rep. Argentina et Patagonia Americæ australioris, in Sibiria asiatica, in Nova Zelandia. — Ovarium rite efformatum Caricum plurimum, intra urceolum ipsum mucro copioso circinatum obducit aliquandoque e bas. ad apicem præter stylum prorsus velat nec unquam ovarii cavum ingreditur; mucro vero paulatim in sporarum sorum coherentem, compactum, lente vertitur et increcendo utricululum sanum plerumque disruptit. Ovarii parietes subsani permanent at fungilli causa ovulum sæpissime abortit.

50. **Ustilago Euchlænæ** Arcang. in Erb. Crittog. ital. ser. II, fasc. XXIII-XXIV, p. 1152 Sacc. et Berl. Cat. fung. ital. p. 3. Habitus *Ustilaginis Maydis*, a qua statione sporisque vix majoribus 10 μ . diam. recedit.

Hab. in foliis inflorescentisque Euchlænæ luxuriantis in

horto botanico Torino Italice borealis (ARCANGELI). — Adest quoque hæc species, teste Passerini in notula l. c. in eadem matrice in horto botanico parmensi: sporis globosis, pallide aurantio-fuscis, 8-10 μ . diam., episporio leviter papillato.

1. **Ustilago Vaillantii** Tul. Mém. sur les Ustilag. in Ann. Scienc. Nat. 1847, p. 90, t. 3, f. 15-19, Winter Die Pilze p. 93, Schroet. Pilz. Schles. p. 269, Fisch. Aperç. p. 21. — Soris flavo olivaceo-brunneis, demum atris, pulveraceis, in antheris ovariisque evolutis; sporis globoso-angulatis, oblongis vel ellipticis, 7-16 $\approx$ 5-12, episporio plerumque levi, rarius papillulato vel granulato, flavo-brunneo instructis; promycelio pedicellato, fusoido, plerumque tantum 1-septulato; sporidiolis pedicellatis, elliptico-fusoidis. 1687

Hab. in antheris ovariisque Gageæ luteæ, Scillæ bifoliæ, anthericoidis, maritimæ et trifoliatæ, Muscari comosi botryoidis et tenuiflori, Bellevaliæ romanæ et trifoliatæ in Italia, Germania, Austria, Hungaria et prope Alexandriam Ægypti in Africa boreali (BARBEY). — Var. **Tourneuxii** Fisch. d. W. in Verhandl. bot. Ver. Brand. XXII, 1880, pag. 65: soris obscure olivaceo-brunneis; sporis ovatis oblongo-ovoideis, sæpius obtuse incurvis vel irregularibus, 10-18 $\approx$ 10 episporio verrucis vel granulis numerosis obsito. In antheris ovariisque Bellevaliæ trifoliatæ, quæ necat, prope Alexandriam Ægypti (ASCHERSON). — A typo differre videtur imprimis sporarum magnitudine «an satis?»

52. **Ustilago Urbaniana** Fisch. d. W. in Verhandl. bot. Ver. Brand. XXII (1880), p. 65. — Soris atris, subviolaceis; sporis rotundatis, raro subexplanatis, 4 μ . diam., obscure violaceis, episporio verrucis distinctis sublineolatim dispositis obsito. 1688

Hab. in partibus floralibus Turnæræ cuneiformis, quas enecat, Rio de Janeiro Americæ australis.

53. **Ustilago ægyptiaca** Fischer in Hedwigia 1879, p. 100. — Soris atro-brunneis; sporis rotundatis vel plus minus ovatis, 12-13,5 μ . diam., obscure olivaceo-brunneis, episporio granulato-subpapilloso instructis. 1689

Hab. intra partes florales Schismi calycini in Africa boreali (EURENBERG).

54. **Ustilago Durianæana** Tul. Mém. sur les Ustilaginées p. 105, t. 4, f. 32, Winter Die Pilze p. 94, Fisch. Aperçu p. 23. — Soris initio submucosis, denique pulveraceis, intra capsulas accretas dein apice in dentes 10 dehiscentes solutasque pulverem sporarum ful-

vo-brunneum copiosissime effundentes, evolutis; sporis sphericis, creberrime et ubique tuberculato-reticulatis, tuberculis crassiusculis, æqualibus, stipatis, 10-12 μ . diam., subimpellucidis, fulvo-brunneis.

Hab. in placenta, ovulis eorumque funiculis in capsulis *Cerastii arvensis* et glomerati, quæ deformat, in Mauritania et Germania. — Odor fungillo admodum peculiaris debilis, quasi farinæ recentis, pulvere fungilli madefacto, effunditur.

55. **Ustilago Scleriæ** (DC.) Tul. in Ann. Scienc. nat. 1847, pag. 89, *Uredo Scleriæ* DC. in Encycl. VIII, p, 228, Fisch. Aperçu p. 18. — Soris atris; sporis rotundatis vel ovoideo-oblongis, 16 (rarius 25) $\approx$ 10-14, brunneo-castaneis, episporio valide granulato instructis.

Hab. in spiculis pedicellisque *Scleriæ* in Gujana et ins. Ceylon.

56. **Ustilago paraguayensis** Speg. F. Guaran. n. 102. — Soris spiculas totas implentibus ac tumefacientibus easque tamen parum vel vix deformantibus, primo glumis inclusis, dein inter eas lacero-erumpentibus, atris, dense fibroso-pulverulentis; sporis globosis, minutis, 5-7 μ . diam., fusco-fuligineis vel fuligineo-subatris, eguttulatis, episporio crassiusculo, laxè minutissimeque granuloso (an melius ruguloso-asperulo?) donatis.

Hab. in paniculis fœmineis Graminaceæ monoicæ elatioris (an Bambusaceæ?) cujusdam in montosis Cordillera de Peribebuy vocatis in Amer. australi (BALANSA).

57. **Ustilago spermophora** Berk. et Curt. in Curt. Cat. p. 123, Ellis North Amer. Fungi n. 1098, Winter F. E. n. 3402 (nomen). — Spicas occupans; soris atro-fuscis, crebris, plerumque glumæ latus interius inficientibus; sporis globosis, 6-8 μ . diam., verruculosus, obscure brunneis, centro pellucidis.

Hab. in spicis *Eragrostidis poeoidis* var. *megastachyæ* Jowa Amer. bor. (ARTHUR). — Diagnosin hausi ex specimenibus in Exsiccatis Ellis N. Am. F. n. 1098 editis.

58. **Ustilago paraguariensis** Speg. F. Guaran. n. 103. — Soris apicem culmorum, folia vaginasque nondum evoluta infestantibus easque parum tumefacientibus et nigrificantibus, primo epidermide tenuissima, plumbea tectis, dein lacero-erumpentibus ac pulverulentis, atris; sporis globosis, mediocribus, 7-9 μ . diam., dense granuloso-farctis (an leniter areolato-alveolatis?) olivaceo-fuligineis, minutissime laxissimeque granuloso-papillulatis.

Hab. ad culmos juveniles *Cynodontis Dactyli* Paraguari Americæ australis (BALANSA).

59. **Ustilago virens** Cooke in Grevillea VII, p. 15. — Pulverulenta, 1695
effusa, olivaceo-virens; sporis globosis, olivaceo-fuscis, episporio
granuloso, 5 μ . diam.

Hab. in seminibus *Oryzæ sativæ* Tinnevelly Indiæ (WESTERN).

60. **Ustilago viridis** Ell. et Everh. in Journal of Mycology 1887, p. 56. 1696
— Sporis globosis vel subglobosis, 4-5 μ . diam., rugoso-verrucosis.

Hab. in seminibus *Setariæ* Louisiana Americæ bor. (LANGLOIS). — Semina extus tegmine flavo-virescente obsita, inflata, albida intusque mollia.

61. **Ustilago Dregeana** Tul. in Ann. Sc. Nat. 1847, p. 83, t. III, f. 13, 1697
Fisch. Aperçu p. 21. — Soris atris, deformantibus; sporis globosis vel ovoideo-obtusis, 4-5 μ . diam., ex olivaceo brunneo-aurantiacis, papillosis.

Hab. in pedunculis inflorescentiæ graminis ejusdam in C. Bonæ Spei (DREGE) et *Cynodontis Dactyli* Somerset East Africae australis (MAC OWAN). — Teste Kalchbrenner in Grevillea XI, p. 18 inflorescentiam, adhuc in vagina latentem, prorsus deformatam, fungillus pulvere atro obducit. Sed ex Kalchbrenner l. c.; sporæ sunt majores, 12-15 μ . diam., leviter tuberculatæ, hinc ad aliam speciem forte spectantes.

62. **Ustilago endotricha** Berk. Fl. New Zeal. II, p. 196, t. 106, f. 4, 1698
Fisch. Aperçu p. 26. — Soris atris; sporis globosis, ovatis, ovoideo-obtusis, 5-15 (plerumque 11-12) μ . diam., obscure flavo-brunneis, episporio verrucoso præditis.

Hab. in paniculis *Gahniæ leucocephalæ* (?) et *Caricis bengalensis* et baccatæ in Nova Zelandia et India nec non in insula Ceylon.

63. **Ustilago Danthoniæ** Kalchbr. in Grevillea XI, p. 18. — Sporis 1699
globosis, 36 μ . diam., granulosis, atro-fuscis.

Hab. in spicis *Danthoniæ papposæ*, in summo monte Chumiberg, prope stationem Missionis evangelicæ «Lovedale» dictam (REV. T. BUCHANAN). — Haud procul distat *Ust. ? Salveii*, sed hæc soris linearibus folia modo occupat, non vero spicas. «An potius *Tilletia*?»

64. **Ustilago flavo-nigrescens** B. et C. in Linn. Soc. Journ. X, p. 358. 1700
— Subglobosa, solida, flavida; sporis globosis, papillatis, o flavido aterrimis, immixtis particulis minimis Brownianis, 7 μ . diam.

Hab. ad rachides spicarum *Scleriæ* in insula Cuba. — Ab *U. Scleriæ* Tul. diversa videtur.

65. **Ustilago Fussii** Niessl Beitr. pag. 6, Fisch. Aperçu pag. 26. — Follicola; soris atris, crassis amplisque, sub epidermide turgida, albescente, fragili nidulantibus; sporis subglobosis, nigris, 10-12 μ . diam., episporio verruculoso.

Hab. in acubus vivis Juniperi nanæ et communis in alpinis Transylvaniæ (Fuss). — Sori 3-6 mm. long. et lat.

66. **Ustilago Osmundæ** Peck in Botanical Gazette 1881, p. 276. — Rugosa, discolor, deformans; sporis globosis, 12-15 μ . diam., brunneis, rugosis vel verruculosus.

Hab. in pinnulis frondis Osmundæ regalis Vermont Amer. bor. (PRINGLE). — Pinnulæ fungillo infectæ ferrugineo- vel cinnamomeo-brunneæ vel atro-brunneæ.

67. **Ustilago Notarisii** Fisch. de Waldh. Aperçu p. 22. — Sori striiformibus, atro-olivaceis; sporis sphæroideis, ovoideis vel irregulariter explanatis, 11-15 = 10-12, olivaceo-brunneis, episporio papillis obsito instructis.

Hab. in foliis Arrhenatheri cujusdam in Italia (?).

68. **Ustilago bullata** Berk. in Hook. Antarct. Voy. of Ereb. and Terror 1855, p. 196, t. 106, f. 12, Fisch. Monogr. p. 21. — Sori atris; sporis globosis, ovoideo-rotundatis vel ellipticis, 7-10, plerumque 8 μ . diam., pallidissime olivaceo-brunneis, episporio rufescente, papilloso-subgranulato.

Hab. in inflorescentia Tritici scabri in regione Antarctica.

69. **Ustilago Balansæ** Speg. F. Guaran. n. 98. — Sori panicula tota replentibus eaque in fibras crassiusculas, fasciculatas, fuscas, pulvere atro-brunneo immixtas solventibus; sporis globosis, 7-8 μ . diam., atro-olivaceis, subopacis, non vel l-grosse-guttulatis, episporio densissime minutissimeque granuloso-asperulo.

Hab. in paniculis nondum evolutis Panicæ cujusdam in campis prope Guarapi Amer. austr. (BALANSA).

70. **Ustilago sphærogena** Burrill in Ell. et Everh. North Amer. Fungi II, n. 1892. — Intra ovaria enata eaque pulvere atro-brunneo implens; sporis globosis, 6-8 μ . diam., verrucosis, dilute brunneis.

Hab. in ovariiis Panici Cruris-Galli prope Osborne Illinois Americæ borealis (SEYMOUR).

71. **Ustilago cylindrica** Peck in Botan. Gazette 1882, p. 55. — Sori cylindræis, 12-20 mm. longis, circ. 2 mm. crass., cuticula tenui cinerea, demum lacerata tectis; sporis globosis, rugulosis, atro-brunneis, 8-10 μ . diam., corpusculis cellularibus 20-25 μ . diam. pallidis, irregularibus, inæqualibus intermixtis.

Hab. in spicis verisimiliter *Andropogonis Arizona* Amer. bor. (PRINGLE).

72. **Ustilago Vilfæ** Winter in Bull. Torr. botan. Club. X, p. 7, Hedw. 1708
n. 1, 1883. — Soris fusco-nigris, inflorescentiam totam imple-
ntibus et destruentibus; sporis subrotundatis v. parum elongatis et
oblongatis, amœne fuscis, episporio granuloso, 12-16 μ . diam. vel
usque ad 19 μ . longis.

Hab. ad Vilfam vaginifloram in Pennsylvania (Dr. MARTIN).

73. **Ustilago? lycoperdospora** Speg. F. Guaran. n. 101. — Soris fere 1709
totam paniculam ambientibus at eas non vel vix deformantibus; spi-
culis infectis parum turgescens, sordide obscureque olivascen-
tibus, compactis, duriusculis, subpruinulosis; sporis globosis, sub-
parvulis, 4-6 μ . diam., viridi-olivaceis, pellucidis, grosse 1-guttu-
latis, episporio dense majusculæque granuloso-verrucoso.

Hab. in paniculis submaturis Vilfæ cujusdam in silva sub-
virginea Caà-guazù Amer. austr. (BALANSA). — Species perquam
dubiosa; sori compactiusculi sed subtomentosi; adsunt hyphæ lon-
giusculæ, ramoso-intricatæ, subhyalinae, 2,5-3 μ . crassæ, densius-
cule ac minute verruculosæ (sterigmata?). — An potius fungillus
imperfectus? «An *Ust. Vilfæ* Wint. forma junior?»

74. **Ustilago Bistortarum** (DC.) Körn. in Hedw. 1877, p. 88, Wint. 1710
Pilze p. 95 excl. synonym. Schroet. Pilz. Schles. p. 271, *Uredo Bis-*
tortarum a *pustulata* DC. Fl. Franç. IV, p. 76, *Tilletia bulla-*
ta Fuck. Symb. myc. p. 40, *Cyoma Bistortarum* Link Sp. II,
pag. 10, *Ustilago bullata* Schroet. — Soris amphigenis, per epi-
dermidem erumpentibus eaque rupta cinctis, sparsis vel gregariis,
interdum confluentibus, convexis, majusculis, atro-violaceis; sporis
sphæroideis, angulato-sphæroideis vel ellipsoideo-sphæroideis, fu-
sco-violaceis, 13-16 μ . diam. aut circiter 16 $\approx$ 14, vix distincte mi-
nute granulatis.

Hab. in foliis Polygoni Bistortæ, Rumicis obtusifoli-
i in Austria, Germania, Britannia et Fennia. — Var. **glabra** Rostr.
in Bot. Tidsskr. XV, heft IV: sporis levibus, 12-13 μ . diam. In
gibbis foliorum Polygoni vivipari in Finmarkia (WARNING).

75. **Ustilago vinosa** (Berk.) Tul. Mém. sur les Ustilaginées pag. 96, 1711
Fisch. Aperçu p. 23, Winter Die Pilze p. 95, *Uredo vinosa* Berk.
in litt. — Soris violaceis; sporis globosis, irregulariter rotunda-
tis, rarius oblongis, 12 $\approx$ 6-10, papillis seu verrucis hemisphæricis,
majusculis exornatis, dilutissime violaceis.

Hab. in organis sexualibus fructibusque Oxyriæ digynæ et reniformis in Helvetia, Britannia, Fennia. — Fungillus stamina ovariumque plus minus destruit tepalaeque perigonii turgescunt pustulasque demum pulvere violaceo-maculatas involvere videntur.

76. **Ustilago emodensis** Berk. Decades of Fungi n. 354. — Sporis ellipticis ovatisque, subtiliter rugulosis, minimis, saturate lilacinis, 12-15 μ . diam., filamentis radiantibus, furcatis immixtis.

Hab. in ocreis caulibusque Polygonorum nonnullorum Tonglo Asiæ in alt. 3000 m. et ultra, nec non Brisbane Queensland (BAILEY). — Pustulæ lobatæ.

77. **Ustilago Warmingii** Rostr. Svampe. Finmarken in Bot. Tidsskrift XV, fasc. IV, pag. 229. — Soris stratosis, continuis, foliiculis, obscure violaceis; sporis globosis, verrucosis, e violaceo-pallido hyalinis, 7-8 μ . diam.

Hab. in foliis Rumicis crispis in Finmarkia (WARMING). — Ex grege *U. vinosæ*.

78. **Ustilago marginalis** (Link) Lév. in D'Orbigny Dict. univ. hist. nat. XII, p. 778, Schroet. Pilz. Schles. n. 272, *Cwoma marginale* Link Sp. II, pag. 10, *Uredo pteridiformis* Funk. Crypt. exs. n. 564, *Uredo marginalis* Rabenh. Handb. I, pag. 7. — Soris in margine foliorum revoluti expansis seu elongato-confluentibus, sub epidermide turgida cinerescere nidulantibus; sporis subglobosis ovatisve, violaceo-purpureo-fuscis, 10-13 μ . diam., episporio dense aspero vel verruculoso; promycelio late cylindrico, 3-septato; sporidiolis globosis, ad singulum septum solitariis, subinde etiam ad apicem promycelii evolutis.

Hab. in foliis Polygoni Bistortæ in pratis Helvetiæ (Dr. O. DELITSCH et Dr. MORTHER) nec non in Silesia (SCHNEIDER).

79. **Ustilago Fischeri** Pass. Nuova specie di carb. del grano turco in Boll. Comiz. Agr. parm. 1877 novemb. Rabenh. F. E. n. 2500. — Soris oculo inermi violaceo-nigris; sporis globosis, violaceo-griseo-purpurascens, 4-6 μ . diam., episporio papillis minutissimis plus minus prominulis consperso.

Hab. in rachide spicarum fœminearum Zere Maydis, in provincia parmensi Italiæ borealis. — Ab *Ust. Phœnicis* Corda et *Ust. Ficuum* Reichardt differt præsertim episporio papilloso.

C. Sporæ aculeatæ.

80. **Ustilago echinata** Schroet. Brand. und Rostp. p. 4, Pilz. Schles.

p. 271, Winter Die Pilze p. 96, Fisch. Aperçu p. 26. — Pustulis elongatis, parallelis, præcipue epiphyllis, atro-olivaceo-brunneis, *Ustilaginis longissimæ* similibus; sporis plerumque sphaericis v. irregulariter rotundatis aut breviter ellipsoideis, 12-15-19 $\approx$ 11-15, flavo-brunneis, aculeis longiusculis, obtusis dense ornatis.

Hab. in foliis Phalaridis arundinaceæ in Germania.

81. **Ustilago Rabenhorstiana** Kühn. in Hedwigia 1876, p. 4, Winter 1717 Die Pilze p. 96, Schroet. Pilz. Schles. p. 270, Fisch. Aperçu p. 22, Bref. Unters. V, p. 103, *Ustilago destruens* var. *Digitaliæ* Sacc. F. Ven. V, p. 167. — Pulvere sporarum atro, partes florales et superiorem caulis partem destruyente; sporis globosis vel oblongo-ellipsoideis aut rotundato-angulatis, 8-14 $\approx$ 7-11,5, episporio obscure brunneo, aculeis latis, obtusis prædito instructis; promycelio cylindraceo; sporidiolis ellipticis.

Hab. in spicis culmisque intra glumas Panici sanguinalis, miliacei, glabri et linearis in Italia boreali (Massa-longo), Germania et prope Cambridge Mass. Americæ borealis (Farlow).

82. **Ustilago Setariæ** Rabenh. in Fisch. de Wadh. Aperçu pag. 24. 1718 — Soris atris; sporis globosis vel ellipticis, 10-12 μ diam., brunneo-olivaceis, episporio aculeolato præditis.

Hab. in paniculis, quæ destruit, Setariæ glaucæ et Digitaliæ sanguinalis ejusdam in Germania et Tuyû Amer. austr. (Spegazzini). — «An, suadente Dr. Winter, ad *Ust. Rabenhorstianam* referenda?»

83. **Ustilago cordobensis** Speg. Fungi Argentini pugillus IV, n. 47. 1719 — Soris aterrimis, spicam totam vix folio florali exsertam repletibus eamque in massam pulveraceam, fibris longitudinalibus densis percursam transformantibus; sporis globosis v. sæpius compressis ac sublenticularibus 9-14 $\approx$ 8-9, episporio tenui, dense ac valide muricato donatis, duabus guttulis globosis vel lenticularibus utrinque ad diametrum minorem ornatis, atro-fuligineis.

Hab. in spicis non vel vix evolutis Panici Jaboncillo pr. Cordobam in Republica Argentina (Dr. Hieronymus). — Species *Ust. Reilianæ* Kühn et *Ust. Rabenhorstianæ* Kühn affinis.

84. **Ustilago Reiliana** Kühn in Rabenh. Fungi Europæi n. 1998, Fisch. 1720 Aperçu pag. 25, Winter Die Pilze pag. 96, Bref. Unters. V, pag. 94, t. 11, fig. 3-7, *Ustilago pulveracea* Cooke in Grevillea 1876, p. 115 (sec. Fischer de Waldheim). — Pustulis bullatis, varix magnitudinis, rotundatis vel ovatis, primo membranula albida clausis,

dein ea lacerata subnudis; pulvere sporarum atro-brunneo; sporis plerumque irregulariter sphæroideis, rarius subangulatis vel breviter ellipticis, 9-15 μ . diam., subpellucidis, brunneis, aculeolis minutissimis dense ornatis.

Hab. in paniculis Zeæ Maydis, Sorghi vulgaris et cerui in Germania, Britannia, Italia, Hungaria, in Ægypto inferiore, (SCHWEINFURTH), Lahore Indiæ. — Sporæ primitus in massulas, 40-50 d., congestæ. Ob hanc notam species hæc forte ad genus *Sorosporium* ducenda videtur. «Nonnulli auctores sporas describunt leves».

85. **Ustilago subinclusa** Körn. in Hedwigia 1874, p. 159, Winter Die Pilze p. 97, Schroet. Pilz. Schles. p. 271, Fisch. Aperçu p. 26. — Soris ex atro olivaceo-brunneis, firmulis, demum deformato-ruptis, filamentis destitutis, ovaria replentibus tunicamque rumpentibus; sporis globosis vel ellipsoideis, etiam pluriangulatis, 13-20 $\approx$ 11-18; episporio obscure atro-brunneo, subimpellucido, aculeis hyalinis obtusis, verruciformibus, crassis, irregularibus obsito.

Hab. in ovariis Caricis acutæ, rostratæ, ampullaceæ, vesicariæ, ripariæ et filiformis in Germania.

86. **Ustilago neglecta** Niessl in Rabenh. Fungi europ. n. 1200, Fisch. Aperçu p. 24, Schroet. Pilz. Schles. p. 270, Bref. Unters. V, p. 103, *Erysibe Panicorum* Wallr. a *Panici glauci* Wallr. Fl. Crypt. Germ. II, p. 216, *Uredo decipiens* var. a Strauss in Wett. Ann. II, p. 111 p. p. *Ustilago Panici-glauci* Wint. Die Pilze p. 97. — Soris atris, ovaria incolentibus tumefacientibusque, cuticula dein rupta velatis; sporis globosis vel ellipsoideo-ovoideis, 9-16 $\approx$ 7-11, episporio flavo-brunneo vel fusciculo, aculeolis minutis, obtusiusculis exornato.

Hab. in ovariis Setariæ glaucæ, verticillatæ et viridis in Italia, Austria, Germania et America boreali.

87. **Ustilago Maydis** (DC.) Corda Icon. V, p. 3, Tul. in Ann. Scienc. Nat. 1847, pag. 83, tab. II, Fisch. Aperçu pag. 23. Schroet. Pilz. Schles. pag. 271, Bref. Unters. V, pag. 67, tab. 4, fig. 1-17. *Uredo Maydis* DC. Fl. Franç. VI, pag. 77, *Erysibe Maydis* Wallr. Fl. Crypt. Germ. II, pag. 215, n. 1667, *Uredo Zeæ-Mays* DC. Syn. pag. 47, *Uredo segetum* var. DC. Fl. Franç. II, pag. 596, *Ceoma Zeæ* Link Sp. II, p. 2, *Ustilago Zeæ-Mays* Wint. Die Pilze p. 97, *Uredo Carbo-Maydis* Philippar Traité sur la Carie p. 68, t. V-VII. — Soris olivaceo-brunneis, pulverulentis, in floribus masculis vel femineis evolutis eosque omnino destruentibus, etiam in culmis foliisque extensis, in foliis pustuliformibus, in cul-

mis floribusque saccatis, tuberculiformibus rotundatis, bullato-inflatis, plura cm. lat. cuticula albida rugulosa tectis; sporis globosis vel breviter ellipticis 8-13 $\approx$ 8-11, episporio flavo-brunneo pellucido, aculeolis tenuibus ornato; promycelio cylindræo, filiformi; sporidiolis fusoides, ad septa nec non ad apicem evolutis; cellulis germin. oblongis, fusiformibus.

Hab. in ovariis, floribus masculis, bracteis, foliis, vaginis caulibusque Zeæ Maydis in Italia, Gallia, Belgio, Austria, Germania, Hungaria, Britannia et America boreali nec non e regione Chilensi (Gay in herb. Mus. Paris.). — Crescit in caule, foliis, bracteis, ovarii parietibus ovulisque nec non in floribus masculis Zeæ Maydis et ubique sedem ita amplissimam sibi vindicat ut parenchyma mirum in modum intumescat et infletur; hocce præterea ad superficiem interdum rubescit et, cum laceratur, humorem quasi saniosum fuligineum initio fundit, postremum vero ferme totum in pulverem atro-fuligineum abit, fibris lignosis vascularibusque solis superstitibus; tumores in caule accreti, foliorum basis ampliata bractæaque turgidæ e nucis ad pugni magnitudinem variant. Odor singularis acris, ingratus. Tul. l. c.

88. **Ustilago Uniolæ** Ell. et Everh. in Journal of Mycology 1887, 1724 p. 56. — Sporis subglobosis, 7-10 μ . diam., echinulato-tuberculatis, coacervatis subatris.

Hab. in ovariis, quæ inflata fiunt, Uniolæ gracilis Texas Americæ borealis.

89. **Ustilago Schweinitzii** Tul. in Ann. Sc. Nat. 1847, p. 86, Fisch. 1725 Aperçu p. 24, *Uredo Zeæ* Schwein. Fung. Car. sup. pag. 45 non aliorum. — Soris atro-griseis; sporis episporio nigrescente tectis.

Hab. in spicis Zeæ Maydis in Carolina sup. Amer. borealis. — Gigantea, usque ad 60 cm., spicas investit pulvere capillaceo, nigro-cinereo. «An ab Ustilagine Maydis diversa». Affinior *Ust. Carici* quam *Ust. segetum*.

90. **Ustilago Bursa** Berk. in Hook. Journ. 1854, p. 206, Dec. n. 466. 1726 — Soris virescentibus, 5 mm. longis; sporis ellipticis, crassiusculis, 10-11 μ . longis, fuligineo-atris, verrucoso-echinatis.

Hab. in ovariis Anthistiria arundinaceæ Sikkim India (Dr. Hooker). — Ab *Ust. Maydis* sporis distincta.

91. **Ustilago Gayophyti** Ell. et Harkn. New Calif. Fungi pag. 16. — 1727 Soris pulverulentis, ovatis, epidermidem mox rumpentibus; sporis ovatis vel globosis, 14-18 μ . diam., obscure brunneis, subtiliter echinulatis.

Hab. intra semina Gayophyti ramosissimi in cacumine Sierra Nevada Californiæ.

92. **Ustilago Cesatii** Fisch. de Waldd. Aperçu p. 25, *Uredo* (*Ustilago*) *Syntherisma* Schwein. Syn. Fung. Amer. bor. p. 290, n. 2815, Ell. et Ev. N. Am. F. n. 1890. — Soris atris; sporis inæqualibus, rotundatis, 10-12 μ . diam., ovatis vel rotundato-polyedricis, 14 $\approx$ 12, vel oblongo-polyedricis 12-14 $\approx$ 8-10, saturate brunneis, episporio crasso, breviter aculeolato.

Hab. in calycibus, ovariis floribusque, quæ destruit, *Andropogonis*, *Cenchræ*, *Panici* et *Digitariæ* in America boreali. — «Specimina Ellisiana sporas præbent 7-10 μ . diam. globosas, guttulatas, subleves».

D. Sporæ lineolis obsitæ.

93. **Ustilago Parlatorei** Fisch. de Waldd. in Hedwigia 1876, p. 177, Aperçu p. 29, Winter Die Pilze p. 98. — Soris obscure violaceo-rufescentibus; sporis plerumque irregulariter rotundatis, raro breviter ovatis, 10-15 μ . diam., obscure violaceis, subpellucidis, lineolis vacuolisque reticuli majusculis.

Hab. in caulibus ramisque, in superiori radicis parte, in basi petioliformi foliorum *Rumicis maritimi* et *obtusifolii* in Germania, Italia et prope Moskau Rossicæ. — Partes matricis infectæ valde bullatæ, abbreviatæ fiunt, modo vario incurvæ demumque siccæ, omnino a fungillo enecatæ.

94. **Ustilago Kühneana** Wolff in Botan. Zeitung 1874, p. 814, Fisch. Aperçu p. 29, Winter Die Pilze p. 98, Bref. Unters. V, pag. 83, t. 5, f. 12-20. — Soris obscure ferrugineo-violaceis, maculi- vel striiformibus; sporis globosis vel irregulariter rotundatis, 10-16 μ . diam., obscure violaceis, episporio reticulato instructis, promycelio 2-3-septulato; sporidiolis minutissimis.

Hab. in caulibus, paniculis, floribus foliisque *Rumicis Acetosæ* et *Acetosellæ* in Germania, Britannia et Italia.

95. **Ustilago violacea** (Pers.) Fuck. Symb. myc. p. 39, Cooke M. F. t. V, f. 102-104, Winter Die Pilze pag. 98, Sheroet. Pilz. Schles. p. 273, Bref. Unters. V, p. 36, t. 1, f. 1-27, *Uredo violacea* Pers. Disp. meth. p. 57, *Farinaria Stellaricæ* Sow. Engl. Fungi t. 396, f. 1, *Uredo antherarum* DC. Fl. Franc. VI, p. 79, *Cavoma antherarum* Nees Syst. pag. 14, t. 1, f. 5, *Erysibe antherarum* Wallr. Fl. Crypt. Germ. II, p. 217, n. 1671, *Ustilago antherarum* Fr. Syst. Myc. III, p. 518, Tul. in Ann. Scienc. Nat. 1817, p. 96.

t. IV, f. 12-19, t. V, f. 23, *Microbotryum antherarum* Lév. in Ann. Scienc. Nat. III, 8, pag. 372, *Cavoma violaceum* Mart. Fl. Erlang. p. 315? — Soris indeterminatis, pallide vel obscure violaceis, in antheris, rarius in ovariis evolutis, pulverulentis; sporis globosis, 6-9 μ . diam., raro breviter ellipticis, episporio dilute violaceo, reticulato, lineolis 0,5 μ . altis, areolis subtilissimis, 0,5 μ . latis; promycelio fusiformi, 1-vel 3-septato; sporidiolis ad septa vel ad apicem solitarie evolutis, ellipsoideis vel ovatis; cellulis germinantibus oblongo-ellipticis.

Hab. in antheris ovariisque *Silenes quadrifidæ*, inflatæ, nutantis, chloranthæ, *Otites*, rupestris, coronariæ flos-Cuculi, *Viscaria vulgaris*, *Melandryi albi* et rubri, *Dianthi Carthusianorum*, deltoidis, glacialis, superbi, *Saponariæ officinalis*, *Pinguiculæ alpinæ*, *Malachii aquatici*, *Stellarie gramineæ* in Italia, Gallia, Germania, Transylvania, Bohemia, Helvetia, Austria, Belgio, Britannia, Amer. bor. — Sec. Tulasne etiam apicem ovarii infestat.

96. **Ustilago Holostei** De Bary in Fischer de Wald. Beitr. zur Biol. 1732
Ustilag. p. 105, Aperçu p. 27, Winter Die Pilze p. 99, Schroet. Pilz. Schles. p. 274. — Soris atro-violaceis, semina destruentibus capsulamque pulvere sporarum complentibus; sporis globosis, 8-13 μ . diam., pellucidis, obscure violaceis, reticulatis, lineolis usque ad 1,5 μ . altis.

Hab. in antheris ovariisque *Holostei umbellati* in Germania.

97. **Ustilago Scabiosæ** (Sow.) Winter Die Pilze pag. 99, Schroet. 1733
Pilz. Schles. p. 272, Bref. Unters. V, p. 78, t. 5. f. 1-6, *Farinaria Scabiosæ* Sow. Engl. Fungi t. 396, f. 2, *Ustilago flosculorum* DC. Fl. Franc. VI, pag. 79 (Uredo), Wint. Die Pilze p. 99, *Cavoma flosculorum* Link Sp. II, pag. 21, *Ustilago flosculorum* Fr. Syst. Myc. VII, pag. 518 vix *Erysibe flosculosorum* Wallr. Fl. Crypt. Germ. II, n. 1648. — Soris dilute carneis, subalbidis, in antheris evolutis, pulvere flores ex toto replentibus; sporis globosis, raro breviter ellipticis, 8-10 μ . diam., episporio subhyalino, reticulato lineolis circ. 1 μ . altis, areolis polygonis 1 μ . latis ornato, dilute brunneolis vel sordide violaceis, pellucidis; promycelio cylindrico, plerumque 3-septulato; sporidiolis ellipticis, ad septa solitariis, subinde etiam acrogenis.

Hab. in antheris *Knautiæ arvensis* et *Scabiosæ* co-

lumbariae in Germania, Gallia, Britannia, Helvetia. — «An huc, suadente Winter, pertinet *Ustilago Succisæ* Magnus?»

98. **Ustilago intermedia** Schroet. in Rabenh. F. E. n. 1696, Fisch. Aperçu p. 28. — Soris obscure violaceis; sporis globosis vel ellipsoideis, 11-15 μ . diam., violaceis, reticulatis.

Hab. in floribus Scabiosæ Columbariæ in Germania et Britannia. — «An eadem ac *Ustilago Scabiosæ*?»

99. **Ustilago Succisæ** Magnus in Hedwigia 1875, p. 17, Fisch. Aperçu p. 30. — Soris albidis; sporis globosis vel subirregulariter rotundatis, 15-17 μ . diam., hyalinis.

Hab. in antheris Succisæ pratensis in Germania. — «An, suadente Dr. Winter, *Ustilagini Scabiosæ* referenda?»

100. **Ustilago Betonicæ** Beck. Zur Pilzfl. Niederoest. pag. 4, Winter Die Pilze p. 100, Bref. Unters. V, p. 76, t. 4, f. 17-21. — Sporis globosis vel irregulariter rotundatis vel oblongis, subinde sphaeroido-angulatis, 7-17 μ . diam., plerumque 12 μ . diam., obscure violaceis, subimpellucidis, dense reticulatis; sporidiolis oblongo-cylindraceis, apice obtusiusculis.

Hab. in antheris Betonicæ Alopecuri in Austria. — Ab *Ust. violacea* characteribus sporarum rite dignoscenda.

- S 101. **Ustilago utriculosa** (Nees) Tul. Ustil. pag. 102, t. IV, f. 2-6, Fisch. Aperçu p. 28, Winter Die Pilze p. 100, Schroet. Die Pilze Schles. p. 273, *Ustilago Persicariæ* Chr. Mentz. Indic. hom. plant. p. 324?, *Erysibe utriculosa* Wallr. Fl. Crypt. Germ. II, n. 1669, *Cecoma utriculosum* Nees Syst. p. 14, t. 1, f. 6, *Uredo utriculosa* Duby Bot. Gall. II, p. 901 p. p., Corda Icon. II, p. 2, t. VII, f. 12, *Ustilago utriculorum* Fr. Syst. Myc. III, p. 519, *Sporisorium muricatum* Ces. in Klotzsch.-Rabenh. Herb. myc. n. 1693, *Pericelium utriculosum* Bonord. — Soris obscure violaceis, ætate provecta brunneo-violaceis, pulverulentis, per epidermidem fissam erumpentibus; sporis globosis vel ellipsoideis, 9-14 μ . diam., episporio amœne violaceo, siccitate brunneo-violaceo, eleganter reticulatis, lineolis prominulis 2 μ . altis, arcolis 3 μ . latis; promycelio cylindrico, 3-septulato; sporidiolis ellipsoideis ad septa binatis, per 2 inter se copulantibus.

Hab. in ovariis filamentisque staminum Polygoni lapathifolii, Persicariæ, Hydropiperis, pennsylvanici, dumentorum, acris, minoris, avicularis in Italia, Bohemia, Hungaria, Helvetia, Austria, Germania, Belgio, Neerlandia, Gallia.

Fennia, Rossia, Britannia, America boreali, Boca del Riachuelo Argentinae (SPEGGAZZINI).

102. **Ustilago Cardui** Fisch. de Wald. in Bull. Soc. Nat. Moscou 1738

1867, I et Aperçu p. 29, Winter Die Pilze p. 101, Schroet. Pilz. Schles. p. 274, Bref. Unters. V, p. 86, tab. 6, fig. 1-16, *Ustilago Reessiana* Kühn in Rabenh. Fungi europæi n. 1798 et 1799, *Ustilago Cardui-acanthoidis* Rees. in herb. — Soris obscure brunneo-violaceis, ætate provecta brunneis, pulverulentis, flores complentibus capitulumque deformantibus; sporis globosis vel ellipsoideis, 15-20 $\approx$ 11-15, episporio brunneolo-violaceo, ætate provecta pallide brunneo, reticulato, lineolis validis, 2,5 μ . circ. altis, areolis 2-2,5 μ . latis; promycelio cylindrico, septulato; sporidiolis ovoideis.

Hab. in ovariis Cardui acanthoidis et nutantis nec non Silybi Mariani in Germania.

103. **Ustilago Tragopogi** (Pers.) Schroet. Pilz. Schles. p. 274, Winter. 1739

Die Pilze p. 101, Bref. Unters. V, p. 81, t. 5, f. 7-11, (*Ust. Tragopogi-pratensis*), *Erysibe receptaculorum* Wallr. Fl. Crypt. Germ. II, n. 1663, *Ur. Tragopogi-pratensis* Pers. Syn. Fung. p. 225, *Ur. Trag.* Schum. Saëll. II, p. 234, *Uredo Trogopogonis* Roehl Deutsch. Fl. III, p. 129, *Microbotryum receptaculorum* Lév. in Ann. Sc. Nat. III, 8, p. 372, *Ur. receptaculorum* De C. Flor. Franc. p. 79, *Ustilago receptaculorum* Tul. in Ann. Sc. Nat. 1847, VII, t. 4, f. 1, *Ust. purpurea* Bon. Con. u. Crypt. p. 27, pr. p. *Cœoma receptaculorum* Link Sp. II, p. 17, *Uredo receptaculi* Strauss in Wett. Ann. II. — Soris atro-violaceis, capitula destruentibus (jam in gemma), foliolis involucris tectis; sporis sphaericis plerumque irregulariter rotundatis vel subellipticis, 13-17 $\approx$ 10-15, episporio obscure violaceo, subimpellucido, lineolis 1 μ . altis, areolis 1-15 μ . diam. eleganter reticulato; promycelio cylindræo, 3-septulato; sporidiolis oblongo-ellipticis, ad septa evolutis, binatim sese copulantibus.

Hab. in capitulis Tragopogonis specierum nonnullarum, imprimis T. pratensis in Italia, Gallia, Belgio, Britannia, Helvetia, Neerlandia, Carniola et Fennia.

104. **Ustilago major** Schroet. Pilz. Schles. p. 273. — Soris atro-vio- 1740

laceis, in antheris evolutis easque subdeformantibus, pulveraceis; sporis globosis vel ellipsoideo-oblongis, 7-13 $\approx$ 7-9, episporio violaceo, lineolis 1 μ . altis, areolas 1 μ . latas relinquentibus, reticulatis.

Hab. in antheris Silenes Otites in Silesia Germaniæ.

- S 105. **Ustilago Scorzonerae** (Alb. et Schwein.) Schroet. Pilz. Schles. p. 274, *Uredo Tragopogi* var. *Scorzonere* Alb. et Schwein. — Soris atro-violaceis, in partibus floralibus evolutis, mox pulverulentis, et tantum parce receptaculum incolentibus; sporis globosis, plerumque 9-11 μ . diam., episporio obscure violaceo, reticulato, lineolis 1 μ . circ. altis, areolis 1,5-2 μ . latis.

Hab. in floribus *Scorzonerae* humilis, purpureae et hispanicae in Germania.

- S 106. **Ustilago Goeppertiana** Schroet. Pilz. Schles. pag. 272. — Soris plerumque candidis vel pallide, rarius saturate violaceis, in contextu foliorum petiolorum, rarissime caulium et florum evolutis, subinde totum folium inquinantibus (quod incrassatum pallidius, pulvere faretum apparet); plerumque epidermide tectis vel laceratione erumpentibus; sporis globosis vel ellipticis, 11-15 μ 11-13, episporio hyalino vel dilutissime violaceo, reticulato, areolis compressis, polygonis, circiter 1 μ . latis; germinationis modo ignoto.

Hab. in Rumice *Acetosa* in Silesia Germaniae.

- S 107. **Ustilago anomala** Kunze in Fungi sel. n. 23, Winter Die Pilze p. 100, Schroet. Pilz. Schles. p. 272, *Ustilago pallida* Schroet. in Thümen Mycoth. Univ. n. 1317, Fischer. de Wald. Aperçu Ustilag. p. 30 non Körnicke. — Soris carneo-rufis (siccis pallide rufo-brunneis), pulverulentis, flores ex toto replentibus, bursiformi-expansis; sporis globosis vel ellipsoideis, 9-12 μ . diam., usque ad 14 μ . longis, episporio pallido, violaceo-rubiginoso, sicco pallide brunneo, reticulato; lineolis circ. 1,5 μ . altis, areolis 2 μ . latis; sporis majoribus, levibus, hyalinis saepe cominixtis; promycelio cylindraceo, 3-septulato; sporidiolis ellipsoideis, unilateraliter explanatis, ad septa geminatim evolutis, ad originem copulatis.

Hab. intra partes florales *Polygoni Convolvuli*, cilindricis et dumetorum in Germania, Dania et Grafton New York Amer. borealis (Рёкк).

- S 108. **Ustilago capensis** Reess in Sitzb. phys. med. Erlang. 1875. — Ovariicola; soris aureo-flavis, pulverulentis, ovaria elongata, tumefacta replentibus; sporis globosis, 15-16 μ . diam., episporio reticulato, strato triplici constituto, interiori tenui, flavido, lineolis areolisque subhyalinis.

Hab. in ovariiis *Junci capensis* et *lomatophylli*, e Cap. Bonae Spei provenientium in Bremen Germaniae (Buchenau).

109. **Ustilago? Secalis** Rabenh. in Flora 1849, p. 209, Fisch. Aperçu 17

p. 27, Cfr. *Tilletia*. — Soris inodoris, atro-brunneis; sporis globosis, rarissime ovoideis, 12-12,5 μ . diam., flavido-brunneis, reticulatis.

Hab. in ovariis *Secales cerealis* in Germania, Italia et Bohemia.

E. Species addendæ.

10. **Ustilago minima** Arth. Prelim. List. of Iowa Uredineæ p. 172. 1746
— Sporis rotundatis, isodiametricis vel irregulariter oblongis ovatisque, læte brunneis, pellucidis, 3-4,5 μ . diam., levibus.

Hab. in inflorescentia *Stipæ spartææ*, Iowa Amer. bor.

11. **Ustilago rotundata** Arth. Prelim. List. of Iowa Uredineæ p. 173. 1747
— Sporis sphaericis vel irregulariter rotundatis, e flavescenti obscure brunneis, pellucidis, episporio crasso, subtiliter denseque papilloso instructis, 20-25 μ . diam.

Hab. in ovariis *Panici virgati*, Iowa Americæ borealis. — Ovaria massa brunnea, pulverulenta tecta.

F. Species minus notæ.

112. **Ustilago spermoidea** B. et Br. Fungi of Ceyl. n. 842, Fisch. 1748
Aperçu p. 31. — Elongata, epidermide papyracea cincta; sporis angulatis, irregularibus, 7,6-10 μ . diam.

Hab. in *Cymbopogo Martii* Dolosbagey in insula Ceylon.

113. **Ustilago mirabilis** Sorokin Mycol. 1873, p. 28, t. V, f. 28-35, 1749
Fisch. Monogr. pag. 57. — Soris atris, subpulverulentis; sporis 9,7-15 μ . diam.

Hab. in *Phragmite communi* in Russia (?).

G. Species aliæ incertæ, aliæ peridermatis degeneraciones forte sistentes.

114. **Ustilago entorrhiza** Schroet. Brand. und Rostp. p. 7, Winter 1750
Die Pilze p. 102. — Soris brunneis; sporis irregularibus, oblongo-rotundatis aut polyedricis, episporio levi, obscure brunneo-umbrinis.

Hab. in cellulis radiceis *Pisi sativi* in Germania. — «An potius *Entorrhizæ* species?»

115. **Ustilago marina** Dur. in Tul. Super Fr. Taphrin. gen. in Annu. 1751
Scienc. Nat. 1866, p. 133-136, Fisch. Aperçu. p. 17. — Soris brunneo-atris, tumidis; sporis dimorphis, sive globosis vel ovoideis obtusis aut oblongis, 10-13 μ . diam., sive irregulariter ovoideo-ob-

longis, 16 $\approx$ 10–13, pallide olivaceo-brunneis, episporio crasso, levi, aurantiacis.

Hab. in rhizomate *Scirpi parvuli* in Aquitania Galliæ.

116. **Ustilago? hypogæa** Tul. F. Hyp. p. 196, Fisch. Aperçu p. 18.
— Soris atris; sporis rotundatis vel rotundato-polyedricis, 20–24 $\approx$ 14–20, levibus, vix pellucidis, obscure brunneis, contextu oleoso.

Hab. in superiore parte *Linariæ spuriae* in ins. Wight (LOWE). — «An hue *Tuburcinia Linariæ?*»

117. **Ustilago? Hæsendockii** West. in Bull. Soc. bot. belg. t. V, n. 1, 1866, Fisch. Aperçu p. 18, *Protomyces violaceus* Ces. — Soris subtiliter pulveraceis, violaceis; sporis globosis, ovatis, oblongis vel irregularibus, 10–30 $\approx$ 10–15, subhyalinis.

Hab. in cortice radicum *Mori albæ* in Belgio, Italia etc. — Species meram degenerationem peridermatis sistens.

Species excludenda.

118. **Ustilago Cinis** Körn. suadente Winter in Hedwigia 1880, p. 106, est *Myxomycetis* cujusdam forma.

Hab. in *Junco conglomerato* prope Bonn Germaniæ.

CINTRACTIA Cornu in Ann. Scienc. nat. 1883, p. 279, Trel. in Bull. Torrey bot. Club 1888 (Etym. a *CINTRACT* botanico gallico), *Endothlaspis* Sorok. Mat. fl. As. pag. 13. — Sporæ adglutinatæ, tandem liberæ quum maturæ, e stromate compacto subgelatinoso diu fertili pedetentim natæ et a recentioribus extrinsecus rejectæ.

1. **Cintractia axicola** (Berk.) Cornu in Ann. Scienc. Nat. 1883, p. 279, t. XV, f. 1–3, *Ustilago axicola* Berk. Fungi S. Domingo n. 55, Ann. Nat. Hist. 1852, p. 200, t. VIII, f. 2, Fisch. Aperçu p. 14. — Piluliformis, compacta, spicarum axim deformans; sporis globosis vel ellipsoideis, 12–14 μ . diam. vel 18–20 $\approx$ 17–19, subhyalinis, filamentis hyalinis immixtis.

Hab. in fructibus paniculisque vivis *Cyperii*, *Fimbristylis* et *Scirpi* S. Domingo, Cuba, Alabama, Wisconsin Amer. bor., nec non pr. Conception Uruguay Amer. austr. et Brisbane Australiæ. — Annulum continuum sporarum efformat. Huic generi forte pertinet *Ust. Fimbristylis*.

2. **Cintractia Junci** (Schwein.) Trel. in Bull. Torr. botanical Club 1885 cum tabula, Ellis N. Am. Fung. n. 290, *Ustilago Junci* Schw. Syn. Amer. bor. p. 290, Fisch. Aperçu p. 16. — Soris atris, maculiformibus, primo tectis, e pedunculis tumentibus effusis; sporis

oblongis angulatisque irregularibus, 14-21 $\approx$ 12-15, brunneis, subopacis, subtiliter granulatis.

Hab. in pedunculis perianthiisque Junci tenuis, New York (SARTWELL, HOWE), Carolina bor. (CURTIS), Iowa (BESSEY, ARTHUR), Wisconsin (TRELEASE), New Jersey (MARTINDALE). — f. *cylindrica* Wint. Exot. Pilze in Hedwigia 1887, I: sporarum stratis v. soris longis cylindraceis, culmos ambientibus, usque 4,5 cm. longis, circ. 1,5-2 mm. cr., (in sicco) atris vix pulveraceis; sporis ut in typo. Ad culmos vivos Caricis cujusdam, Montevideo Americae australis (ARECHA VALETA). — Primo obtutu *Ephelin mexicanam* Fr. refert.

3. **Contractia? cingens** (Beck) De-Toni, *Ustilago cingens* Beck in 1757 (Est. bot. Zeitschr. 1881, p. 309. — Totam plantam sub epidermide quasi cingens et per rimas nigro-erumpens; sporis subimpellucidis, nigro-fuscis, in media parte paullo dilutioribus, fuscis (saepie colore) varie formatis, maxima ex parte globosis vel irregulariter deplanatis, levibus, paucis verrucis hemisphaericis, hyalinis instructis, 15-20 μ . longis. *

Hab. in caulibus folisque Linariae genistifoliae in Austria (?).

4. **Contractia? Melicae** (Sorok.) De-Toni, *Endothlaspis Melicae* Sorok. 1758 Mat. fl. As. p. 14, t. 1, f. 1-5. — Intra ovaria matura v. fructus orta; sporis glutinato-concatenatis vel aggregatis ovato-globosis vel irregularibus, episporio crassiusculo levi instructis, 2-5 μ . diam.

Hab. in ovariis Melicae ciliatae in Asia centrali.

5. **Contractia? Sorghi** (Sorok.) De-Toni, *Endothlaspis Sorghi* Sorok. 1759 Mat. fl. As. p. 14, t. 1, f. 6-8. — Sporis rotundatis, irregulariter angulatis, 7-10 μ . diam., parce aculeolatis, guttulatis.

Hab. in spicis Sorghi cernui in Asia centrali.

TILLETIA Tul. in Ann. Scienc. Nat. 1847, p. 112 (Etym. a M. TILLET).

— Characteres fere *Ustilaginis*; sporidiola elongato-lineararia, in promycelio coronae ad instar plura acrogena; sori dein pulveracei; conidia sporidiolis similia. Fungilli nonnumquam olidi.

A. Episporium reticulatum.

1. **Tilletia Tritici** (Bjerk.) Wint. Die Pilze pag. 577 Schroet. Pilz. 1760 Schles. p. 110, *Lycoperdon Tritici* Bjerk. in Act. Suec. 1775, p. 326, *Uredo Caries* DC. Fl. Frang. VI, p. 78, *Civoma segetum* Nees Syst. Pilze p. 14, t. I, f. 7, *Uredo sitophila* Ditm. in Sturm

D. C. Fl. p. 69, t. 34, *Cecoma sitophilum* Link Sp. II, p. 2, *Uredo fortida* Bauer in Ann. Sc. Nat. I, 2, p. 167, *Erysibe fortida* Wallr. Fl. Crypt. Germ. II, p. 213, n. 1661, *Erysibe folliculata* Wallr. in Berl. Verhand. I, p. 19, *Ustilago Tritici* C. Bauhin Pin. Buxb. Hal. p. 342 sec. Wallr., *Tilletia Caries* Tul. Mém. sur les Ustilag. pag. 113, tab. V, fig. 1-16, Fisch. Aperçu pag. 49, Bref. Unders. V. pag. 146, tab. 12 et 13, fig. 25-52. — Soris ex atro olivaceo-brunneis, odore fœtido donatis, intra ovaria ortis eaque complentibus tumefacientibusque, semper epidermide tectis, mox pulveraceis; sporis globosis, 14-20 (plerumque 17) μ . diam., brunneis, lineolis 1-1,5 μ . altis, areolis regularibus circ. 3 μ . latis reticulatis; sporidiolis filiformibus, litteræ H ad instar se copulantibus.

Hab. in ovariiis Tritici sativi, duri et Speltæ in Italia, Gallia, Belgio, Britannia, Helvetia, Austria, Germania, Fennia nec non in America boreali.

- c. v. Kuhn*
us Bole 2. **Tilletia olida** (Riess) Winter Die Pilze pag. 107, *Uredo olida* Riess in Klotzsch-Rabenh. Herb. myc. n. 1695, *Tilletia endophylla* De Bary in Rabenh. Herb. myc. ed. nova n. 500, Fisch. Aperçu pag. 49. — Sporis irregulariter sphæroideis vel oblongis, etiam rotundato-polygonis, usque ad 26 μ . longis, 17-23 μ . latis, parum pellucidis, obscure brunneis; episporio lineolis depressis, vacuolos retis angustos limitantibus ornato.

Hab. in foliis Brachypodii silvatici et pinnati in Austria et Germania. — Striiformis, e brunneo subatra.

- S 3. **Tilletia decipiens** (Pers.) Körn. in Winter Die Pilze p. 111, Schroet. 17 Pilz. Schles. pag. 278, *Uredo segetum* var. *decipiens* Pers. Syn. Fung. pag. 225, *Uredo decipiens* var. α . Strauss. in Wett. Ann. II, pag. 111 p. p., *Uredo (Ustilago) sphærococca* Rabenh. Krypt. Fl. I, pag. 4, *Erysibe sphærococca* Wallr. Fl. Crypt. Germ. II, pag. 213, *Tilletia Caries* var. *Agrostidis* Auersw. in Rabenh. F. E. n. 700, *Tilletia sphærococca* Fisch. d. Waldh. in Bull. Soc. Nat. Moscou 1867, I, pag. 14. — Soris atris, ovaria glumasque clausas laxè infarcentibus; sporis globosis vel irregulariter rotundatis, rarius breviter lateque ellipticis, 24-30 $\approx$ 24-26, brunneis, lineolis 2,5-3 μ . altis, areolas reticuli 4 μ . latas limitantibus obsitis; germinatione nondum cognita.

Hab. in ovariiis Agrostidis vulgaris et Agrostidis stoloniferæ in Germania.

- S 4. **Tilletia Secalis** (Corda) Kühn in Fisch. Aperçu p. 50, Winter Die 17 Pilze p. 110, Schroet. Pilz. Schles. p. 278, *Uredo Secalis* Corda

in Illubek (Econ. Neuigk. 1848, 1, p. 9, t. I. — Soris atro-brunneis, foetidis, mox erumpentibus et tum pulverulentis; sporis globosis vel irregulariter subrotundatis, rarius breviter lateque ellipsoideis, 18–23, plerumque 20 μ . diam., episporio castaneo-brunneo, lineolis 2 μ . altis, areolas retis 3–4 μ . latas limitantibus ornato instructis.

Hab. in ovariis Secales cerealis in Germania. — Germinatio nondum nota.

5. **Tilletia Lolii** Auersw. in Klotzsch-Rabenh. Herb. myc. n. 1999, 1764 Winter Die Pilze pag. 109, Schroet. Pilz. Schles. pag. 277, Fisch. Aperçu p. 50. — Soris argillaceo-brunneis, odore *T. Tritici* similibus, in ovariis pustulas efformantibus; sporis plerumque globosis, subinde breviter ellipticis, usque ad 24 μ . longis, 16–22 μ . diam., episporio lineolis 0,5–1 μ . altis, areolas retis 3,5 μ . latas limitantibus ornato ochraceo instructis; sporidiolis longe cylindraceis.

Hab. in ovariis Lolii remoti, linicolae, perennis, temulenti, arvensis in Germania. — Sporae in aqua mox germinant; sporidiola quam *T. Tritici* latiora et crassiora.

6. **Tilletia controversa** Kühn in Rabenh. Fungi europaei n. 1896, 1765 Fisch. Aperçu p. 49, Winter Die Pilze p. 110, Schroet. Pilz. Schles. p. 277. — Soris in ovariis tubercula ut *T. Tritici* efformantibus, foetidis; sporis globosis 19–23, plerumque 21 μ . diam., episporio amone olivaceo-brunneo, lineolis 2–2,5 μ . altis, areolas retis 3–4 μ . latas limitantibus ornato instructis.

Hab. in ovariis Tritici repentis, vulgaris et glauci in Germania. — Germinatio sporidiolorum in aqua nondum observata; mycelium in rhizomate matricis perennans.

7. **Tilletia separata** Kunze Fungi selecti n. 29, Winter Die Pilze 1766 p. 111. — Sporis globosis, frequenter irregulariter rotundatis, rarissime breviter ellipsoideis, 21–26 (plerumque 24) μ . diam., subimpellucidis, obscure brunneis, lineolis 2,5–4 μ . altis, areolis reticuli 4 μ . latis.

Hab. in ovariis Apera Spicae-venti in Germania.

8. **Tilletia calospora** Pass. in Fisch. Aperçu p. 48 et in Grevillea V, 1767 p. 47, Erb. Critt. Ital. II, n. 1133. — Soris atris; sporis globosis, 14 μ . diam., olivaceo-brunneis, reticulato-prominulis.

Hab. in ovariis Andropogonis agrestis in Italia.

9. **Tilletia cerebrina** Ell. et Everh. in Journal of Mycology 1887, 1768 p. 56. — Sporis globosis, 22–28 μ . diam., obscure brunneis, epi-

sporiorum exteriorum hyalino, circ. 2,5 μ . crasso, areolis irregularibus, cerebriformibus.

Hab. in ovarii Deschampsiae caespitosae, Washington Terr. in America boreali (SCRIBNER).

10. **Tilletia Rauwenhoffii** Fisch. de Waldh. Aperçu p. 50, *Polycystis Holci* West. in Bull. Acad. Belg. ser. XI, n. 6, cum icone. — Sporiorum irregularibus, atris; sporis globosis, 26-30 μ . diam., episporio stratis binis efformato, interiore olivaceo-brunneo, exteriori 3-4 crasso, hyalino, areolis latis hexagonis, vix prominulis reticulato.

Hab. intra ovaria Holci lanati in Belgio. — Aptius *T. Holci* (West.) dicenda.

11. **Tilletia Hordei** Körn. in Hedw. 1877, p. 30. — Ovaria occupans eaque in massam oblongam fusco-nigram, membrana inclusam permixtans; sporis globosis vel ovatis, fuliginoso-fuscis, globosis, 19,5-20,5 μ . diam., aliis 21 $\approx$ 19,5, episporio crassiusculo reticulato.

Hab. intra ovaria Hordei fragilis et murini in Persia.

12. **Tilletia fusca** Ell. et Everh. North Amer. Fungi n. 1895 et in Journ. of Mycology 1887, pag. 55. — Sporiorum plerumque globosis, 19-22 μ . diam., vel subinde subovatis, subelongatis vel irregularibus, obscure brunneis, episporio crassiusculo subhexagone reticulato, lineolis circ. 1,5 μ . altis.

Hab. in ovarii Festucae microstachyos, Washington Terr. Americae borealis (SCRIBNER). — A *T. decipiente* Korn. et *T. Rauwenhoffii* Fisch. sporarum characteribus satis differre videtur.

13. **Tilletia asperifolia** Ell. et Everh. in Journal of Mycology 1887, p. 55. — Sporiorum globosis vel subglobosis, 17-20 μ . diam., dilute brunneis, episporio hyalino, circ. 2 μ . crasso, areolis subhexagonis aut irregularibus.

Hab. in ovarii Sporoboli asperifolii, Washington Territory in America boreali (SCRIBNER). — A *T. fusca* E. et E. et *T. montana* E. et E. sporis minoribus differre dicitur.

14. **Tilletia montana** Ell. et Everh. in Journal of Mycology 1887, p. 55. — Sporiorum globosis, 19-22 μ . diam., vel subovatis subelongatis, 18-25 μ . episporio e stratis duobus constituto, exteriori hyalino, 2,5 μ . crasso, irregulariter reticulato, plasmate leniter colorato.

Hab. in ovarii Sporoboli gracillimi, Washington Terr. in America boreali (SCRIBNER).

B. Episporium leve, verrucosum, echinulatum, numquam reticulatum.

15. **Tilletia striiformis** (Westend.) Magnus in Wint. Die Pilze p. 108, 12

Schroet. Pilz. Schles. p. 278, *Uredo striiformis* Westend. in Bull. Acad. Brux. 1857, p. 406, *Ustilago macrospora* Desmaz. Fl. crypt. n. 1727, *Tilletia De-Baryana* Fisch. d. Waldh. in Rabenh. F. E. n. 1097, *Ustilago striiformis* Niessl in Hedwigia 1876, *Tilletia Milii* Fuck. Symb. myc. p. 40, *Ustilago Salveii* Berk. et Br. Brit. Fungi n. 482, *Uredo longissima* var. *Holci* Ces. in Kl. Rabenh. Herb. myc. n. 1498 (sec. Winter), *Uredo (Ustilago) longissima* var. *megalospora* Riess in Klotzsch-Rabenh. Herb. myc. n. 1897. — Soris atro-brunneis, in longas series dispositis, lirelliformibus, subtilibus, primo tectis, dein liberis; sporis sphaericis vel ellipticis aut subirregularibus, raro oblongis, 10-13-17 $\approx$ 8-12, episporio aculeolis usque ad 1 μ . longis, basi reticulato-connexis, densiusculis obsito, olivaceo-brunneo instructis.

Hab. in foliis, vaginis culmisque Alopecuri, Anthoxanthi, Milii, Holci, Arrenatheri, Brizæ, Poæ, Dactylidis, Festuæ, Bromi, Agrostidis, Lolii, Calamagrostidis in Italia, Belgio, Gallia, Austria, Germania, Britannia, Fennia et in America boreali. — Germinatio ut in *Tilletia Tritici*, observante cl. Fischer de Waldheim.

16. **Tilletia Calamagrostidis** Fuck. Symb. myc. pag. 40, Winter Die Pilze p. 108, Schroet. Pilz. Schles. p. 279, Fisch. Aperçu p. 49. — *Tilletiæ striiformi* Wint. habitu similis; sporis globosis aut plerumque irregulariter rotundatis vel oblongis, 12-16 μ . diam., obscure brunneis, subopacis, aculeis longioribus ornatis, clathratis.

Hab. in foliis Calamagrostidis epigeæ, Hallerianæ et Tritici repentis in Germania. — Sec. cl. Winter specimina ad Calamagrostidem Hallerianam aptius ad *T. striiformem* ducenda sunt.

17. **Tilletia levis** Kühn in Rabenh. Fungi Europæi n. 1697, Fisch. 1776
Aperçu pag. 47, Winter Die Pilze pag. 109, Schroet. Pilz. Schles. p. 277, *Ustilago foetens* Berk. et Curt. in Grevillea 1874, p. 59. — Soris *T. Tritici* forma odoreque foetido simillimis; sporis inæqualibus, globosis, ellipticis ovatisve, raro irregulariter oblongis aut angulatis, 14-20 μ . diam., vel 17-23 rarius- 28 $\approx$ 14-18, episporio crasso, levi, pallide, brunneo instructis; sporidiolis ut in *T. Tritici* filiformibus.

Hab. in ovariis Tritici vulgaris, sativi, amylei, hiberni, turgidi, duri, Speltæ et monococci in Italia, Germania et Britannia, nec non prope Montevideo Amer. australis.

18. **Tilletia Magnusiana** Fisch. de Waldh. Aperçu p. 47. — Atra; 1777

sporis globosis, 10-14 μ . diam., ovoideis, explanatis v. acuminatis, 16 $\approx$ 12, pallide flavo-brunneis, episporio dense granulato, subpapilloso.

Hab. in ovariis *Panici geniculati* ins. Antillis (?).

19. **Tilletia Moliniae** (Thüm.) Winter Die Pilze p. 109, *Vossia Moliniae* Thüm. in Öst. Zeitschr. 1879, p. 18, *Neovossia Moliniae* Körn. l. c. n. 7, Voss in Verh. Wien 1879, p. 659, t. 16, f. 2-3. — Sporis ovatis v. ellipsoideis, raro subglobosis 20-30 $\approx$ 14-17, obscure brunneis, opacis, hypha hyalina, filiformi, residua auctis; episporio crasso, foveolato, in sporis maturis plerumque tegumento gelatinoso, hyalino cincto.

Hab. in ovariis *Moliniae cæruleæ* in Carniola (Voss). — Vel semina vel ovaria ex toto implens, subdeformans, augens, inflans, nigrificans, demum disrumpens et protuberans; mycelii hyphis sporiferis longis, tenuibus flexuosisve, hyalinis, apice non dissolutis, stratum gelatinosum, subdurabilem circa sporam maturam cum processu sublongo, sursum sensim incrassato, cormoideo formans.

20. **Tilletia Fischeri** Karst. Symb. myc. XIII, p. 183. — Soris epidermide cinerescens tectis, atris; sporis sphæroideis vel subsphæroideis, fuscis, circ. 14 μ . diam. aut 16 $\approx$ 12.

Hab. in ovariis *Caricis caescentis* prope Vasa Fenniae.

21. **Tilletia Thlaspeos** Beck Pilz. Niederöster. III, p. 40. — Sporis globosis, rarius subglobosis, subpellucidis, ochraceis 14-17 μ . long.; episporio dense verruculoso-aculeato; massa sporarum ochracea.

Hab. in ovulis leguminum vix deformium *Thlaspeos alpestris* prope Redlschlag Austriae (BORBAS).

22. **Tilletia arctica** Rostr. Svampe fr. Finmarken p. 230. — Soris aterritis, linearibus, per epidermidem erumpentibus, longissimis, parallelis; sporis sphæroideis vel ovoideis, 13-19 μ . diam., minutissime papillosis, atro-fuscis.

Hab. in foliis caulibusque *Caricis festivæ* in Finmarkia.

23. **Tilletia? glomerulata** Cocc. et Mor. Enum. Fungh. Bologna cent. II, p. 6, t. 1, f. 1-3. — Soris glomerulatis vel sphæroideis, foliicolis, depressiusculis, cinereo-fuscis, epidermide atro-brunnea involutis, 0,8-1 mm. latis; sporis globosis, 8-10 μ . diam., pallide lateritiis, levibus, episporio brunneo, intus granulosis.

Hab. in foliis *Medicaginis*, *Plantaginis lanceolatae* et *Cynodonti Dactyli* in prov. bononiensi Italiae bor. (Doct. DOM. RIVA).

24. **Tilletia epiphylla** Berk. et Br. Fungi from Brisbane p. 67, n. 237. — Pustulis brevibus, epiphyllis; sporis globosis, 35 μ . diam., granulis faretis, levibus, fuscis.

Hab. in foliis Zeæ Maydis Brisbane Queensland (BAILEY).

— Pustulæ 250–500 μ . longæ, pallidæ, brunneæ, maculis flavis.

Species minus notæ.

25. **Tilletia Avenæ** Ule in Hedwigia 1886, p. 113. — Folia bullata 1784
efformans; sporis.....

Hab. in Avena pratensi prope Koburg Germaniæ.

26. **Tilletia aculeata** Ule in Hedwigia 1886, p. 112. — *Tilletiæ strii-* 1785
formi similis; sporis majoribus, obscurius coloratis, distincte acu-
leolatis.

Hab. in foliis vaginisque Agropyri repentis in silvulis pr.
Koburg aliisque locis Germaniæ. — Sori atri, intumescences, plu-
rimi confluentes, dein epidermide rupta cæruleo-grisei.

27. **Tilletia Brizæ** Ule in Hedwigia 1886, p. 113. — Habitus *Tille-* 1786
tiæ striiformis; sporis paullulo majoribus, regularibus.

Hab. in foliis etc. Brizæ mediæ in Germania.

28. **Tilletia alopecurivora** Ule in Hedwigia 1886, p. 113. — Sori 1787
striiformibus, sæpe erumpentibus, subtilibus; sporis.....

Hab. in foliis Alopecuri pratensis in Germania.

29. **Tilletia sterilis** Ule in Hedwigia 1886, p. 114. Sporis papillosis. 1788

Hab. in foliis Festuæ ovinae et Kœleriae cristatæ in
Germania.

ENTYLOMA De Bary in Botan. Zeitung. 1874, pag. 101, Winter Die
Pilze p. 111, Schroet. Pilzfl. Schles. p. 281 (Etym. ab *entyloo*
turgesco). — Mycelium intercellulare, haud gelatinosum; sporæ
solitariae, in hyphis terminales vel intercalares, ut in *Tilletia* ger-
minantes, sæpe gregatim congestæ, episporio crasso, plerumque
pluristratoso, hyalino v. brunneolo v. brunneo-fusco, levi v. foveo-
lato; promycelium filiforme; sporidiola plura acrogena, elongata,
pro more per paria copulantia. Conidia (in nonnullis speciebus) in
hyphis brevibus exeuntibus acrogena, cæspitulos albos indetermina-
tos efformantia (*Cylindrosporium*).

A. Sori maculas indeterminatas, albidas vel brunneolas, explanatas,
efformantes, non vel vix superficiem matricis tumefacientes.

1. Evolutio conidiorum vel sporidiolorum in matrice viva observata.

1. **Entyloma serotinum** Schroet. in Cohn Beitr. II, pag. 437, Pilz. 1789
Schles. pag. 281, Winter Die Pilze pag. 113. — Maculis expla-
natis, rotundatis, 2–4 mm. latis, primo albidis, late expansis, dein
brunneolis; sporis globosis, raro angulatis vel oblongis, 11–14 μ .

diam., episporio tenuiusculo, levi, pallide brunneo instructis; conidiis solitariis, apicalibus, filiformibus, 26-50 $\approx$ 2,2-3, utrinque acuminatis, hyalinis, cæspitulum albidum efficientibus.

Hab. in foliis *Borraginis officinalis*, *Symphyti officinalis* et *tuberosi* in Austria et Germania.

- § 2. **Entyloma canescens** Schroet. Beitr. II, p. 372, Pilz. Schles. p. 281, Winter Die Pilze p. 113. — Soris maculas explanatas, orbiculares, 1-3 mm. latas, griseolas, primo sporidiolis obsitas efformantibus; sporis globosis vel irregulariter sphaeroideis, subinde uno latere explanatis, rarissime ellipticis, 11-13 μ . diam., episporio tenuiusculo, levi, dilute brunneo instructis; sporidiolis in planta viva germinantibus, cylindraceis, 26-40 $\approx$ 2,5-2.

Hab. in foliis *Myosotidis palustris*, *silvaticæ*, *cæspitosæ*, *intermediæ* et *strictæ* in Silesia Germaniæ (SCHROETER) et Italia boreali (COCCONI et MORINI).

- S 3. **Entyloma fuscum** Schroet. in Cohn Beitr. II, p. 373, Pilz. Schles. p. 282, Winter Die Pilze p. 112, *Entyloma fuscillum* Schroet. in Rabenh. F. E. n. 2495. — Soris maculas explanatas, orbiculares, 3-6 mm. latas, primo albidas, dein obscure brunneas, demum atras, rufo-marginatas efformantibus; sporis irregulariter sphaeroideis vel ellipticis, 11-16 μ . diam., episporio castaneo-brunneo, levi, (in sporis vivis) tegumento gelatinoso, crasso cincto, primo hyalino, dein castaneo-brunneo instructis; sporidiolis (conidiis?) in soris juvenilibus, cæspitulosis.

Hab. in foliis *Papaveris Argemones* et *Rhœadis* nec non *Glauci lutei* in Germania et Gallia. — Sporæ, sec. Winter, etiam 17-23 μ . diam. metientes.

4. **Entyloma bicolor** Zopf in Rabenh. F. E. n. 2496, Wint. Die Pilze p. 112. — Maculis rotundis vel oblongis, explanatis, 1-10 mm. vel ultra longis, superne rufo-brunneis vel brunneis, inferne griseo-albidis; sporis sphaericis vel ellipticis vel polygonis, circ. usque ad 23 μ . longis, 12-17 μ . diam., episporio gelatinoso, variæ crassitudinis, primo hyalino, dein brunneo; conidiis in hyphis simplicibus vel ramosis, e stromatibus cæspitose ad paginam inferiorem folii emergentibus, cylindraceis, incurvis, basi angustatis, apice rotundatis, continuis vel septatis, 10-22 $\approx$ 3, hyalinis.

Hab. in foliis *Papaveris Rhœadis* et *dubii* in Germania et Britannia. — «An ab *Entylomate fusco* Schroet. sat distinctum?».

- § 5. **Entyloma Ranunculi** (Bonord.) Schroet. Pilz. Schles. p. 282, Win- 1

ter Die Pilze p. 112, *Fusidium Ranunculi* Bonord. Handb. p. 43, *Protomyces Ficarivæ* Cornu et Roze in Bull. Soc. bot. Fr. 1874, p. 161, *Protomyces microsporus* (Ung.) Cooke in Grevillea 1875, p. 181, *Entyloma Ungerianum* De Bary forma *Ficarivæ* Wintor in Rabenh. F. E. n. 1873, *Entyloma Ficarivæ* Fisch. de Waldh. in Bull. Soc. nat. Moscou 1877, II, p. 4, *Entyloma verruculosum* Fisch. l. c. p. 5, p. p. — Soris in maculis orbicularibus, 2-5 mm. diam., explanatis, primo candidis dein flavis vel brunneolis, numerosis, prima ætate sporidiolorum strato tectis evolutis; sporis globosis, 11-14 μ . diam., episporio levi, circ. 1 μ . cr., dilute brunneis; sporidiolis fusoideis aut filiformibus, usque ad 40 μ . longis, 2-3 μ . crassis, hyalinis.

Hab. in foliis Ranunculorum nonnullorum in Italia, Gallia, Austria, Germania. — Forma **Thalictri** Farlow in Bot. Gaz. 1883, Aug. p. 4. In Thalicetro dioico Amer. bor. Wisconsin (TRELEAS). Forte hæc varietas est *E. Thalictri* Schroet.

6. **Entyloma Corydalis** De Bary in Botan. Zeit. 1874, p. 104, Winter Die Pilze p. 115, Schroet. Pilz. Schles. p. 282, Fisch. Monogr. p. 90. 1794
— Soris in maculis 1-3 mm. latis, explanatis, primo candidis, demum brunneolis dispositis, prima ætate conidiorum strato albo cæspitoso tectis; sporis globosis vel ellipticis vel polygonis, 10-13 μ . diam., episporio crasso, flavo-brunneo, punctulis undulatis, irregularibus ornato tectis; conidiis (an sporidiolis?) oblongo-cylindraceis, usque ad 30 μ . longis, 2,5 μ . latis.

Hab. in foliis Corydalis cavæ et solidæ in Germania.

7. **Entyloma Helosciadii** Magnus in Hedwigia 1882, p. 129 cum icon. 1795
— Pustulis albis, amphigenis, capitis aciculæ magnitudinem metientibus; sporis inter fila mycelica evolutis, plerumque plurimis subconcatenatis, rarius in hyphis mycelii seriatim acrogenis, hyalinis, episporio tenui, levi, æquali instructis, 7,5-10 $\approx$ 6-6,5, jam in matrice viva germinantibus; promycelio apice sporidiola bacillaria, sterigmate instructa vel destituta generante.

Hab. in foliis Helosciadii nodiflori prope Creuznach Germaniæ (Dott. GEISENHEYNER). — Ab *Entyl. Eryngii* diversum videtur.

8. **Entyloma Catabrosæ** Johans. Svamp. fran Island. t. XXIX, f. 3. 1796
— Soris minutis, plerumque rotundatis, sub epidermide nidulantibus, sparsis vel subgregariis, initio pallide cinereo-roseis, conidiis instructis, deinde cinereo-fuscis vel atro-fuscis; sporis plerumque rotundatis, laxè congregatis, episporio subfusco, levi non tenui

sæpe passim crassiore, 10-12 $\approx$ 6, raro 15 μ . longis; conidiis fusoido-oblongis, plerumque curvulis, hyalinis, simplicibus, 8-10 $\approx$ 3; cæspitibus totum sorum occupantibus.

Hab. in foliis vivis Catabrosæ aquaticæ, Holar Islandiæ borealis.

9. **Entyloma irregulare** Johans. Svamp. fran Island. p. 159, t. XXIX, f. I. — Soris plerumque rotundatis, sub epidermide nidulantibus, sparsis vel subgregariis, initio cinereis, conidiis niveis instructis, deinde atris, 0,25-1,8 mm. diam.; sporis dense congregatis, inter se valde variantibus, episporio levi, subfusco, tenui, 9-16 $\approx$ 8-12, raro 20 $\approx$ 6; conidiis fusoido-oblongatis, sæpe apice crassioribus, leniter curvulis, simplicibus, hyalinis circ. 10 $\approx$ 1,5-3; hyphis brevibus, sæpe ramosis; cæspitibus irregulariter dispositis.

Hab. in foliis vivis Poæ annuæ, Eyjafjörður, Beykhús Islandiæ borealis. — «An idem ac *E. crustophilum* Sacc.? ».

10. **Entyloma Winteri** Linh. Fungi Hungarici n. 206. — Hypophyllum; sporis globosis vel irregulariter rotundis, raro ovatis vel polygonis, 12-16 μ . diam.; episporio crasso, flavo-fusco, distincte tuberculoso; conidiis in foliis vivis evolutis.

Hab. in foliis Delphinii elati in Transylvania. — Ab *E. Ranunculi* Bon. et *E. Corydalis* De Bary distinctum.

11. **Entyloma Matricariæ** Rostr. in Thümen. Mycoth. Univ. n. 2223. — Soris subcandidis, subverrucosis, gregariis; sporis globosis vel irregulariter globosulis, episporio tenui, levi, pallide fusco præditis, 12-13 μ . diam.; conidiis ovalibus, 4-6 $\approx$ 2-2,5.

Hab. in foliis Matricariæ inodoræ et Tripleurospermum disciformis prope Upsala (JOHANSON) aliisque locis Sueciæ (LAGERHEIM).

12. **Entyloma Lobeliæ** Farlow Crypt. Fl. Whit. Mount. pag. 238. — Sporis læte coloratis, globosis v. subangulatis, 3-15 μ . diam., raro 7,4-11,5; episporio tenui; conidiis anguste fusoides, 10-25 $\approx$ 2-3.

Hab. in foliis Lobeliæ inflatæ New England, Maine et Massachussets Amer. bor.

2. Evolutio conidiorum vel sporidiolorum in matrice viva haud observata.

8

13. **Entyloma Thalictri** Schroet. Pilz. Schles. pag. 282. — Sporis in maculis irregularibus, 1-2 mm. latis, explanatis, brunneolis, congestis, sphæroideis vel angulatis, 9-13 μ . latis, episporio irregulariter crasso, usque ad 3 μ . crasso, dilute brunneo, punctulato instructis.

Hab. in foliis *Thalictri minoris* var. *silvatici* in Silesia Germaniæ.

14. **Entyloma verruculosum** Pass. in Rabenh. F. E. n. 2253, Winter 1802
Die Pilze p. 116, Schroet. Pilz. Schles. p. 283. — Soris maculas explanatas ad inferiorem paginam folii primo albido-flavas, usque ad 12 mm. latas, flavo-marginatas efformantibus; sporis globosis vel irregulariter sphaeroideis, rarius breviter vel late ellipsoideis, 11-15 μ . diam., usque ad 17 μ . longis, episporio verrucis latis, compressis rotundatisque obsito, dilute flavo-brunneo instructis.

Hab. in foliis *Ranunculi lanuginosi* in Italia et Germania.

15. **Entyloma Fischeri** Thüm. in Œst. bot. Zeitschr. 1879, p. 357, 1803
Winter Die Pilze p. 114. — Maculis irregularibus, pallide flavo-viridulis, demum brunneo-viridibus, haud vel tantum paullulum bul-lato-convexis; sporis sparsis, late ellipsoideis, 14-18 $\approx$ 12-18, e flavido hyalinis, episporio tenuiusculo, levi instructis.

Hab. in foliis *Stenactidis bellidifloræ* in Austria infer.

16. **Entyloma Chrysosplenii** (Berk. et Br.) Schroet. in Cohn Beitr. II, 1804
pag. 372, Pilz. Schles. pag. 283, *Protomyces Chrysosplenii* Berk. et Br. in Ann. Nat. Hist. 1875. — Soris maculas orbiculares, 2-6 mm. latas, explanatas, primo albidas, dein pallide flavescentes efformantibus; sporis globosis aut breviter ellipsoideis, 10-12 μ . diam., episporio tenui, subhyalino, æqualiter levi instructis.

Hab. in foliis *Chrysosplenii alternifolii* in Britannia et Germania.

17. **Entyloma Linariæ** Schroet. in Cohn Beitr. II, p. 371, Pilz. Schles. 1805
p. 283, Winter Die Pilze p. 116. — Soris maculas rotundatas vel irregulares, sæpe confluentes, 2-6 mm. latas, explanatas, primo albidas, demum pallide brunneolo-marginatas efformantibus; sporis globosis, breviter ellipticis vel angulatis, 11-14 $\approx$ 9-12, episporio flavo-brunneo, hinc illinc irregulariter incrassato-angulato, 2-2,5 μ . crasso instructis.

Hab. in foliis *Linariæ vulgaris* in Germania et Gallia nec non in foliis *Veronicæ peregrinæ* Wisconsin Americæ borealis (TRELEAVE).

18. **Entyloma crastophilum** Sacc. in Mich. I, pag. 540, Winter Die 1806
Pilze p. 114, *Thecaphora Dactylidis* Pass. in Fisch. de Waldh. Aperçu p. 34 (sec. Winter.). — Sporibus hinc inde dense gregariis, parenchymate innatis, maculas minutas $\frac{1}{4}$ - $\frac{3}{4}$ mm. diam., utrinque conspicuas, cinereo-fuscas efficientibus, globosis vel globoso-angu-

latis, 10 $\approx$ 8-10, lutescentibus, nucleo granuloso-farcto pallidiore, episporio 1,5-2 μ . crasso.

Hab. in foliis subviviſ Poæ annuæ et bulbosæ et Dactylidis glomeratæ pr. Mantova (MAGNAGUTI), Parma (PASSERINI) et Beverara (COCCONI et MORINI) in Italia boreali, ſocia ſæpe *Setpioria Bromi* f. *Poc.* — « Cum *E. irregulari* Johans. comparandum ».

19. **Entyloma Picridis** Rostr. in Winter Die Pilze p. 115, Fiſch. Entyl. p. 3, n. 2. — Maculis explanatis, griseo-brunneolis, ſæpius (præſertim prima ætate) late flavo-marginatis; ſporis ſphæroideis vel angulatis, ſæpe suboblongis, uſque ad 17 μ . longis, 10-15 μ . latis, episporio crasso, flavo-brunneo, stratoſo inſtructis.

Hab. in foliis Picridis hieracioidis in Suecia et Germania.

- S 20. **Entyloma Eryngii** (Corda) De Bary in Botan. Zeit. 1874, p. 105, t. II, fig. 23-24, Winter Die Pilze p. 115, Schroet. Pilz. Schles. p. 283, *Physoderma Eryngii* Corda Icon. Fungor. III, p. 3, t. 1. f. 8, *Protomyces Eryngii* Fuck. Symb. myc. p. 75. — Soris pustulas irregulares, dilute brunneas, rotundatas vel angulatas, ſæpe confluentes, 1-3 mm. diam., explanatas aut bullato-convexas efformantibus; ſporis globosis vel oblongo-angulatis aut ellipſoideis, variabilibus, 10-21 $\approx$ 10-15, episporio 1,5-2 μ . crasso, levi, brunneolo inſtructis; ſporidiolis longe fuſoideis.

Hab. in foliis Eryngii plani et campeſtris in Austria et Germania.

- S 21. **Entyloma Calendulæ** (Oudem.) De Bary in Botan. Zeitung. 1874, p. 105, t. II, f. 14-22, Fiſch. Ap. p. 45, Winter Die Pilze p. 114, Schroet. Pilz. Schles. p. 283, *Protomyces Calendulæ* Oudem. Mat. fl. myc. Neerl. II, p. 42. — Soris in maculis rotundatis, uſque ad 4 mm. latis, primo viridulis vel albidis, demum brunneolis, explanatis inſidentibus; ſporis globosis vel angulato-ſphæroideis, 9-16 μ . diam., episporio tenui, levi, subhyalino vel dilute flavo-brunneo inſtructis; ſporidiolis aciculiformibus.

Hab. in foliis Calendulæ officinalis, Hieracii murorum, vulgati, ſudetici, ſtygii, Arnoseridis minimæ, Arnicæ montanæ et Bellidias tri Michelii in Gallia, Neerlandia et Germania nec non in Republica Argentina America australis.

B. Sori plagulas bullatas vel lividas plus minus validas efformantes matricemque tumefacientes.

22. **Entyloma microsporum** (Unger) Schroet. Pilz. Schles. pag. 284, 1810 Wint. Die Pilze p. 116, *Protomyces microsporus* Unger Exanthl. pag. 343, *Entyloma Ungerianum* De Bary in Botan. Zeitung. 1874, pag. 83. — Sori sub epidermide plantæ nutricis in macula alba dein flavescenti aut brunnea vel leniter colorata nidulantibus, callosis, hemisphæricis vel pustulatis, sparsis vel subgregariis; sporis intercellularibus, sæpe seriatim superpositis, rotundato-polygonis, episporio 3-6 μ . crasso pluristratoso, hyalino, 15-24 $\approx$ 12-18; sporidiolis cylindræco-fusoideis, binatim sese copulantibus; hyphis mycelii tenuissimis, ramosissimis.

Hab. in petiolis folisque Ranunculi repentis, bulbosi et Ficariæ in Germania, Britannia et Fœnia nec non in America boreali. — « An huc *Fusidium eburneum* Schroet.? ».

23. **Entyloma Aschersonii** (Ule) Woron. in Schroet. Pilz. Schles. p. 1811 284, *Sorosporium Aschersonii* Ule in Hedwigia 1878, pag. 20. *Ustilago Magnusii* Wint. Die Pilze pag. 87 pro parte. — Sori tubercula bullata, sæpe subglobosa, usque ad 1 cm. crassa, intus primo dilute brunnea, demum castaneo-brunnea, caules radicunque nodum inquinantia, sæpe numerosa, matricem fere destruente efformantibus; sporis globosis vel ellipticis, subinde irregularibus, 15-22 $\approx$ 11-20, episporio pluristratoso, 4-7 μ . cr., castaneo-brunneo; promycelio sæpius ad basim ramulis lateralibus brevibus sterilibus instructo; sporidiolis plerumque binis, cylindræceis, non copulantibus; sporidiolis secundariis fusoideis.

Hab. in caulibus Helichrysi arenarii in Germania.

24. **Entyloma Magnusii** (Ule) Woron. in Schroet. Pilz. Schles. p. 284, 1812 *Ustilago Magnusii* Wint. Die Pilze pag. 87 p. p., *Sorosporium Magnusii* Ule in Hedwigia 1878, p. 20. — Sori pustulas inflatas, rotundatas, 3-10 mm. latas, caules nodosque radicum incolentes, intus albo-flavidas, demum pallide ferrugineo-brunneas efformantibus; sporis irregulariter rotundatis, sæpe angulatis, plerumque 17-22 $\approx$ 11-15, episporio 4-6 μ . cr., pluristratoso, dilute flavescente; promycelio filamentis lateralibus destituto; sporidiolis 3 ad apicem promycelii evolutis, haud copulantibus, cylindræco-filiformibus, apice sporidiola secundaria angusta, cornus cervi ad instar ramosa gignentibus.

Hab. in caulibus radicibusque Gnaphalii uliginosi et luteo-albi in Germania.

25. **Entyloma Compositarum** Farlow Crypt. Fl. Whit. Mount. p. 238 ad interim. — Sporis globosis vel subinde angulatis, circ. 7,5-11,5 μ . diam.; episporio tenui, subhyalino; conidiis fusoides vel leniter clavatis, sæpe curvulis, 15-20 $\approx$ 2-3.

Hab. in *Astere puniceo* in America boreali.

26. **Entyloma Menispermii** Farl. et Trel. in Botan. Gazette 1883, Aug. p. 5. — Sporis læte coloratis, globosis vel subangulatis, 5,5-11 μ . diam., levibus, episporio tenui donatis; conidiis acute ovoideis, 11-24 $\approx$ 3,5-4.

Hab. in *Menispermio Canadensi* Wisconsin Americæ borealis (TRELEASE).

C. Species minus notæ.

27. **Entyloma Physalidis** (Kalchbr. et Cooke) Wint. in Hedwigia 1883 p. 130 et 1884, p. 8, *Protomyces Physalidis* K. et C. in Grevillea IX, p. 22, *Entyloma australe* Speg. Fung. Argentini pugillus II, n. 26, *Entyloma Besseyi* Farlow in Bot. Gaz. 1883 Aug. p. 5. — Soris subepidermicis, in maculis ex albido flavis, demum atrobrunneis, usque ad 5 mm. diam., callosis, sparsis nidulantibus; sporis intercellularibus, sphaeroideo-angulatis, ex hyalino flavis, 10-14 μ . d., episporio levi, crassiusculo protoplasmateque granuloso donatis; conidiis (an sporidiolis?) bacillaribus, dein filiformibus, 20-55 $\approx$ 1,5-3.

Hab. in foliis vivis *Physalidis hirsutæ*, viscosæ et *Hornemanni* in Africa australi nec non secus Rio de la Plata cerca de la Recoleta, in Republica Argentina Americæ australis et Illinois et Iowa Americæ borealis.

28. **Entyloma? Anzianum** Pass. in Erb. Crittog. Ital. ser. II, fasc. XXIII-XXIV, n. 1154. — Soris pustuliformibus, hypophyllis, subrotundis, depressis, flavidis, sparsis vel subaggregatis; sporis elliptico-navicularibus, symmetricis vel plus minus obliquis, 20 $\approx$ 7,5; episporio crassiusculo, levi, hyalino.

Hab. in foliis *Violæ bifloræ* prope Sondrio Italiæ borealis (Anzi). — Judicium quoad genus, teste ipso auctore, incertum donec germinatio innotescat.

29. **Entyloma Fumariæ** Schroet. Mad. und Teneriff. Pilze n. 4. — Maculis brunneolis vel subatris, 1-2 mm. latis, explanatis, ambitu haud acute limitatis; sporis globosis vel ellipticis, 11-14 $\approx$ 9-11.

episporio pluristratoso, inæqualiter usque ad 3 μ . crasso, castaneo-brunneo.

Hab. in *Fumaria murali*, S Martino in Insula Madeira. — A proximo *Entylomate Corydalis* colore macularum saturatiore, sporis etiam obscurioribus distinguitur. «An satis?».

0. **Entyloma Crepinianum** Sacc. et Roum. in Revue mycol. 1881, 1818 n. 11, p. 41. — Hinc inde gregarium, semper tectum; sporis globosis 20–25, μ . diam., flavo-ochraceis, episporio 2–2½ μ . cr. pallidiore, intus guttulatis, levibus.

Hab. in foliis languidis graminum (Poa?), socia *Phyllachora*, in Arduennis. — Ab *En. crastophilo* Sacc. sporis multo majoribus, ab oosporis *Sclerosporæ graminicolæ* (Sacc.) Schroet. sporis coloratis oogonio carentibus etc. mox dignoscitur.

1. **Entyloma Rhagadioli** Pass. F. Parm. n. 574, Fisch. Monogr. p. 89. 1819 — *Entylomati Calendule* De Bary quoad faciem simile; sporis paullo majoribus, fusco-lutescentibus, 12–18 μ . diam., earumque membrana externa valde crassiore, crassitie irregulari.

Hab. in foliis Rhagadioli stellati prope Parina Ital. bor.

2. **Entyloma polysporum** (Peck) Farl. in Bot. Gaz. 1883 Aug. p. 5, 1820 ≈ 7 *Protomyces polysporus* Peck 34 Rep. St. Mus. p. 45. — Maculis orbicularibus, incrassatis, plerumque in pagina superiore convexis, in inferiore concavis, pallide viridibus vel subflavescentibus, senectute brunneis, 4–8 mm. latis; sporis numerosis, confertis, globosis vel subglobosis, subhyalinis vel chlorinis, 12–15 μ . diam.

Hab. in foliis vivis Ambrosiæ trifidæ Albany Americæ borealis. — *Entyl. Compositarum* Farl. valde affine.

3. **Entyloma Salicis** Karst. Symb. myc. Fenn. XXI, p. 103. — Sporis 1821 sphaeroideis vel ellipsoideo-sphaeroideis, intus granulosi, levibus, flavis, 24–32 $\approx$ 25–27 vel usque ad 40 μ . diam.

Hab. in foliis Salicis capreae languescentibus in insula Mjölö prope Helsingfors Fenniae (Wainio). — In pagina foliorum superiore maculas irregulares, flavidas efficit.

4. **Entyloma guaraniticum** Speg. Fungi guaranitici pugillus I, p. 65, 1822 n. 161. — Maculis amphigenis, subparvis, 1–5 mm. diam., sæpius bullosis, superne sæpe aureo-pulverulentis, inferne cinerescentibus, parenchymate subtumefactulo; sporis in cellulis parenchymaticis constipatis, globosis sed e mutua pressione sæpius irregulariter angulosis, 10–14 μ . diam., crassiuscule tunicatis, dense granuloso-faretis, hyalinis.

Hab. ad folia viva Araliaceæ? speciei cujusdam in dumetis prope Guarapî Americæ australis (BALANSA).

35. **Entyloma Saniculæ** Peck 38 Rep. St. Bot. p. 100. — Maculis numerosis, minutis, confertis vel confluentibus, orbicularibus vel subangulatis, ex albido aut griseo rufescenti-brunneis; sporis subglobosis, 12-15 μ . diam; conidiis amphigenis, filiformibus vel linearibus, rectis vel curvulis, 30-60 $\approx$ 2-2,5, hyalinis, subinde plurinu-
cleatis.

Hab. in foliis vivis Saniculæ Marylandicæ North Greenbush Americæ borealis.

36. **Entyloma ambiens** (Karst.) Johanson Svampar fran Island p. 160, *Ustilago ambiens* Karst. Fungi in insul. exped. Spitzb. coll. in Cefw. Vetersk. Akad. Stockh. 1872, n. 2, Fisch. Aperçu p. 17. — Sori epidermide nigrefacta, demum varie rumpente tectis, elongatis discretis vel confluentibus, sæpe superficiem foliorum totam occupantibus, 1-3 cm. longis; sporis difformibus ut plurimum sub-sphæroideis, levibus, atro-fuscis, 10-14 μ . diam.

Hab. in foliis graminum ad Adventbay Spitzberg. — «An, suadente cl. Johanson, idem ac *Ent. crastophilum?* ».

MELANOTÆNIUM De Bary in Botanische Zeitung 1874, pag. 106, Schroet. Pilzfl. Schles. p. 285 (Etym. *melas* atrum, et *lænia*). — Sori explanati, atri vel plumbeo-grisei; sporæ in mycelio intercellulari solitariae, episporio crasso, æquali, atro-brunneo præditæ. Germinatio sporarum ut in *Entylomate*.

Genus ab *Entylomate* characteribus vegetativis tantum distinctum.

S

1. **Melanotænium endogenum** (Unger) De Bary l. c. et in Thüm. Myc. Univ. n. 418, Schroet. Pilz. Schles. p. 285, *Protomyces endogenus* Ung. Exanth. p. 341, *Protomyces Galii* Rabenh. in Fuck. Enum. Fung. Nass. n. 1. — Sporis soros atros, explanatos, epidermide perduranti velatos, plumbeo-griseos efformantibus, globosis vel ellipsoideis, plerumque 15-22 $\approx$ 12-20, subopacis, atro-brunneis, levibus; promycelio plerumque basi ramulo brevi sterili instructo; sporidiolis cylindraceis, binatim copulantibus directeque germinantibus.

Hab. in Galio Mollugine in Germania et Britannia. — Mycelium totam plantam matricem penetrans, intercellulare, haustoriis præditum. Planta matrix parva manet gracilisque, internodiis abbreviatis, foliis crispatis floribusque parum vel haud evolutis.

2. **Melanotænium caulium** (Schneid.) Schroet. Pilz. Schles. pag. 285, 1826
Ustilago? caulium Schneid. in litt. — Soris atris, in strata plumbeo-grisea, maxima in parte caulis et basi foliorum expansa congestis; sporis globosis vel breviter ellipticis, 12-18 $\approx$ 11-16, episorio crasso, levi, obscure castaneo-brunneis.

Hab. in caulibus basique foliorum *Linariæ vulgaris* in Silesia Germaniæ. — Mycelium totam plantam matricem invadit caulesque æque incrassati fiunt.

3. **Melanotænium? scirpicolum** Cornu in Ann. Scienc. Nat. 1883, p. 291, t. XVI, f. 7. 1827
 — Soris subperidermicis, sparsis, minutis, brunneis, 1-2 mm., raro ultra latis; sporis ovoideis, subsolitariis, brunneo-pallidis, 28-32 $\approx$ 18-20.

Hab. in rhizomate *Scirpi lacustris* in aquario, Paris Galliæ. — Forte ad hoc genus etiam pertinere videtur, teste Cornu, *Physoderma maculare* Wallr. Cfr. Berl. et De-Toni Syll. Phycom., supra p. 317, n. 1113.

ENTORRHIZA C. Weber in Botan. Zeitung. 1884, p. 369, Schroet. Pilz. Schles. p. 290, *Schinzia* Näg. in Linnæa XVI (1842), p. 279 p. p. nec Dennst. (Etym. *endon* intus et *rhiza* radix). — Mycelium intra cellulas matricis vivæ evolutum, apice ramulorum lateralium sporas magnas fovens; sporæ in cellulis singulæ vel plures, continuæ, episorio crasso tectæ, germinando tubulos sacci-formes, tenues, singulos vel plures, subinde ramulosos gignentis. Sporidiola falcata, minutissima, ad apices ramulorum et etiam sub tubuli apice evoluta.

Fungilli radiceolæ.

1. **Entorrhiza Aschersoniana** (Magn.) De-Toni, *Schinzia Ascherso-* 1828
niana Magnus in Bericht. Deutsch. bot. Gesellsch. VI, 2, 1888, p. 103, f. 3-4, *Entorrhiza cypericola* Web. in Botan. Zeit. 1884, p. 369 c. ic. Schroet. Pilzfl. Schles. p. 290, nec De-Toni. — Sporis ovatis, 15-17 $\approx$ 11-15, e flavo castaneo-brunneis, episorio verrucis confertis, majusculis, numerosis obsito.

Hab. in radicibus *Junci bufonii* prope Berlin (ASCHERSON), pr. Eckbolstein (DE BARY), pr. Neumarkt und Gaschwitz aliisque locis Silesiæ (SCHROETER), et Germaniæ nec non in Scotia (TRAIL). — Sporidiola falcata, minutissima.

2. **Entorrhiza Casparyana** (Magn.) De-Toni, *Schinzia Casparyana* 1829
 Magnus in Bericht. Deutsch. bot. Gesellsch. VI, 2, 1888, p. 103,

f. 5-6. — Sporis globosis, 17-22 μ . diam., dilute flavis, episporio verrucis irregularibus, difformibus, quartam sporarum diametri partem æquantibus, valde prominentibus, magnis obsito.

Hab. in radicibus Junci Tenageiæ pr. Schirowslaw (Grüter), pr. Pyritz (Meyer) in Germania nec non in insula Sardinia (Reverchon). — Sec. cl. Magnus l. c. Cameron in Proceed. and Transact. of Nat. Hist. Soc. of Glasgow new Series vol. II (1886), p. 295-304 inflationes radicum analogas in Junco squarroso, J. uliginoso et Eriophoro vaginato reperisse affirmat, quæ forte ab *Entorrhizæ* speciebus generatæ sunt ideoque inquirendæ.

3. *Entorrhiza cypericola* (Magn.) De-Toni nec Weber, *Schinzia cypericola* Magnus in Verhand. bot. Ver. Brandenb. 1878, p. 53 et in Bericht. Deutsch. botan. Gesellsch. VI, 2, 1888, p. 102, f. 1-2. — Sporis elongato-ovatis, 17-20 $\approx$ 11-14, dilute flavidis, episporio subtiliter reticulato, rarius verruculis punctiformibus, minutissimis obsito, plerumque strato pallidiori, crasso obvolutis

Hab. in radicibus Cyperi flavescents in Germania aliisque Europæ locis.

4. *Entorrhiza? cellulicola* (Naeg.) De-Toni, *Schinzia cellulicola* Naeg. in Linnæa XVI, 1842, pag. 279, t. XI, f. 1-10. — Hyphis radiantibus, intra cellulas radicales evolutis, hyalinis, subtilissimis, apice in sporam claviformem abeuntibus; sporis episporio duplici instructis, intus flavidulis, nitentibus, guttulatis, usque ad 40 μ . diam.

Hab. in radicibus Iridis cujusdam in Helvetia. — Potius ad genus *Phytomyxam* Schroet. pertinere videtur *Schinzia penicillata* Naeg. eodem loco ab ipso auctore descripta et icone illustrata, *Schinzia Alni* Woron. est inter *Monadineas* sub *Plasmiodiophora Alni* Möll. inquirenda — Cfr. Berlese Syll. Myxom. in Sacc. Syll. Fung. omni. VII. pag. 464, n. 1569; *Schinzia Leguminosarum* Frank est etiam sub *Phytomyxa Leguminosarum* Schroet. in Berl. l. c. p. 465, n. 1572 inquirenda.

USTILAGOPSIS Speg. Fungi Argent. pugillus II, p. 11 (Etyim. *Ustilago* et *opsis* aspectus). — Sporæ simplices, hyalinæ, ovaria tumefacientes massam primo compactam, dein deliquescentem efformantes.

Genus singulare quoad locum dubium; mea sententia cum gen. quoque dubio *Cerebella* Ces. comparandum videtur.

1. *Ustilagopsis deliquescentis* Speg. Fungi Argentini pug. II, n. 27. — 18

Ovariis infectis primitus valde globoso-turgentibus, compactis, impellucidis, roseo-albis, dein difformibus, tremelloideo-succineis, jove pluvio in massam viscosam ex innumeris sporis compositam deliquescentibus; sporis elliptico-elongatis, utrinque rotundatis atque protuberantioribus quam centro, non vel 2-guttulatis, 10-15 $\approx$ 5-6, hyalinis.

Hab. vulgatissime ad ovaria immatura *Paspali platensis* ubique in agro Bonaërensi in Republica Argentina Americæ australis. — Mihi videtur cum *Cerebella Paspali* Cooke et Massee comparanda.

2. **Ustilagopsis? compactiuscula** Speg. F. Guaran. I. n. 97. — Ova- 1833
riis infectis basi intactis, apice grosse tumefactis, globulum e glumis exsertum compactum, spiculæ diametrum pluries superans (1-1,5 mm. diam.), sordide roseo-subceraceum, sub jove pluvio gelatinoso-turgescens ac deliquescentibus; sporis ellipticis, utrinque acutato-obtusatis, rectis vel subinæquilateralibus, eguttulatis, 6-12 $\approx$ 2,5-3,5, hyalinis.

Hab. ad ovaria immatura Vilfæ speciei cujusdam in apricis prope Guarapi Americæ australis.

SPHACELOTHECA De Bary Vergleich. Morph. Pilze pag. 187. Cfr. Schroet. Pilzfl. Schles. p. 274 (Etym. *sphacelos* caries et *theca* capsula). — Pars mycelii fructifera columella carnosa, centrali, massa sporarum circumcirca addita instructa; sporæ solitariae; sporidiola in promycelio septulato pleurogena.

1. **Sphacelotheca Hydropiperis** (Schum.) De Bary loc. cit. pag. 187, 1834
fig. 80, Schroet. Pilz. Schles. pag. 275, *Ustilago Hydropiperis* Schroet. olim, Winter Die Pilze pag. 94, *Uredo Hydropiperis* Schum. Pl. Saell. II, p. 234, *Uredo Bistortarum* var. *ustilaginea* DC. Fl. Franç. VI, p. 76, *Cæoma Bistortarum* Link Sp. II, p. 10, *Ustilago Candollei* Tul. Mém. sur les Ustilaginées pag. 93. — Corniformis, in ovariis plus minus tumefactis evoluta eaque pulvere atro-violaceo replens, subpoculiformis apiceque aperto sporas emittens; sporis solitariis, globosis vel ellipsoideis vel rotundato-angulatis, 9-21 $\approx$ 8-12, vel 8-17 μ . diam., episporio levi, obscure violaceo, raro subtiliter granulato; promycelio cylindraco, 3-septato; sporidiolis ellipticis, ad parietes terminales numerose geminatis basique inter se copulantibus.

Hab. in ovariis *Polygoni Bistortæ*, vivipari, min-
ris, mitis, *Persicariæ*, *Hydropiperis*, acuminati, s:

gittati et alpini in Gallia, Italia, Germania, Fennia, in America boreali et Rep. Argentina Americæ australis.

SCHIZONELLA Schroet. Pilzfl. Schles. p. 275 (Etym. a *schizo* rum-po). — Sporæ in hyphis fertilibus seriatim efformatæ, primo septo verticali divisæ, dein in duas cellulas sporasve laxè conjunctas mutatæ. Cellulæ singulæ vel sporæ ut in *Ustilagine* germinantes. — Generi *Diorchidio* Kalchbr. inter *Uredineas* analogum.

1. **Schizonella melanogramma** (DC.) Schroet. Pilz. Schles. pag. 275, Winter Die Pilze p. 106, *Uredo melanogramma* DC. Fl. Franc. VI, p. 75, *Puccinia melanogramma* Unger Einf. Bod. p. 217, *Thecaphora melanogramma* Lév. in Ann. Sc. Nat. III, 8, p. 373, *Ustilago destruens* var. *foliicola* Hausm. in Erb. Critt. It. n. 300, *Geminella foliicola* Schroet. Brand. und Rostp. p. 6, *Geminella melanogramma* Magnus in Hedwigia 1875, p. 19, *Urocystis pusilla* Cooke et Peck 25 Rep. St. Mus. p. 90. — Hyphis sporiferis in epidermide paginæ superioris matricis evolutis; soris in striis parvis sæpe confluentibus dispositis, atris, pulverulentis; sporis didymis, isthmo angusto connexis, utraque spora globosa, 8-12 = 5-8, olivaceo-brunnea, leniter foveolata vel punctulata; promycelio cylindraceo-fusoido, 1-3-septato; sporidiolis oblongo-ellipsoideis vel fusiformibus.

Hab. in foliis Caricis nitidæ, Michellii, pennsylvaniæ, præcoccis, digitatæ aliarumque in Italia, Germania, Gallia et America boreali.

SCHROETERIA Winter Die Pilze p. 117, Schroet. Pilzfl. Schles. p. 287 (Etym. a cl. mycologo germanico J. SCHROETER). *Geminella* Schroet. Brand. und Rostp. Schles. pag. 5, nec Turpin. — Hyphæ fertiles haud gelatinosæ at membrana firma septisque transversis instructæ; sporæ ad singulos mycelii articulos binatim evolutæ, rarius per tres seriatim conjunctæ; germinatio ut in *Tilletia*; promycelium subinde ramosum; sporidiola solitaria quandoque catenulata, haud coronæ ad instar disposita, in promycelio acrogena.

1. **Schroeteria Delastrina** (Tul.) Wint. Die Pilze pag. 117, Schroet. Pilz. Schles. p. 287, *Thecaphora Delastrina* Tul. Mém. sur les Ustil. p. 108, t. 4, f. 24-25, *Geminella Delastrina* Schroet. Brand. und Rostp. p. 5, Fisch. Aperçu p. 44. — Soris c cæruleo griseis, pulverulentis, in fructibus evolutis seminaque inquinantibus; sporis 2, raro 3-conjunctis, ad conjunctionis locum (isthmum) explana-

tis, episporio griseo-cærulescente, irregulariter verrucoso tectis, 15-23 $\approx$ 8-12; promycelio plerumque simplici, ampulliformi, brevi, raro filiformi ramoque laterali instructo; sporidiolis globosis, ad apicem promycelii subinde catenulatis.

Hab. in seminibus funiculis placentisque *Veronicæ arvensis*, *hederifoliæ*, *triphyllæ*, præcoccis aliarumque in Gallia, Germania, Austria.

2. **Schrœteria Decaisneana** (Boud.) De-Toni, *Geminella Decaisneana* 1837 Boud. Champ. p. 6, t. XV, f. 2. — *Schrœteria Delastrinæ* proxima at bene distincta sporis minoribus mox secedentibus; sporis junioribus filamentis immixtis glaucis aut cinereo-cærulescentibus, maturis atro-cinereis aut ardosiacis, primo geminatis commissura plana, mox liberis et rotundatis aut late ellipticis, extus verrucosis, intus 1-guttulatis, rarius granuloso-faretis, 10-12 $\approx$ 8-12.

Hab. ad funiculos seminum *Veronicæ hederacæ* quos destruit semenque integrum at emortuum relinquens, in arvis pr. Paris Galliæ.

3. **Schrœteria Cissi** (DC.) De-Toni, *Puccinia incarcerationata* Lév. in Ann. 1838 Scienc. Nat. Botan. 1845, pag. 69, *Geminella exotica* Fisch. in Ann. Scienc. Nat. 1876, p. 244, *Geminella exotica* Cornu in Ann. Scienc. Nat. 1883, p. 292, *Uredo Cissi* DC. Encycl. VIII, p. 228, *Ustilago? Cissi* Tul. in Ann. Scienc. Nat. 1847, pag. 92. — Petiolicola, atra, interanea, oculos effugiens; sporis minimis, levibus, obtusis, subdepressis, nigris, pedicello brevissimo vix conspicuo fultis.

Hab. intra petiolos *Cissi sycioidis* et plantarum nonnullarum in Guyana S. Domingo et Hispaniola regione amazonensi Perù Americæ. — Petioli inflati atque deformati. Presl errore inductus descripsit hunc fungillum nomine *Spondilanthes aphyllæ*.

TOLYPOSPORIUM Woron. 1882 in Schroet. Pilzfl. Schles. p. 276 (Etym. *tolype* glomus et *spora*). — Hyphæ fertiles glomeris ad instar congestæ, maturitate glomerulos sporarum evolventes; glomeruli (s. sporæ composito-pluriloculares) e cellulis (sporis) æqualibus, conformibus, irregulariter polyedricis vel rotundatis, arctiuscule adnatis constituti. Germinatio ut in *Ustilagine*.

1. **Tolyposporium Junci** (Schroet.) Woron. Schroet. Pilz. Schles. 1839 pag. 276, *Sorosporium Junci* Schroet. Brand. u. Rostpilze Schles. pag. 6, Winter Die Pilze pag. 103. — Soris atris, firmulis, 1-2 mm. crassis, subinde usque ad 4 mm. longis, pustulas

bullatas efformantibus; glomerulis sporarum globosis vel rotundatis, versiformibus, plerumque 40–80 $\approx$ 50, e sporis numerosis (50 et ultra) efformatis; sporis irregulariter globosis, ellipticis vel angulatis, 11–17 $\approx$ 7–14, episporio olivaceo-brunneo, irregulariter crasso, intus levi, peripherice paullulum verrucoso-punctulato; promycelio filiformi, 8-loculari, septulato; sporidiolis 2–4 ad septa et apicem evolutis, cylindraceo-fusoideis, plerumque curvulis.

Hab. in ovariis, pedunculis culmisque Junci bufonii et capitati in Germania.

- S 2. **Tolyposporium bullatum** Schroet. Krypt. Fl. Schles. p. 276, *Sorosporium bullatum* Schroet. Brand. und Rostpilze Schles. p. 6, Winter Die Pilze p. 104. — Soris atris, plerumque in quaque spica solitariis, ovariiculis, bullam 2–3 mm. crassam globosam efformantibus; glomerulis sporarum variæ magnitudinis et formæ, 40–90–160 $\approx$ 50; sporis ellipticis vel polyedricis, 14–16 $\approx$ 6–11, dilute olivaceo-brunneis, vix distincte verruculoso-punctatis.

Hab. in fructibus Panici Cruris-galli in Germania. — «An huc *Sorosporium Ehrenbergii* Kühn in ovariis Sorghi cernui pertinet?»

3. **Tolyposporium Cocconii** Morini Nuov. Ustilag. p. 11, t. I-II, Cocc. 1 et Mor. Enum. Fung. Bologna cent. III, n. 210. — Soris linearibus, amphigenis, subatris, 300–500 μ . latis, subinde confluentibus et tunc pustulas minutas efficientibus, epidermide dein lacerata cinctis; glomerulis irregulariter congestis, globulosis vel protractis, subferrugineo-fuscis, 24–42 $\approx$ 12–30, e 6–40 sporis constitutis; sporis subhyalinis luteo-fuscis, inæqualiter rotundis sæpiusque angulosis, episporio fusco, levi paulloque crassiore præditis, 6–10 $\approx$ 5–8.

Hab. in foliis Caricis recurvæ in pratis Paderno Italiæ borealis (G. MATTEI). — A *Thecaphora aterrima* caute dignoscendum.

S **DOASSANSIA** Cornu in Annales des Scienc. natur. Botanique 1883, p. 285 (Etym. a cl. Dr. DOASSANS, mycologo gallico) Schroet. Pilzfl. Schles. p. 286, De-Toni Revision of the genus Doassansia Cornu in Journal of Mycology 1888, p. 13. — Sporæ coacervatæ, conformes, leves, tegumento communi («cortice» Cornu) e cellulis simplicibus, sterilibus, arcte adnatis efformato incarceratæ; germinatio sporarum ut in *Entylomate*.

Species, suadente cl. Schroeter, valde affines et characteribus matricis plerumque distinguendæ.

1. **Doassansia Alismatis** (Nees) Cornu Sur quelques Ustilaginées nouvelles ou peu connus in Ann. Scienc. Nat. Sér. VI, tom. XV, (1883), p. 285, tab. XVI, f. 1-4, Schroet. Pilzfl. Schles. p. 286, De-Toni Revis. of Doassansia in Journ. of Mycol. 1888, p. 14, *Sclerotium Alismatis* Nees in Fr. Syst. mycol. vol. II, p. 257 (1822), *Perisporium Alismatis* Fr. Syst. Myc. III, p. 252, *Dothidea Alismatis* Lasch in Rabenh. Herb. mycol. I edit. n. 553 et II edit. n. 162, *Uredo Alismacearum* Crouan Flor. Finist. p. 8? *Entyloma Alismacearum* Sacc. in Michelia II, p. 41, n. 434, Mori Funghi di Modena n. 14, *Protomyces macularis* Fuck. in Thüm. Mycoth. Univ. n. 1417 non Sacc. in Michelia I, p. 13 (= *Physoderma maculare* Wallr.). — Soris amphigenis, pustuliformibus, brunneis, usque ad 300 μ . diam. metientibus, utrinque prominulis, rotundatis vel ellipsoideis, rarius irregularibus, numerosis, in maculis ut plurimum determinatis, orbicularibus, 4-10 mm. longis, raro subconfluentibus circinatim dispositis; sporis sphæroideis vel ovoideis obtuseque angulatis, 10-14 (rarius 18) $\approx$ 8-11 μ . episporio tenui, levi, dilute brunneo donatis, plasmate pallido subhyalino foetis, tegumento communi bene evoluto, obscure brunneo; sporidiolis longe cylindraceis, numerosis ad apicem promycelii evolutis.

Hab. in foliis *Alismatis Plantaginis* in Italia, Gallia, Germania, Suecia, Finlandia nec non Sibiria occidentali et America boreali, socio sæpe *Cylindrosporio Alismacearum* Sacc., quocum metagenetice connexa videtur. Cfr. Sacc. Syll. Fung. vol. III (*Sphaeropsisidæ* et *Melanconieæ*) p. 740, n. 3865.

2. **Doassansia Sagittariæ** (West.) Fisch. in Berichte Deutsch. botan. Gesellsch. II, p. 405 (1884), Winter et Demetrio Beitr. Pilzfl. Missouri ser. 1, n. 1, Briard. Champ. nouv. Aube n. 29, Schroet. Pilzfl. Schles. p. 286, De-Toni Revis. of Doassansia in Journ. of Mycol. 1888, p. 15, *Uredo Sagittariæ* West. Crypt. belg. n. 1177, *Physoderma Sagittariæ* Fuck. Fungi rhenani n. 1549, *Protomyces Sagittariæ* Fuck. Symb. mycol. p. 75, *Protomyces Bizzozzerianus* Sacc. in Michelia I, p. 97, Fungi italici f. 103, *Entyloma Bizzozzerianum* Sacc. in Michelia II, p. 135, Speg. Fungi Argentini, pugillus quartus p. 21, n. 55. — Soris hypophyllis, pustuliformibus, flavescenti-brunneis, usque ad 100 μ . diam. metientibus, plerumque rotundatis, numerosis, subinde confluentibus, in maculis

orbicularibus, 5-10 mm. latis, amphigenis, pallide flavescentibus, centro obscurioribus dispositis; sporis irregulariter globosis, subangulato-compressis, plerumque 9-14 $\approx$ 9-12, episporio crassiusculo, levi, flavescenti vel subhyalino donatis, plasmate subtiliter granuloso fœtis, rarius biguttatis, tegumento communi bene evoluto, brunneo; sporidiolis ut in specie præcedente.

Hab. in foliis *Sagittariæ sagittifoliæ*, variabilis et montevidensis in Italia, Gallia, Germania, Britannia, Belgio nec non Missouri Americæ borealis et Republica Argentina Americæ australis.

3. **Doassansia Martianoффiana** (Thüm.) Schroet. Pilzfl. Schles. p. 287, De-Toni Revis. of Doassansia in Journ. of mycol. 1888, p. 16, *Protomyces Martianoффianus* Thüm. Pilzfl. Sibir. II, n. 123, Berl. et De-Toni Syll. Phycom. in Sacc. Syll. Fung. omnium VII. p. 320, n. 1125. — Soris hypophyllis, subpustuliformibus, ochraceo-fusciculis, ut plurimum 60-80 μ . diam. metientibus, numerosis, dense gregariis, in maculis usque ad 5 mm. latis, orbicularibus, indeterminatis, haud marginatis, flavescentibus dispositis maculasque contrapositas (epiphyllas) aurantiaco-fuscas haud limitatas efficientibus; sporis irregulariter globosis vel elliptico-globosis, plerumque 9-11, rarius 16 μ . diam., episporio tenui, levi, dilute brunneolo, plasmate subtiliter granuloso, pallido fœtis, tegumento communi arcte adnato pallido.

Hab. in foliis vivis fructibusque *Potamogetonis natantis* et graminei in Silesia Germaniæ et prope Minussinsk Sibiricæ asiaticæ.

4. **Doassansia occulta** (Hoffm.) Cornu in Farlow Notes on a Fungus parasitic on species of Potamogeton p. 2, De-Toni Revis. of Doassansia in Journ. of Mycol. 1888, p. 16, *Sclerotium occultum* Hoffm. Icon. Anal. Fung. p. 69, t. XVI, f. 3, (1862), *Doassansia Farlowii* Cornu Sur quelques Ustilaginées nouvelles ou peu connues in Ann. Scienc. Nat. 1883, p. 287. — Soris ovatis vel globosis, ovariiculis, brunneis, compressis, numerosis, sparsis, 180-200 μ . longis, 140-180 μ . latis; sporis (immaturis?) globulosis, 20 μ . circ. diam., pallide coloratis, tegumento communi obscuriori bene evoluto.

Hab. in ovariis *Potamogetonis natantis* et lucentis in Germania (IRMISCH et HOFFMANN) nec non in ovariis *Pot. Vaseyi*, pusilli, perfoliati var. lanceolati, natantis *Ot-tawa* Americæ borealis (J. FLECHTER).

5. **Doassansia Niesslii** De-Toni Revis. of Doassansia in Journ. of 1846
Mycol. 1888, p. 17, *Protomyces punctiformis* Niessl Beitr. zur
Kenntn. d. Pilze p. 16 (1872), *Doassansia punctiformis* (Niessl)
Schroet. Pilzfl. Schles. p. 287 (1887) non Winter (1886). — Soris
minutissimis, punctiformibus, 50-60 μ . diam. metientibus, vix con-
vexis, numerosis, gregariis sub epidermide (macula subnulla), ni-
dulantibus, griseo-brunneis vel melleis; sporis subglobosis vel ir-
regulariter angulatis, 9-11 μ . diam., episporio levi, dilute brun-
neo donatis, tegumento communi parum distincto.

Hab. in foliis Butomi umbellati pr. Brünn Moraviæ (NIESSL)
et Breslau Silesiæ (SCHROETER).

6. **Doassansia punctiformis** Winter Fungi australienses in Revue My- 1847
cologique 1886, pag. 207 non Schroet. (1887), De-Toni Revis. of
Doassansia in Journ. of Mycology 1888, p. 17. — Soris amphige-
nis, globosis, punctiformibus, minutissimis, sparsis vel subgregariis
utrinque prominulis, fuscidulis; sporis numerosis, conglobatis, ro-
tundato-polygonis, isodiametricis, 10-12 μ . diam. vel parum elon-
gatis, usque 16 μ . longis 9-10,5 μ . latis, episporio tenui, æquali,
levi donatis, subhyalinis, tegumento communi ex uno strato pa-
renchymatico cellularum polygoniarum, membrana crassiuscula,
badia, minutissime granulata præditarum efformato.

Hab. in foliis vivis Lythri hyssopifolii prope Melbourne,
Victoria Australiæ (READER).

7. **Doassansia Limosellæ** (Kunze) Schroet. Pilzfl. Schles. pag. 287 1848
(1887), De-Toni Revis. of Doassansia in Journ. of Mycol. 1888,
p. 17, *Entyloma Limosellæ* Winter Die Pilze p. 115, *Protomy-
ces Limosellæ* Kunze in Rabenh. Fungi Europæi n. 1694. — So-
ris plerumque hypophyllis, verruculiformibus, 60-100 μ . diam. me-
tientibus, in maculis orbicularibus, 1-2 mm. latis, brunneolis dis-
positis; sporis globosis vel irregulariter sphæroideis vel oblongis
sæpeve angulatis, 9-14 μ . diam., episporio tenui, levi, inæqualiter
crasso, pallide brunneo donatis; tegumento communi ut in *Doas-
sansia Niesslii*.

Hab. in foliis Limosellæ aquaticæ in Germania.

8. **Doassansia decipiens** Winter New North Amer. Fungi in Jour- 1849
nal of Mycology 1885, p. 102, De-Toni Revis. of Doassansia in
Journ. of Mycol. 1888, p. 17. — Soris epiphyllis, greges minutos,
rotundatos irregularesve, interdum confluentes, pallide fusco-luteos,
in macula indeterminata, luteola insidentes, 1-5 mm. diam. metientes
formantibus, punctiformibus, rotundatis v. ellipticis, plerumque den-

se stipatis, haud raro confluentibus, 100-200 μ . latis, immersis, fuscis; sporis numerosissimis, densissime conglobatis, rotundato-polygonis, isodiametricis vel subellipticis, sæpe irregularibus, 10-16 μ . diam., episporio levi donatis, pallide fuscidulis, in planta adhuc viva germinantibus; tegumento communi tenuissimo, pseudoparenchymatico, e cellulis minutissimis fuscis contexto denseque applicato; sporidiolis filiformibus, tenuissimis, sæpe flexuosis, usque ad 70 μ . longis, vix 1 μ . crassis.

Hab. in foliis *Linnanthemii* lacunosi pr. Green Pond, Morri Co, New Jersey Americæ borealis (E. A. RAU).

9. **Doassansia Epilobii** Farlow in Botanical Gazette 1883, p. 277, Crypt. Fl. Whit. Mount. p. 239, De-Toni Revis. of Doassansia in Journ. of Mycol. 1888, p. 18. — Soris globosis vel conflundo lobulatis, 80-200, rarius 250 μ . diam. metientibus, amphigenis, prominulis, plerumque ad apices foliorum gregatim congestis, in maculis areisve pallide flavescentibus dispositis; sporis e globoso irregulariter polyhedricis, 7,5-17 (plerumque 10-14) μ . diam., dense conglobatis, episporio tenuiusculo, levi donatis, pallide coloratis; tegumento communi e cellulis crasse tunicatis, atro-brunneis constituto.

Hab. in foliis *Epilobii* alpini ad margines torrentis King's Ravine in America boreali (FARLOW).

10. **Doassansia Hottoniæ** (Rostr.) De-Toni Revis. of Doassansia in Journ. of Mycol. 1888, pag. 18, *Entyloma Hottoniæ* Rostrup in Thümen Mycotheca universalis n. 2222. — Soris hemisphaericis, gregariis, rufescentibus, 80-200 μ . diam., raro oblongis; sporis rotundato-angulatis, 9-14 μ . diam., episporio tenui, levi donatis, dilute fuscidulis; tegumento communi arcte adnato, bene distincto, brunneo.

Hab. in foliis vivis *Hottoniæ* palustris pr. Skärup ins. Fioniæ in Dania (ROSTRUP et JOHANSON).

11. **Doassansia Comari** (Berk.) De-Toni et Massee in De-Toni Revis. of Doassansia in Journ. of Mycol. 1888, p. 18, *Protomyces Comari* Berk. in Ann. Nat. Hist. n. 1708, Berl. et De-Toni in Sacc. Syll. Fung. omnium vol. VII, p. 321, n. 1135. — Soris gregariis vel sparsis, siccitate atris, 1-1,5 mm. diam. metientibus; sporis late ellipticis, 10 $\approx$ 7, levibus, in sicco dilute vinosis; tegumento communi bene evoluto.

Hab. in foliis *Comari* palustris pr. Forfar Britannicæ.

TUBURCINIA Fries Syst. Myc. III, pag. 430 (1829) em. Woron. Cfr. Schroet. Pilzfl. Schles. p. 285 (Ety. *tuburcinor*). *Sorosporii* sp. auct. — Sori stratiformes, atri, explanati vel prominulo-bullati, sæpius late extensi; sporæ conformes in glomerulos congestæ; germinatio sporarum ut in *Entylomate*. Cæspituli conidiophori albi, late expansi; conidia-ovoidea.

Tuburcinia Trientalis Berk. et Br. in Ann. Nat. Hist. 1850, n. 1853 488, Woronin Ustil. t. I-III, Schroet. Pilz. Schles. p. 285, *Poly-cystis opaca* Strauss in Sturm D. C. Fl. III, pag. 47, saltem pro parte, *Sorosporium Trientalis* Woron. in Fisch. d. Waldh. Aperçu p. 32, *Sorosporium schizocaulon* Ces. in Klotzsch-Rabenh. Herb. myc. n. 1083, *Protomyces Paridis* Ung. Exanth. p. 344, *Sorosporium Paridis* Wint. Die Pilze p. 102. — Soris 4 mm. latis, bullatis, atris, epidermide tectis ideoque griseo-plumbeis, in caule crustaceo-explanatis, in foliis maculas irregulares rotundatas efficientibus; sporarum glomerulis rotundatis vel oblongis, plerumque 50-75 μ . longis, sæpe sporis 50-100 compositis; sporis globosis, ellipticis, sæpe applanato-compressis, 15-32 = 10-17, episporio obscure brunneo subimpellucido, levi donatis; sporidiolis numerosis in promycelio acrogenis, cylindraceo-fusoideis, basi per paria copulantibus, sporidiola secundaria fusiformia gignentibus.

Hab. in foliis caulibusque *Trientalis europææ*, *Euphrasiæ luteæ*, *Paridis quadrifoliæ* in Italia, Germania, Britannia, Belgio, Fennia. — Mycelium albidum, tenue, ramosum repens. Status conidiophorus *Ascomyces Trientalis* Berk.: cæspitulis late expansis, albis, hypophyllis; conidiis ovatis vel piriformibus superne angustatis, hyalinis, in hyphis erectis, tenuibus, longiusculis, inter epidermidis cellulas erumpentibus, acrogenis.

Tuburcinia Cesatii Sorok. in Hedwigia 1877, p. 50, *Sorosporium* 1854 *Cesatii* Fisch. Aperçu pag. 32. — Glomerulis 12-25-sporis; sporis angulatis, levibus.

Hab. in foliis caulibusque *Geranii* cujusdam in Rossia ad M. Urales. — «A *Tuburcinia Trientalis* glomerulis distincta».

THECAPHORA Fingerh. in Linnæa X (1835) p. 230, Schroet. Pilzfl. Schles. p. 288 (Ety. *theca* capsula et *phoreo* fero), *Sorosporii* sp. auct. — Sporæ in glomerulos arcte coacervatæ, ægre (nisi ruptione) secedentes, majusculæ, latere libero convexæ, latere adhærenti explanatæ; promycelium filiforme, subinde ramulis lateralibus præditum; sporidiola fusoidea, in promycelio solitarie acrogena.

- 2 1. **Thecaphora hyalina** Fingerh. in *Linnaea* X, p. 230, Fisch. Aperçu p. 36, Schroet. Pilz. Schles. pag. 288, *Uredo seminis-convolvuli* Desmaz. Crypt. Fr. I, n. 274, *Ustilago capsularum* Fr. Syst. Myc. III, p. 519, *Sorosporium hyalinum* Wint. Die Pilze p. 105 — Soris dilute rufescenti-brunneis, grosse pulverulentis, intra semina evolutis eaque destruuntibus; glomerulis plerumque e sporis 3-10 conflatis, 26-33 μ . longis; sporis globosis, 12-13 μ . latis, dilute brunneis, latere libero verrucis granulatis, obtusiusculis dense instructis; promycelio ramoso; sporidiolis adhuc ignotis.

Hab. in fructibus Convolvuli sepium, arvensis et Solanellæ nec non Phacæ alpinæ (?) in Gallia, Belgio, Germania, Britannia.

2. **Thecaphora Berkeleyana** Fisch. in Ann. Scienc. Nat. VI, tom. 4 p. 230, *Urocystis macularis* (Berk. et Br.) Fisch. Aperçu p. 38 *Polycystis macularis* B. et Br. Fungi of Ceylon n. 845. — Soris brevibus, spicicolis, rotundatis, atris; glomerulis 12 μ . diam. v. 15 $\approx$ 10, e 4 raro 5 sporis constitutis; sporis globosis olivaceo-viridulis, pellucidis, levibus.

Hab. in spicis Andropogi perforati Damboul in insula Ceylon.

3. **Thecaphora inquinans** B. et Br. Fungi of Ceyl. n. 844, Fisch. Aperçu p. 34. — Atra, semina ex toto implens; sporis angulatis 3-7 ex toto 10-18 μ . latis, olivaceo-griseis, episporio tenui donatis conglomeratis; pedicellis elongatis pellucidis.

Hab. in seminibus Paspali scrobiculati, Dolosbagey in insula Ceylon. — «Cfr. *Cerebella* et *Ustilagopsis*».

4. **Thecaphora Cornuana** Fisch. Aperçu p. 35, Monogr. p. 65, n. 90. *Ustilago decipiens* Schwein. mscr. — Soris atris; glomerulis sporarum rotundatis, 50 μ . diam., vel ovoideo-obtusis, 50-90 $\approx$ 40-70, e sporis 50 et ultra efformatis; sporis angulatis, 8-14 μ . diam. vel 12 $\approx$ 8, brunneo-olivaceo-pallidis, levibus, nitentibus.

Hab. in fructibus Scirpi affinis in insula Guadalupa.

5. **Thecaphora aterrima** Tul. in Ann. Scienc. Nat. 1847, pag. 110, t. 4, f. 20-22, Mont. Expl. Alg. p. 303, Fisch. Aperçu p. 35. — Soris atris; glomerulis rotundatis, ovatis vel irregulariter ovoideis, 25-40 μ . diam., brunneo-atris, e sporis 5-20 constantibus; sporis arcte conglobatis, levibus vel subgranulatis, cubicis vel globoso polyhedricis, humore albido, oleoso repletis.

Hab. in caulibus spicisque Caricis alpestris, Linkii,

præcoccis, curvulæ, gynomanes et Euphrasiæ luteæ in Italia, Gallia nec non pr. La Calle Algeriæ (DURIEU).

Thecaphora Westendorpii Fisch. Aperçu p. 35, *Polycystis Lolii* 1860 West. in Bull. Belg. XXI, 2, p. 246, Kickx Fl. II, p. 82. — Soris atro-brunneis, suberumpentibus, irregularibus, tremelloideis, plicatulis, bullatis, 3-4 mm. diam.; sporis 4-8 in glomerulos coacervatis, angulatis, 10-12 $\approx$ 8, brunneis, papillosis.

Hab. in specie Lolii perennis in Belgio. — « A *Sorosporio Lolii* Thüm., quod forte hanc speciem immaturam sistit, sporis papillosis dignoscenda ».

Thecaphora globuligera Berk. et Broome Fungi from Brisbane 1861 n. 87, p. 407. — Soris subglobosis vel oblongis, in paleis nidulantibus, e sporis numerosis compositis; sporis subglobosis, 7-12 μ . diam., echinulatis, dilute brunneis, glomerulis 70-200 μ . diam.

Hab. in paleis Leersiiæ hexandrae, Brisbane Queensland Australiæ (F. M. BAILEY).

Thecaphora deformans Dur. et Mont. in Expl. Algér. pag. 302, 1862 t. 25, f. 4, Fisch. Aperçu p. 35, Tul. in Ann. Scienc. Nat. 1847, p. 110, t. IV, f. 23. — Soris brunneo-ferrugineis; glomerulis sporarum rotundatis vel utroque latere explanatis, 25-38 μ . diam., aut rotundato-oblongis, 46 $\approx$ 34, dilute flavo-brunneis; sporis usque ad 12, rarius ultra insimul coacervatis, oblongis vel varie anguloso-compressis, 12-16 μ . diam., papillosis, violaceis.

Hab. in leguminibus Mediciaginis tribuloidis, quæ deformat, in Algeria (DURIEU). — Legumina pulvere violaceo infarcit et ita regulari modo deformat ut planta vix agnoscat; fructus enim sani, cochleato-cylindrici, 5-cycli, fungilli causa plani orbiculares, monocycli evadunt, ovula abortum patiuntur. « An, suadente Winter, cum *T. hyalina* conjugenda? »

Thecaphora Lathyri Kühn in Rabenh. F. E. n. 1797, Fisch. 1863 Aperçu pag. 36. — Soris brunneo-purpureis; glomerulis tum globosis, 28-60 μ . diam., tum ovoideis aut irregulariter elongatis, 75 $\approx$ 28-52, ferrugineis; sporis 6-24 coacervatis, 9-17 μ . diam.

Hab. in leguminibus, quæ non deformat, Lathyri pratensis in Germania. — « An, suadente cl. Winter, cum *Thecaphora hyalina* conjugenda? »

Thecaphora piluliformis B. et C. North Amer. Fungi n. 570, 1864 Fisch. Aperçu p. 36. — Soris brunneo-argillaceis; glomerulis 4-sporis; sporis globoso-quadratis, echinulatis, argillaceis.

Hab. in acheniis Compositarum in California (COULTER).

11. **Thecaphora affinis** Schneid. in Jahrb. Schles. Gesellschaft 1874, p. 90, Schroet. Pilz. Schles. p. 288, Fisch. Aperçu pag. 36. — Soris ferrugineo-brunneis, in fructibus deformatis evolutis seminaque inquinantibus; glomerulis e 6-20 sporis constantibus, rotundatis aut oblongis, plerumque 26-55 $\approx$ 44; sporis 15-17 μ . diam., castaneo-brunneis, verrucis 3-5 μ . longis, aculeoliformibus latere libero instructis; promycelio filiformi, plerumque indiviso; sporidiolis fusiformibus, ad apicem promycelii solitarie evolutis.

Hab. in leguminibus Astragali glycyphylli in Silesia Germaniæ. — Sec. Winter cūn *T. hyalina* conjungenda est.

12. **Thecaphora Cirsii** Boud. Champ. p. 5, t. XV, f. 1. — Soris fuscis vel fusco-badiis; sporis 2-6 aggregatis, irregularibus, mutua pressione difformibus polygoniisque, parte externa convexa verrucis minutis tecta, 13-17 μ . diam., fuscis.

Hab. in capitulis Cirsii anglici, quæ rotundata, macriora et sterilia fiunt, in turfosis agri parisiensis Galliæ.

13. **Thecaphora Traili** Cooke in Grevillea XI, p. 155. — Purpureo-brunnea, pulverulenta; sporis plerumque 4-aggregatis (rarius 2-3), globosis, facie interna compressis, episporio subtiliter verruculoso, 12-14 μ . diam.

Hab. in floribus Cardui heterophylli in Scotia (TRAIL). — *Habitus Ustilaginis Cardui*, at genuina *Thecaphora*.

Species minus notæ.

14. **Thecaphora Leptocarpi** Berk. Austr. Fungi n. 300. — Soris e granis globosis 10 compositis.

Hab. in Leptocarpo tenaci ad C. Wilson in Australia.

15. **Thecaphora? aurantiaca** Fingerh. in Linnæa X, p. 230, Fisch. Aperçu p. 37. — Hypophylla; glomerulis pentagonis, flavo-aurantiacis, e sporis minutis, oblongis constitutis.

Hab. in foliis Urticæ dioicæ in Germania.

16. **Thecaphora? pallescens** Fingerh. in Linnæa X, p. 230, Fisch. Aperçu p. 37. — Glomerulis pentagonis, majusculis, flavescentibus; sporis oblongo-ovatis vel subglobosis.

Hab. in foliis Fragariæ collinæ in Germania.

17. **Thecaphora Ammophilæ** Oudem. Aanwist. Fl. Myc. Nederl. VIII, p. 20. — Epiphylla, aterrima, pulverulenta; glomerulis e 2-8 cellulis compositis, 18-25 μ . diam.; sporis arctissime inter se cohærentibus, facie externa seu libera convexa papillosa, ceterum levis, flavis, 10-13 μ . diam.

Hab. in foliis *Ammophilæ arenariæ* in Neerlandia. —

Pustulas subglobosas, 500-750 μ , latas efformans.

OROSPORIUM Rud. in Linnæa IV (1829), p. 116 (Etym. *soros* cumulus et *spora*) Winter Die Pilze p. 102, Schroet. Pilz. Schles. p. 288. — Sporæ in hyphis conglomerato-flocculosis, dein gelatinosis evolutæ, maturitate in glomerulos, (primo tegumento gelatinoso involutos) coacervatæ, dein liberæ secedentesque; promycelium filiforme; sporidiola nondum cognita.

Genus incertæ sedis, utrum inter *Ustilagineas* an *Tilletiæas* disponendum dubium. Species nonnullæ fortasse potius inter *Tolyposporia* aliaque genera aptius militare videntur.

Sorosporium Saponariæ Rud. in Linnæa IV, p. 116, Winter Die 1872 Pilze p. 104, Schroet. Pilz. Schles. p. 288, *Ustilago Rudolphii* Tul. Mém. sur les Ustilaginées p. 99, *Microbotryum Rudolphii* Lév. in D'Orb. Dict. univ. pag. 787, *Thecaphora Tunicæ* Auersw. in Æst. botan. Zeitschr. 1868, n. 8, p. 242, *Cavoma Schlechtendalii* Klotzsch Herb. viv. myc. I, n. 87, *Schizoderma Saponariæ* Fr. Syst. Myc. III, p. 477. — Soris pallide rufo-brunneis, grosse granulatis, partes florales incolentibus, jam in gemma valde evolutis floresque deformantibus; glomerulis subglobosis vel ellipsoideis, 40-100 μ . diam., e sporis numerosis, laxè coacervatis constitutis; sporis globulosis vel breviter ellipticis, e pressione polyhedricis, 12-18=10-14, pellucidis, ochraceis, lateribus liberis verruculis rotundatis vel lineolis tenuibus, brevibus densiuscule ornatis; promycelio filiformi.

Hab. in floribus (ovariis, filamentis staminalibus etc.) raro in foliis superioribus *Tunicæ Saxifragæ*, *Dianthi deltoidis*, *Carthusianorum*, *Seguieri*, *Saponariæ officinalis*, *Silenes inflatæ* et *velutinæ*, *Stellaris Holostei*, *Cerastii arvensis*, *Lychnidis dioicæ* in Germania, Austria, Gallia, Italia, Britannia et Algeria (DURIEU). — Nascitur intra flores *Caryophyllearum* plurium, quos abnormes accretos mucro copioso albo primum tandemque pulvere replet. Floris calyx quasi vesiculosus, vix apertus, sepala rudimentaria brevissima staminaque maxime abbreviata filamentis valde tumidis, brevi, undique insidentia fovet, obvelat, demum vero rumpitur pulveremque spargit; antheræ exiguæ manent citoque explicantur, nonnullæ sterilesce videntur; ovarium deficit vel indistinctum s. minutissimum reperi-

tur. Huc spectat *Uredo Silenis-inflatæ* Zigno Plant. Crypt. Pat. pag. 3.

2. **Sorosporium antarcticum** Speg. Fungi Fuegiani p. 47, n. 129. — Soris inflorescentias nec non folia juvenilia inficientibus eaque tumefacientibus, primo compactis, duriusculis, per ætatem mucoso-diffluentibus, aterrimis; sporis globosis, e mutua pressione obtuse angulosis, 12-18 μ . diam., subopace fuligineis, levibus v. vix subrugulosis, in glomerulis (20-25-cellularibus) magnitudine ludentibus congestis.

Hab. ad folia viva Azorellæ glebariæ in scopulosis circa Port Vancouver in Staten Island Amer. austr.

3. **Sorosporium Lolii** Thüm. Symb. Fl. myc. austr. III, n. 75, Wint. Die Pilze p. 104. — Ovaria implens, tumefaciens, massam atrofuscam, pro ratione duram, vix pulveraceam efficiens; sporis plus minusve irregulariter globulosis vel ovoideis, episporio tenui, levi, sordide fuscidulis, in glomerulos parvos 5-15-sporos irregulares, conglobatis, 12-17 μ . diam.

Hab. in ovariis Lolii perennis, Carniola, Laibach (W. Voss).

4. **Sorosporium Dianthi** Rabenh. in Flora 1850, pag. 627. — Soris brunneo-atris, acutis, moriformibus; sporis oblongo-ellipticis vel rotundato-ovoides, subangulatis, e pellucido brunneis, episporio crasso, intense granulosis.

Hab. in gemmis floralibus Dianthi proliferi, Terra d'Otranto Italiæ australis. — «Forte idem ac *Sorosporium Saponariæ* Rud.».

5. **Sorosporium Astragali** Peck in Botanical Gazette 1879, pag. 218. — Glomerulis subglobosis, compactis, 25-50 μ . diam., purpureo-brunneis, semina inficientibus; sporis 6-12 coacervatis, subtiliter rugosis, arcte adhærentibus, facie contigua explanatis, subglobosis, 15-20 μ . diam.

Hab. ad semina Astragali Drummondi, Colorado Americæ borealis (JONES). — *Sorosporio Desmodii* proximum at sporis distinctum.

6. **Sorosporium Ehrenbergii** Kuhn in Mitth. Ver. Erdkunde 1877, pag. 87, Winter Die Pilze pag. 104 in notula, *Ustilago Reiliana* Kuhn in Thüm. Mycotheca Universalis n. 725, p. p. — Sacculis firmæ membranaceis, fulvis, 8-13 mm. longis, 3-5 mm. latis; glomerulis variæ magnit. aut subrotundis, ovoideis, oblongis aut irregularibus (glomerulis parvis rotundis diam. 37 μ . aliis

86 μ . long., 43 μ . lat., aliis 131 μ . long., 94 μ . lat.); sporis globosis, ellipticis vel polygonis, diam. medio 12-4 μ . aliis 17-2 μ ., brunneis, explanate papillosis.

Hab. supra germina Sorghi cernui Cairo, Damiette Africæ borealis. — « An potius *Tolyposporium?* ».

7. **Sorosporium atrum** Peck in Botanical Gazette 1880, pag. 35. — 1878
Glomerulis valde inæqualibus, 15-40 μ . diam., polymorphis at plerumque subglobosis, atris, pauci- vel multisporis; sporis ægre secedentibus, subglobosis, 7-13 μ . diam., minute granulatis.

Hab. in perigonis Caricis pennsylvanicæ, Colorado Amer. bor., 2000 m. circ. alt. (JONES).

8. **Sorosporium Scabies** (Berk.) Fisch. di Wald. Aperçu p. 33, *Tu-* 1879
burcinia Scabies Berk. Outl. p. 356, Cooke M. F. t. III, f. 54.
— Glomerulis globosis, usque ad 75 μ . diam., olivaceis, 1-2-lacunosis; sporis minutis, obscure brunneo-atris.

Hab. in tuberibus Solani tuberosi in Belgio et Britannia.

9. **Sorosporium argentinum** Speg. Fungi Argentini pugillus IV, n. 52. 1880
— Soris aterrimis, compactis, ovarium implentibus, paleolas in membranas diffformes, exsertas, fulvo-fuscas evolventibus, paleas tamen immutatas relinquentibus; glomerulis majusculis, subglobosis, v. ellipticis, 80-120 $\approx$ 40-60, 100-sporis, facile solutis; sporis globosis v. e mutua pressione angulosis, episporio subcrassiusculo, levissimo, amœne olivaceo-fuligineis, 10 μ . diam., simplicibus.

Hab. in floribus evolutis Tricholænæ insularis prope la Vinchinb, provincia Rioja, in Republica Argentina Americæ australis (Dr. Hieronymus).

10. **Sorosporium desertorum** Thüm. in Grev. VIII, p. 50. — Ovaria 1881
replens v. subtumefaciens, paleas infuscans; soris grumosis, aterrimis; sporis irregulariter globosis vel rotundo-ovatis vel subcompresso-globosulis, episporio tenui, vix papilloso, punctulato, fuscis, 8-10,5 μ . diam., in glomerulis subglobosis vel irregularibus, 35-50 μ . diam., congregatis.

Hab. in ovariis vivis Cœlorrhachidis hirsutæ, in Wadi-Gundeli, Dar-el-Beda in deserto medio Africæ.

11. **Sorosporium Ellisii** Winter in Hedwigia 1883, p. 2. — Glomeru- 1882
lis forma magnitudineque variis, mox subsphæroideis, mox oblongis opacis, e sporis numerosis compositis, 35-70 μ . diam.; sporis rotundato-polygonis, episporio granuloso, fusco, facile secedentibus, 12-16 $\approx$ 8-12 vel 12 μ . diam.

Hab. in Aristida dichotoma et Andropogone virgi-

nico, quorum inflorescentiam totam destruit et implet, Newfield New Jersey (ELLIS) et Pennsylvania (W. TRIMBLE) in Amer. bor.

12. **Sorosporium consanguineum** Ell. et Everh. in Journal of Mycology 1887, p. 56. — Glomerulis globosis vel subelongatis, 50-70 μ . diam.; sporis 6-8 μ . diam. polygoniis, levibus vel sublevibus.

Hab. in ovariis Aristidæ Rusbyi, Arizona Americæ borealis (BUSBY). — *S. Ellisii* Wint. sporis levibus minoribus differt.

13. **Sorosporium Muellerianum** Thüm. Symb. Myc. Austral. II, p. 5, n. 98. — Inflorescentiam implens sed non corrumpens, oculo nudo vix visibile; sporis usque 100 in glomerulis obscure brunneis, subrotundis, impellucidis conglobatis, subglobosis vel polyhedricis vel ellipsoideis vel sphaericis, 8-16 μ . diam., fuscis, pellucidis, episporio levi.

Hab. in paniculis vivis Cladii Fili, Wester Point in Victoria Australiæ (MÜLLER).

14. **Sorosporium Eriachnes** Thüm. in Symb. Myc. Austral. II, p. 4, n. 97. — Fructus maturos ex toto implens et in massam atram, pulveraceam mutans; sporis valde irregularibus aut anguloso-subglobosis ellipticisve aut polyhedricis aut subquadrangulis, levibus, 10-14 μ . diam., in glomerulos irregulares, parvos conjunctis, opaco-fuscis.

Hab. in spicis vivis Eriachnes in Australia tropica (MÜLLER).

15. **Sorosporium caledonicum** Pat. Champ. nouv. Calédonie p. 6, n. 36. — Glomerulis numerosis, rotundatis vel ovatis, opacissimis, atris, 60-100 μ . diam., polysporis; sporis rotundatis v. ovoideis, plus minus angulatis, 13 $\approx$ 10, brunneis, episporio levi donatis.

Hab. intra glumas Heteropogonis contorti, cujus flores destruit, in Nova Caledonia.

16. **Sorosporium Vossianum** Thüm. Myc. univ. n. 1319. — Ovarium ex toto implens v. deformans, demum massas grumulosas, protrusas, aterrimas, siccas formans; filamentis subgelatinosis tenuibus, hyalinis, flexuosis; glomerulis angulosis vel irregularibus, multi-sporis; sporis eximie variis, angulosis, subglobosis, subpiriformibus, multangularibus, dilute fuscis, fere homogeneis, episporio subtenui, levi, 8-16 μ . diam.

Hab. in ovariis Moliniæ cæruleæ, Laibach in Carniola (W. Voss). — Suadente Winter in Hedwigia 1880, pag. 109, videtur *Stemphylii* species, ergo *Hyphomycetea*.

17. **Sorosporium californicum** Harkn. Fungi of the Pacific Coast p. 161. — Glomerulis ambitu subglobosis, læte flavescenti-brun-

neis e sporis 10-20 compositis; sporis 30-38 μ . diam., subtiliter papillatis.

Hab. in capitulis *Grindeliæ*, ejus achenia destruit, pr. Antioch in California Americæ borealis.

18. **Sorosporium Desmodii** Peck in Botan. Gazette 1878, pag. 35. — 1889

Glomerulis irregularibus vel subglobosis, compactis, rugosis, 30-40 μ . diam., e rufescenti-brunneo cinnamomeis; sporis globosis, rugulosis, 15-18 μ . diam., 4-10-conglobatis, ægre secedentibus.

Hab. intra semina *Desmodii acuminati*, Closter New Jersey Americæ borealis (C. F. Austin).

Species excludenda.

19. **Sorosporium Veronicæ** (Schroet.) Wint. Die Pilze pag. 103, *Tu-* 1890

burcinia Veronicæ Schroet. in Cohn Beitr. II, 3, p. 383, *Sorosphaera Veronicæ* Schroet. Pilzfl. Schles. p. 135! Cfr. Berl. Syll. Myxom. in Sacc. Syll. Fung. omnium vol. VII, p. 466, n. 1474.

UROCYSTIS Rabenh. in Klotzsch Herb. Myc. ed. II, n. 393 (Etyml. *oura* cauda et *cystis* vesica), *Polycystis* Lév. nec Kuetz. — Sori grosse pulveracei, atris, erumpentes; glomeruli e spora unica v. pluribus centralibus majoribus et e sporis plurimis periphericis minoribus efformati; sporæ centrales majores, episporio crasso instructæ, ut in *Tilletia* germinantes; sporæ periphericæ minores, episporio tenui donatæ, haud germinantes.

1. **Urocystis occulta** (Wallr.) Rabenh. in Klotzsch Herb. myc. II, 1891

n. 393, F. E. n. 1790, Winter Die Pilze pag. 119, p. p. Fisch. Aperçu p. 40, Schroet. Pilz. Schles. p. 279, *Erysibe occulta* Wallr. Fl. Crypt. Germ. II, p. 212, n. 159, *Uredo parallela* (Sow.) Berk. in Sm. Engl. Fl. V, 2, p. 375, *Uredo occulta* Rabenh. Krypt. Fl. I, p. 5, *Polycystis pompholygodes* Lév. in Ann. Scienc. Nat. 1846, p. 270, p. p. *Polycystis parallela* Berk. et Br. in Ann. Nat. Hist. 1850, n. 486, *Polycystis occulta* Schlecht. in Botan. Zeit. 1852, p. 602, *Thecaphora ocellata* Desmaz. Crypt. Fr. n. 653, *Urocystis parallela* Fisch. von Waldh. in Pringsh. Jahrb. VII, p. 107, *Polycystis graminum* Bell. Cfr. Kickx Fl. II, p. 81, ? *Urocystis Triticæ* Körn. in Hedwigia 1877, pag. 33. — Sori series longas in foliis, vaginis, culmis, pedunculis glumisque efficientibus, primo epidermide tectis, cæruleo-griseis, dein erumpentibus, atris, pulverulentis; glomerulis sporarum globosis vel ellipsoideis, 17-24 $\approx$ 15-20; sporis centralibus 12-18 μ . diam., globosis, explanatis, levibus, ob-

seure brunneis; sporis periphericis strato simplici interrupto, sporas centrales tegentibus, globosis, explanatis, 4-6 μ . diam., dilute brunneis; sporis centralibus mox germinantibus; sporidiolis cylindraceis, raro copulantibus, at directe apice inferiori germinantibus; mycelio annuo.

Hab. in foliis, vaginis, culmis, petiolis, glumis Arrhenatheri elatioris, Secales cerealis, Hordei vulgaris, Lolii perennis, Tritici vulgaris, Alopecuri agrestis et Poæ pratensis in Germania, Belgio, Britannia, Gallia et Amer. bor. — « An hoc pertinet *Urocystis Alopecuri* Frank? ».

2. **Urocystis Agropyri** (Preuss) Schroet. Brand. u. Rostp. Schles. p. 7, Pilzfl. Schles. pag. 279, *Uredo Agropyri* Preuss in Klotzsch-Rabenh. Herb. myc. n. 1696, *Urocystis Fischeri* Körn. in Hedwigia 1877, pag. 34, *Urocystis Preussii* Kühn in Rabenh. F. E. n. 1898, *Urocystis Ulei* Magnus in Rabenh. F. E. n. 2390. — Soris ut in *U. occulta*; glomerulis sporarum plerumque 20-26 $\approx$ 16-20; sporis centralibus 1-3, 8-12 μ . diam.; sporis periphericis stratum simplicem incompletumque efficientibus, 5-9 μ . diam.

Hab. in foliis caulibusque Tritici repentis, Agropyri repentis, Arrhenatheri elatioris, Festucae rubrae, Bromi inermis, Caricis acutae, glaucae et muricatae in Germania et Britannia.

3. **Urocystis Festucae** Ule in Hedwigia 1886, pag. 114. — Habitus fere *U. Agropyri*; sporis centralibus majoribus, periphericis minoribus.

Hab. in culmis foliisque Festucae ovinae in fagetis prope Koburg Germaniae. — « An ab *U. Agropyri* notis allatis satis diversa? ».

4. **Urocystis Luzulae** Schroet. Pilz. Schles. p. 279, Winter Die Pilze p. 120, *Polycystis Luzulae* Schroet. in Cohn Beitr. II, p. 380. — Soris atris, strias plura cm. longas, confluentes, epidermide tectas e caerulescenti griseas efformantibus; glomerulis globosis vel oblongis, 22-45 $\approx$ 15-26; sporis centralibus 2-5, rotundatis, 11-14 μ . diam., levibus, castaneo-brunneis; sporis periphericis stratum simplicem efformantibus, insimul aggregato-compressis, 6-8 μ . diam., concoloribus.

Hab. in foliis Luzulae pilosae in Silesia Germaniae.

5. **Urocystis Colchici** (Schlecht.) Rabenh. Fungi eur. n. 396, Winter Die Pilze p. 120 pro parte, Schroet. Pilz. Schles. p. 280, Fisch. Aperçu p. 38, *Polycystis Colchici* Strauss in Sturm D. C. Fl. p. 45,

Cavoma Colchici Schlecht. in Linnæa I, p. 241, *Uredo Colchici* Link Handb. III, p. 435, *Erysibe arillata* d. Wallr. Fl. Crypt. germ. II, pag. 211, n. 1657, *Sporisorium Colchici* Lib. Pl. Ard. n. 194. — Soris atris, plagulas crassiusculas expansas, dein irregulariter laceratas efformantibus; glomerulis sporarum globosis v. oblongis, 20-33 $\approx$ 16-20, sporis centralibus 2-4, 10-15 μ . diam., levibus, castaneo-brunneis, sporis periphericis crassiuscule truncatis, subinde bistratis, 7-11 μ . diam., pallide flavo-brunneis.

Hab. in foliis Allii rotundi, Colchici autumnalis, Muscari comosi et racemosi, Paridis quadrifoliæ et Scillæ bifoliæ in Italia, Britannia, Belgio, Germania.

6. **Urocystis Cepulæ** Frost in Farl. Onion Smut in 24 Ann. Rep. Mas- 1896
sach. 1877, *Urocystis Colchici* var. *Cepulæ* Cooke in Gard. Chron. 1877, p. 634. — Glomerulis sporarum subglobosis, 18-20 μ . diam., fuscis; sporis subglobosis, minutis, 3-4 μ . diam.

Hab. in foliis bulbisque Allii Porri et Cepulæ in America bor. (Frost) et Gallia (M. Cornu). — « Forte, ut Cooke æstimat, *Urocystis Colchici* meram sistit varietatem ». Cfr. etiam Winter Die Pilze p. 121.

7. **Urocystis magica** Pass. in Thüm. Myc. univ. n. 223, Fisch. Aperçu 1897
pag. 39. — Præter sororum dispositionem et crassitiem ab *Urocysti Colchici* etsi affinis, sporarum cellulis periphericis minoribus magisque regularibus differre videtur.

Hab. ad folia viva Allii magici etiam in parte sepulta haud chlorophyllosa, in campis, ad Collecchio prope Parma Italiæ borealis. — Cl. Winter Pilze p. 121, refert hanc speciem ad *Urocystim Colchici*.

8. **Urocystis Ornithogali** Körn. in Fisch. Aperçu p. 41, *Urocystis* 1898
hypogæa Körn. in Fuck. Symb. III, p. 9. — Soris atris, tumidis; glomerulis sporarum rotundatis aut ovalibus, 20-40 $\approx$ 14-32; sporis centralibus flavo-brunneis, sporis periphericis pallidioribus, episporio crasso tectis.

Hab. in foliis Ornithogali umbellati in Germania. — « Forte hæc species, suadente cl. Winter (Pilze p. 121), ad *Urocystim Colchici* referenda est ».

9. **Urocystis primulicola** Magnus Ueber drei neue Pilze Schles. 1871, 1899
Sorosporium? primulicola (Magn.) Pirota in Nuovo Giorn. bot. ital. 1881, p. 235. — Soris atris; glomerulis subconcoloribus, rotundatis vel fere sphaericis, subinde irregularibus, 21-32 μ . latis, sporis centralibus granuloso-farctis, guttulis oleosis foventibus, epi-

sporio brunneo levi instructis, 2-6 rarius 10, 9-15 μ . diam., sporis periphericis numerosioribus, minoribus; promycelio protoplasmate granuloso faretto, cylindraceo, hyalino, tunica tenui; sporidiolis terminalibus, 1-4, ovoideis vel oblongis, frequenter piriformibus, brevissime pedicellatis, 9-18 $\approx$ 4-9, hyalinis.

Hab. in fructibus *Primulae farinosae* et officinalis in Silesia, Saxonia et Italia.

10. **Urocystis Gladioli** (Requien) Sm. in Gard. Chron. 1876, p. 420, Fisch. Aperçu p. 42, Winter Die Pilze p. 121, *Uredo Gladioli* Req. in Duby Bot. Gall. II, p. 901, *Erysibe arillata* var. *Gladioli* Wallr. Fl. Crypt. Germ. II, p. 211, n. 1657. — Soris pustuliformibus, atris, rotundatis, sparsis vel approximatis, epidermide bullata tectis, macula flava marginatis; glomerulis sporarum rotundatis, circ. 45 μ . diam. sporis centralibus 3-6 μ . latere libero rotundatis, latere contiguo explanatis, brunneis; sporis periphericis numerosissimis, regulariter dispositis, pellucidis, pallidioribus.

Hab. in tuberculis caulibusque *Gladioli communis* et imbricati in Gallia et Germania.

- § 11. **Urocystis Anemones** (Pers.) Schroet. Bem. u. Beob. Ustil. in Beitr. Biol. Pfl. 1877, p. 375, Pilz. Schles. p. 280, Winter Die Pilze p. 123, *Uredo Anemones* Pers. Disp. meth. Fung. p. 56 et Syn. Fung. p. 223, Rabenh. Krypt. Flor. I, p. 4, *Ur. Ranunculacearum* DC. Flor. Franç. VI, p. 75, *Cœoma pompholygodes* Schlecht. in Linnaea I, p. 248, *Uredo pompholygodes* Rabenh. Krypt. Flor. I, p. 4, *Polycystis pompholygodes* Lév. in Ann. Sc. Nat. III ser., tom. V, p. 269. *P. Ranunculacearum* Fr. Summ. Veg. Scand. p. 516, *Urocystis pompholygodes* Rabenh. in F. E. n. 697, *Erysibe floccosa* Wallr. Fl. Crypt. Germ. II, p. 212 n. 1658, *Polycystis Ficariae* Lév. in Ann. Sc. Nat. III, 8, p. 372. — Soris sparsis, bullatis, per epidermidem rima longitudinali deliscentem erumpentibus, atris, majusculis; sporis centralibus, ovoideo-sphaeroideis, fuscis 18 $\approx$ 16 mm., periphericis 10 vel pluribus, depressiusculis; glomerulis sporarum circiter 26 μ . longis.

Hab. in foliis, petiolis caulibusque *Anemones baldensis*, *narcissiflorae*, *coronariae*, *palmatae*, *silvestris*, *nemorosae*, *Pulsatillae*, *alpinae*, *ranunculoidis*, *vernalis*, *pennsylvanicae*, *Hepaticae trilobae* et *acutilobae*, *Atragenes alpinae*, *Aconiti Lycoctoni*, *Acteae spicatae*, *Hellebori viridis*, *Ficariae ranunculoidis*, *Ranunculi bulbosi*, *repentis*, *Pulsatillae patentis*, *Eranthidis hiemalis*

in Italia, Gallia, Fennia, Britannia, Austria, Germania, Helvetia, America boreali et Sibiria asiatica prope Minussinsk.

12. **Urocystis? Corydalis** Niessl in Thüm. Mycoth. n. 1626, Winter 1902
Die Pilze p. 118. — Soris pustulas 0,7-1,5 mm. diam., rotundatas vel breviter ellipticas, amphigenas, leniter convexulas, argillaceas, dein auctas, explanatas brunneasque efficientibus; glomerulis sporarum rotundatis vel ellipticis, 16-21 μ . diam. vel usque ad 26 μ . longis, primo subhyalinis, dein flavidis demumque pallide brunneis; sporis centralibus semper singulis, rotundatis vel subangulatis raro irregulariter oblongis, 10-16 μ . diam., sporis periphericis numerosissimis, versiformibus, extus sæpe 1-2 lateraliter apiculatis, magnitudinem dimidiam centralium præbentibus.

Hab. in foliis *Corydalis cavæ* in Moravia. — «An, suadente cl. Winter, potius *Entylomatis* species, ab homonyma *Entylomate Corydalis* De Bary diversa?».

13. **Urocystis Leimbachii** (Ertel in Irmischia Jahrg. II, (1883) p. 125, 1903
Just's Botan. Jahresber. 1883, I, p. 350. — Inter *U. Anemones* et *U. sorosporioidem* media.

Hab. in Adonide æstivali prope Jena et in Kyffäuser Germania.

14. **Urocystis sorosporioides** Körn. in Fuck. Symb. myc. III, p. 10, 1904
Fisch. Aperçu p. 41, Winter Die Pilze pag. 124, Schroet. Pilz. Schles. pag. 280. — Soris atris, pustuliformibus, valde convexis, epidermide albedo-grisea tectis, dein, ea disrupta, pulverulentis; glomerulis sporarum rotundatis vel oblongis, compactis, subopacis, variae magnitudinis, 22-48 $\approx$ 15-31; sporis centralibus 4-6, rarius ultra, globosis vel hemisphaericis, levibus, 11-17 μ . diam., subopacis, brunneis, sporis periphericis numerosis unistratos, laxiusculis, globosis vel hemisphaerico-subexplanatis, 7-12 μ . diam., dilutioribus, flavo-brunneis.

Hab. in foliis petiolisque *Pulsatillæ alpinæ*, *Thalictri minoris* et foetidi in Germania. — Fungillus sæpe totum folium occupat et pustulas parvas valde convexas efformat; in partibus axilibus plagulas oblongatas bullatas efficit. Ab *Uroc. Anemones* sporis centralibus numerosis et ambitu regulari glomeruli differt.

15. **Urocystis Violæ** (Sow.) Fisch. Aperçu p. 41, Winter Die Pilze 1905
p. 122, Schroet. Pilz. Schles. pag. 280, *Granularia Violæ* Sow. Engl. Fungi t. 440, *Uredo (Polycystis) vesicaria* Kaulf. in Kunze et Schm. Myc. Heft. I, p. 67, *Erysibe avillata* β . *Violarum*

Wallr. Fl. Crypt. Germ. II, p. 211, n. 1657, *Sorosporium schizocaulon* Ces. var. *Violæ* Casp. in Rabenh. Herb. Myc. Ed. nov. n. 190, *Polycystis Violæ* Berk. et Br. in Ann. Nat. Hist. 1850, n. 487. — Soris atris, pustulas plagulasve lividas efforuantibus; glomerulis sporarum globosis vel ellipsoideis, 32-52 $\approx$ 20-45; sporis centralibus raro singulis, sæpius usque ad 8 obscure brunneis, 10-17 μ . diam., sporis periphericis hemisphærico-convexis, 6-10 μ . diam., pallidioribus; sporidiolis cylindraceis, numerosis, coronæ instar ad apicem promycelii evolutis.

Hab. in foliis (præcipue secus nervaturas), petiolis stolonibusque *Violæ* odoratæ, *badensis*, *hirtæ*, *tricoloris* in Italia, Gallia, Britannia, Germania. — Pustulæ usque ad 6 cm. longæ, 3-5 mm. crassæ, diu tectæ.

- S 16. **Urocystis Filipendulæ** Fuck. Symb. myc. II, p. 12, Winter Die Pilze p. 122, Schroet. Pilz. Schles. p. 281, *Polycystis Filipendulæ* Tul. Sec. Mém. sur les Ured. in Ann. Sc. Nat. IV, 2, pag. 163, Fisch. Aperçu p. 39. — Soris atris, dein laceratis, pulverulentis; glomerulis sporarum usque ad 44 μ . longis, variabilibus; sporis centralibus 1-7, rotundatis vel angulatis, brunneis, 15-24 $\approx$ 10-15, punctulatis, sporis periphericis irregularibus, subhemisphæricis, usque ad 12, a centralibus subinde vix distinctis, 6-12 μ . diam., brunneis; sporidiolis cylindraceis.

Hab. in petiolis nervisque foliorum præcipue radicalium *Spirææ Filipendulæ* in Germania.

17. **Urocystis americana** (Speg.) De-Toni, *Polycystis americana* Speg. Fungi Argentini pug. IV, n. 54. — Soris linearibus longissime per folia inter nervos excurrentibus, primo tectis, dein rimose-longitudinaliter dehiscentibus, atris; glomerulis globosis, 20-50 μ . diam.; sporis 2-4 centralibus majoribus, 8-15 μ . diam., intense fuligineis, granuloso-farctis, levissimis, sporis periphericis 3-6 μ . diam., subhyalinis v. fumosis, centrales tegentibus, levibus.

Hab. in foliis *Glyceriæ fluitantis*? in uliginosis al Bana-do de S. José de Flores Amer. australis.

18. **Urocystis carcinodes** (Berk. et Curt.) Fisch. Ustilag. p. 38, *Thecaphora carcinodes* B. et C. North Amer. Fungi n. 570 a. — Soris maximis, ellipticis e ramulis protrudentibus; sporis globosis, cellulis 4-6 hyalinis cinctis.

Hab. in caule *Cimicifugæ racemosæ* in Pennsylvania Amer. bor. (MICHENER).

19. **Urocystis? italica** (Sacc. et Speg.) De-Toni, *Polycystis italica* S. 19

et S. in Mich. I, p. 454. — Endogena, externe nunquam manifesta; soris fere totam seminis massam occupantibus et pulvere compactiusculo, atro-brunneo obruentibus; sporis 3-6 conglobato-connatis; una laterali, magna, sphaerica, hyalino-verruculosa, atro-fuliginea, 25-30 μ . diam., ceteris (2-5) subglobosis, glomerulatis, 5-10 μ . diam., pallide fuscis, levibus, episporio crassiusculo donatis.

Hab. intra semina Castaneæ vescae prope Conegliano Italiae borealis, rarissime.

20. **Urocystis solida** (Berk.) Fisch. Aperçu p. 38, *Ustilago solida* 1910 Berk. in Hook. Antart. Voy. Ereb. a. Terror. 1860, III, et Fl. Tasm. II, p. 270, t. 183, f. 11. — Soris atris, globosis, compactis; glomerulis 3-8-sporis, rotundatis, 20 μ . diam., levibus, rarius 2-3 vesiculis periphericis ornatis.

Hab. in Chætospora imberbi in Tasmania.

21. **Urocystis purpurea** Hazsl. Ungarns Rost. und Brand. Cfr. Just 1911 Botan. Jahresb. 1876, p. 72. — Glomerulis purpurascentibus vel violaceis, 35-50 μ . diam., globosis; sporis centralibus coloratis, minutissime verruculosus, 8-10 μ . diam., periphericis subhyalinis.

Hab. in ovariis Dianthi deltoidis et proliferi in Hungaria. — Forte *Sorosporium* et probabiliter ad *S. Saponarice* ducenda.

22. **Urocystis? coralloides** Rostr. in Botan. Centralblatt 1881, n. 1, 1912 p. 126. — Irregulariter coralliformis, griseo-plumbea; sporis hyphis hyalinis subcinctis, centralibus 1-3, 12-16 μ . diam., obscure brunneis, periphericis minutis, globosis, brunneolis, levibus; glomerulis circ. 30-40 μ . diam.

Hab. in radicibus Turritis glabræ in Dania.

23. **Urocystis Orobanches** (Fr.) Fisch. Aperçu pag. 42, *Tubercinia* 1913 *Orobanches* Fr. Syst. Myc. III, p. 438, *Rhizoctonia Orobanches* Merat. Fl. Paris t. 2, *Ustilago Orobanches* Lév. in Ann. Sc. nat. 3, V, p. 269, *Polycystis Orobanches* Lév. in Ann. Sc. Nat. 3, VIII, pag. 372, *Thecaphora Orobanches* Lév. in D'Orb. Dict. univ. XII, pag. 787. — Sporis magnis, atris, rotundato-inæqualibus, in aqua sporidiola (?) minuta, exacte globosa, pellucida effudentibus, primo hyphis raris cohærentibus, dein *Sepedonii* more nudis cumulatis.

Hab. ad radices Orobancharum in Europa australi. — Radices basimque Orobancharum tumescentes comedit pulvis copiosus, coacervatus, niger, radicibus primo prorsus inclusus et inter ha-

rum fibras in loculos divisus. — «An ab hoc fungillo satis differt *Uroc.?* *Monotropæ* Fisch.?»

24. **Urocystis? Monotropæ** (Fr.) Fisch. *Aperçu* p. 42, *Tubercinia Monotropæ* Fr. *Syst. Myc.* III, p. 440, *Ustilago Monotropæ* Tul. in *Ann. Sc. Nat.* 1847, p. 107. — *Uroc.?* *Orobanches* affinis at magis superficialis, erumpens; sporis inæqualibus, atris; hyphis magis numerosis, evidentibus.

Hab. in radicibus caulibusque *Monotropæ* in Belgio. — «An huc pertinet *Tubercinia punctiformis* Fr. l. c. (*Egeria punctiformis* DC. *Fl. Fr.* II, p. 72?)»

- ful ut.* **GRAPHIOLA** Poit. in *Ann. Scienc. Nat. Botanique* 1824, pag. 473, t. XXVI, f. 2, Lév. *Fragm.* p. 139, Schroet. *Pilzfl. Schles.* p. 289, E. Fisch. *Bot. Zeit.* 1888 (Etym. *grapheidion* stylus). — Mycelium in contextu plantæ vivæ vicens peridiaque minuta, ex epidermide erumpentia, gignens; peridium (receptaculum auct. nonnull.) rotundatum, carbonaceum, duplex, exoperidium ex hyphis ramosis coalitis efformatum, firmum, endoperidium tenue, clausum hyphisque sporiferis sterilibusque fasciculatis repletum; hyphæ fertiles e basi pseudoperidii oriundæ filiformes, flavæ, stipatæ, breviter articulatæ; sporæ e cellulis lateralibus dein septo transversali bipartitis efformatæ, globosæ vel ellipticæ; fascicula hypharum steriliū inter hyphas fertiles sita, e peridio exeuntia sporasque altitudine superantia. Germinatio sporarum fit tum mycelio (promycelio?) filiformi tum sporidiolis fusoides. — Genus inter *Ustilagineas* dubias a cl. Schroeterio positum, forte familiæ peculiaris typum sistens.
1. **Graphiola Phœnicis** (Moug.) Poit. in *Ann. Scienc. Nat.* 1824, p. 473, t. 26, f. 2, Corda *Anleit. t. C.*, f. 26, n. 5-8, Cooke *Handb.* n. 1637, Schroet. *Pilz. Schles.* p. 289, Lév. *Fragm. mycol.* pag. 139, E. Fischer in *Bot. Zeit.* 1883, p. 751, tab. 6, fig. 1-21, *Phacidium Phœnicis* Moug. in *Fr. Syst. Myc.* II, p. 372, *Elench.* 2, p. 134, *Trichodesmium Phœnicis* Chev. *Fl. Paris* pt. 3, p. 382, t. II, f. 1, *Ræstelia Phœnicis* Bonord. *Handb.* p. 55, *Schizoderma phacidoides* Kunze in *Flora* 1826, p. 281. — 1-1,5 mm. lata, 500 μ . alta, apice rumpens; exoperidio corneo, atro; endoperidio membranaceo, fugaci, hyalino; sporarum massa flava; sporis globosis vel ellipticis, 3-6 μ . diam., episporio crasso, levi, hyalino; filamentis striatis, 10-15 μ . crassis, 2 mm. et ultra prominentibus.

Hab. in foliis *Phœnicis* dactyliferæ, dissectifoliæ, farinosæ et *Chamæropis* humilis in Italia, insula Sicilia

et in Tyrolia, Britannia, ins. Corsica, Germania, Hungaria, Belgio, Gallia, Lusitania, Algeria, America boreali, Uruguay (ARECHAVALETA), Surinam aliisque Americæ centralis locis (SPEGAZZINI), Indostania et in ins. Ceylon et Nova Caledonia (PATOUILLARD).

2. **Graphiola? disticha** (Ehrenb.) Lév. Fragm. mycol. p. 139, *Spha.* 1916
ria disticha Ehrenb. in Fr. Syst. Myc. II, pag. 434, Sacc. Syll. Pyren. II, p. 398, n. 4262 sec. Lévêillé, E. Fischer in Bot. Zeit. 1883, p. 786. — Peridiis amphigenis, subglobosis, confertis *Graphiolæ Phœnicis* minoribus, 3-dupliciter atque parallele seriatis, fusco-nigricantibus, intus pallide flavis, pulverulentis, ostioliis subconstrictis; sporis filamentisque *G. Phœnicis* similibus.

Hab. ad folia Dracænæ Draconis in India orientali.

3. **Graphiola congesta** Berk. et Rav. North Amer. Fung. n. 569 b, 1917
 E. Fischer in Bot. Zeit. 1883, p. 784, t. 6, f. 22-24. — Pseudoperidiis parvis congestis elongatis; filamentis 1-2,5 μ . crassis, parce septatis ramulosisque; sporis globulosis, 3 = 1,5-2.

Hab. in Chamærope Palmetta in Carolina inf. Americæ borealis (RAVENEL).

4. **Graphiola? compressa** E. Fischer in Bot. Zeit. 1883, p. 788, t. 6, 1918
 f. 25-26. — Ostioliis *G. Phœnicis* angustioribus, subpunctiformibus vel striiformibus; sporis.... non visis.

Hab. in foliis Chamæropis humilis in Carolina Americæ borealis (RAVENEL).

CEREBELLA Ces. in Klotzsch Herb. viv. mycol. n. 1587, Botan. Zeit. 1851, p. 669 (Etym. a *cerebro*). — Stroma olivaceo-fuscescens, jam primitus sporis concoloribus velatum, dein magis magisque, ad basim præsertim, turgescens, tunc sporis copiosissimis nec non minutissimis 3-4-usque 6 simul adglutinatissimis, inquinantibus onustum; stroma (sporis excussis) turgidum, compressum ovatum, transversim lacunoso-plicatum ut nucleum Juglandis, dimensionis ratione habita, haud male referat vel cerebri segmenta, unde nomen generis; stroma dissectum arescens, celluloseum, albicans. — Genus dubium, forte apud *Urocystim* vel *Thecaphoram* militans.

- **Cerebella Andropogonis** Ces. l. c. Berk. in Gard. Chron. 1852, 1919
 p. 643. — Characteres generis.

Hab. sub glumis calycinis *Andropogonis Ischæmi* in Italia boreali, sociis sæpius *Hypocrea? pusilla* et *Myropyxide graminicola*. — Sporæ, teste Saccardo, Syll. Hyphom. (Genera du-

bia v. excl.) pag. 761 globulosæ, opaco-brunneæ, 5-6-loculares; hyphæ non visæ.

2. **Cerebella Paspali** Cooke et Masee in Grev. XVI, p. 20. — Stromate convexo, hemisphærico, 2-3 mm. diam., subtiliter gyrosoplicato, obscure olivaceo; sporis subglobosis subquadratisve, 3-4-angulatis ut in *Urocysti*, dein postremo secedentibus, olivaceis, 20-25, ultimis 10-12 μ . diam., episporio levi donatis; basidiis in hyphis intertextis, ramosis, rufescentibus et basim versus septatis.

Hab. in glumis *Paspali* scrobiculati, Brisbane Australiae (BAILEY). — « Cum *Ustilagopsis* comparanda ».

Forte ad Ustilagineas pertinent

Paspalopsis Kühn. (Syll. IV, p. 47). — *Testicularia* Klotzsch. (Syll. VII, p. 150). — *Tuberculina* Sacc. (Syll. IV, p. 653).

REPERTORIUM USTILAGINEARUM

SECUNDUM MATRICES

Obs. C. indicat *Cerebella*. — Ci. *Cintractia*. — D. *Doassansia*. — E. *Entorrhiza*. — En. *Entyloma*. — G. *Graphiola*. — M. *Melanotenum*. — S. *Schizonella*. — Sc. *Schæteria*. — So. *Sorosporium*. — Sp. *Sphacelotheca*. — T. *Thecaphora*. — Ti. *Tilletia*. — To. *Tolyposporium*. — Tu. *Tubercinia*. — U. *Urocystis*. — Us. *Ustilago*. — Ust. *Ustilagopsis*.

Numeri 1637-1920 indicantur 637-920.

Aconitum — U. 901.
 Actæa — U. 901.
 Adonis — U. 903.
 Ægilops — Us. 660.
 Agropyrum — Us. 641. — Ti. 785. — U. 892.
 Agrostis — Ti. 762, 774.
 Aira — Us. 638, 676.
 Alisma — D. 842.
 Allium — U. 895, 896, 897.

Alopecurus — Ti. 774, 787. — U. 891.
 Ambrosia — Eur. 820.
 Ammophila — Us. 641. — T. 871.
 Andropogon — Us. 643, 667, 676, 707, 728. — Ti. 767. — T. 856. — So. 882. — C. 919.
 Anemones — U. 901.
 Anthistiria — Us. 726.
 Anthoxanthum — Ti. 774.
 Apera — Ti. 766.

Araliaceae — En. 822.
 Aristida — Us. 679. — So. 882, 883.
 Arnica — En. 809.
 Arnoseris — En. 809.
 Arronatherum — Us. 676, 703. — Ti.
 774. — U. 891, 892.
 Arum — Us. 661.
 Arundinaria — Us. 641.
 Aster — En. 813.
 Astragalus — T. 865. — So. 876.
 Atragene — U. 901.
 Avena — Us. 676. — Ti. 784.
 Azorella — So. 883.
 Bellevalia — Us. 687.
 Bellidiastrum — En. 809.
 Betonica — Us. 736.
 Borrage — En. 789.
 Brachypodium — Ti. 761.
 Briza — Ti. 774, 786.
 Bromus — Us. 641, 677. — Ti. 774. —
 U. 891.
 Butomus — D. 846.
 Calamagrostis — Us. 641. — Ti. 774,
 775.
 Calendula — En. 809.
 Carduus — Us. 738. — T. 867.
 Carex — Us. 671, 682, 683, 685, 698,
 721. — Ci. 756. — Ti. 779, 781. —
 S. 835. — To. 841. — So. 878. —
 U. 892.
 Carpha — Us. 673.
 Castanea — U. 909.
 Catabrosa — En. 796.
 Cenchrus — Us. 728.
 Cerastium — Us. 690. — So. 872.
 Chaetospira — U. 910.
 Chamærops — G. 915, 917, 918.
 Chrysosplenium — En. 804.
 Chusquea — Us. 656.
 Cimicifuga — U. 908.
 Cirsium — T. 866.
 Cissus — Sc. 838.
 Cladium — So. 884.
 Cœlorrachis — So. 881.
 Colchicum — U. 895.

Comarum — D. 852.
 Compositæ — T. 864.
 Convolvulus — T. 855.
 Conyza — Us. 672.
 Coronaria — Us. 731.
 Corydalis — En. 794. — U. 902.
 Cymbopogon — Us. 748.
 Cynodon — Us. 676, 694, 697. — Ti.
 782.
 Cyperus — Us. 663, 671. — Ci. 755.
 — E. 830.
 Daactylis — Ti. 774. — En. 806.
 Danthonia — Us. 676, 699.
 Delphinium — En. 798.
 Deschampsia — Ti. 768.
 Desmodium — So. 889.
 Dianthus — Us. 731. — So. 872, 875.
 — U. 911.
 Digitalia — Us. 718, 728.
 Diplachne — Us. 641.
 Dracæna — G. 916.
 Elymus — Us. 641, 676.
 Elyna — Us. 685.
 Epilobium — D. 850.
 Eragrostis — Us. 693.
 Eranthis — U. 901.
 Eriachne — Us. 657. — So. 885.
 Erianthus — Us. 651.
 Eryngium — En. 808.
 Erythronium — Us. 639.
 Euchlæna — Us. 686.
 Euphrasia — Tu. 853. — T. 859.
 Festuca — Us. 676. — Ti. 771, 774,
 788. — U. 892, 893.
 Ficaria — U. 901.
 Ficus — Us. 659.
 Fimbristylis — Us. 670. — Ci. 755.
 Fragaria — T. 870.
 Fumaria — En. 817.
 Gagea — Us. 639, 687.
 Galnia — Us. 698.
 Galium — M. 825.
 Gayophytum — Us. 727.

Geranium — Tu. 854.
 Gladiolus — U. 900.
 Glaucium — En. 791.
 Glyceria — Us. 637, 641. — U. 907.
 Gnaphalium — En. 812.
 Graminaceæ — Us. 654, 692. — En. 924.
 Grindelia — So. 888.
 Glycerium — Us. 669.
 Helichrysum — En. 811.
 Helleborus — U. 901.
 Helosciadium — En. 795.
 Hepatica — U. 901.
 Heteropogon — So. 886.
 Hieracium — En. 809.
 Holcus — Ti. 769, 774.
 Holosteum — Us. 732.
 Hordeum — Us. 676, 678. — Ti. 770.
 — U. 891.
 Hottonia — D. 851.
 Imperata — Us. 658.
 Iris — M. 831.
 Isolepis — Us. 675.
 Juncus — Us. 664, 665, 744, 754. — Ci. 756. — E. 828, 829. — To. 839. — T. 859.
 Juniperus — Us. 701.
 Knautia — Us. 733.
 Koeleria — Ti. 788.
 Lathyrus — T. 863.
 Leersia — T. 861.
 Leptocarpus — T. 868.
 Lepturus — Us. 676.
 Limnanthemum — D. 849.
 Limosella — D. 848.
 Linaria — Us. 752. — Ci. 757. — En. 805. — M. 826.
 Lobelia — En. 800.
 Lolium — Us. 676. — Ti. 764, 774. — T. 860. — So. 874. — U. 891.
 Luzula — Us. 684. — U. 894.
 Lychnis — So. 872.
 Lygeum — Us. 641.

Lythrum — D. 847.
 Malachium — Us. 731.
 Matricaria — En. 799.
 Medicago — Ti. 782. — T. 862.
 Melandryum — Us. 731.
 Melica — Us. 676. — Ci. 758.
 Menispermum — En. 814.
 Miliun — Ti. 774.
 Molinia — Ti. 778. — So. 887.
 Monotropa — U. 914.
 Morus — Us. 753.
 Muehlenbergia — Us. 653.
 Muscari — Us. 687. — U. 895.
 Myosotis — En. 790.
 Oplismenus — Us. 668.
 Ornithogalum — Us. 639. — U. 898.
 Orobanche — U. 913.
 Oryza — Us. 695.
 Osmunda — Us. 702.
 Oxyria — Us. 711.
 Panicum — Us. 641, 644, 645, 674, 681, 705, 706, 717, 719, 728, 747. — Ti. 777. — To. 840.
 Papaver — En. 791, 792.
 Paris — Tu. 853. — U. 895.
 Paspalum — Ust. 832. — T. 857. — C. 920.
 Pennisetum — Us. 680.
 Phaca — T. 855.
 Phalaris — Us. 716.
 Phoenix — Us. 666. — G. 915.
 Phragmites — Us. 641, 642, 749.
 Physalis — En. 815.
 Pieris — En. 807.
 Pinguicula — Us. 731.
 Pisum — Us. 750.
 Plantago — Ti. 782.
 Poa — Ti. 774. — En. 797, 806, 818. — U. 891.
 Polygonum — Us. 655, 662, 710, 712, 714, 737, 753. — Sp. 834.
 Polypogon — Us. 676.
 Potamogeton — D. 844, 845.
 Primula — U. 899.

- Psamma* — Us. 641.
Pulsatilla — U. 901, 904.
Ranunculus — En. 793, 802, 810. — U. 901.
Rhagadiolus — En. 819.
Rhynchospora — Us. 685.
Rumex — Us. 710, 713, 729, 730, 742.
Saccharum — Us. 651.
Sagittaria — D. 843.
Salix — En. 821.
Sanicula — En. 82.
Saponaria — Us. 731. — So. 872.
Scabiosa — Us. 733, 734.
Schismus — Us. 689.
Scilla — Us. 687. — U. 895.
Scirpus — Us. 685, 751. — Ci. 755. — M. 827. — T. 858.
Scleria — Us. 691, 700.
Scorzonera — Us. 741.
Secale — Us. 745. — Ti. 763. — U. 891.
Setaria — Us. 647, 648, 649, 696, 718, 722.
Silene — Us. 731, 740. — So. 872.
Silybum — Us. 738.
Solanum — So. 879.
Sorghum — Us. 646, 650, 720. — Ci. 759. — So. 877.
Spiræa — U. 906.
Sporobolus — Ti. 772, 773.
Stellaria — Us. 731. — So. 872.
Stenactis — En. 803.
Stipa — Us. 641, 746.
Succisa — Us. 735.
Symphytum — En. 789.
Syntherisma — Us. 676.
Thalictrum — En. 793, 801. — U. 904.
Thlaspi — Ti. 780.
Tragopogon — Us. 739.
Tricholæna — Us. 681. — So. 880.
Trientalis — Tu. 853.
Tripleurospermum — En. 799.
Triticum — Us. 641, 676, 704. — Ti. 760, 765, 775, 776. — U. 891, 892.
Tulipa — Us. 640.
Tunica — So. 872.
Turnera — Us. 688.
Turritis — U. 912.
Typha — Us. 642.
Uniola — Us. 724.
Urtica — T. 869.
Veronica — En. 805. — So. 836, 837.
Vilfa — Us. 708, 709. — Ust. 833.
Viola — En. 816. — U. 905.
Viscaria — Us. 731.
Zea — Us. 715, 720, 723, 725. — Ti. 783.
Zizania — Us. 652.

UREDINEÆ Brongn.

Diet. V (1824) 33 p. 519, em. Tul. in Ann. Scienc. Nat., 1854, p. 166.

auctore DOCT. J. B. DE-TONI, Scholæ botanicæ Patavinæ adjutore.

Fungi mycelio valde evoluto, septato instructi, in plantis vivis parasitici, acervulati, erumpentes ascis peritheciis v. ascomatibus genuinis carentes. — Fructificatio: *spermogonia* punctiformia v. pseudoperitheciiformia, flava, aurantia, fusca vel nigrescentia, sporulas perexiguas, ovoideas vel cylindraceas, rectas, dein plerumque per porum pseudoperithecii cirriformi-exeuntes foveantia, præcocissima. *Æcidia* plerumque pallida, pseudoperidio instructa, sporas (æcidiosporas) continuas, majusculas, ut plurimum aurantiacas verrucosasque catenulatas foveantia, hiemalia. Sori primi ordinis (*uredosporiferi*) varie colorati, rarius pseudoperidio instructi, sporas (uredosporas) continuas hyalinulas vel flavo-aurantiacas, rarissime tantum catenulatas, majusculas, 2-6 poros germin. gerentes, plerumque plus minus aculeolatas vel subtiliter punctulatas foveantes, æstivales. Sori secundi ordinis (*teleutosporiferi*) varie colorati, rarissime pseudoperidio instructi, sporas (teleutosporas) continuas vel septis præditas, plerumque pedicello persistenti fultas, hyalinas vel subaurantiacas, leves vel appendicibus variis ornatas, poros 1 v. plures germin. gerentes foveantes, hiemales. Sporidiola e promycelio (teleutosporarum germinatione orto) typice 4-septato producta, sterigmatum ope suffulta.

Clavis analytica generum.

I. Amerosporæ SACC. et DE-TONI.

Teleutosporæ continuæ, uniloculares.

A. Sori horizontaliter expansi.

† Uredosporæ pseudoperidio haud inclusæ.

Uromyces. Teleutosporæ porum unicum germin. præbentes, æquales.

? *Hemileia*. Sporæ (teleutosporæ?) dimidia parte leves, dimidia verrucosæ. germinando filamentum unum vel plura emittentes; sporidiola (?) sphaerica, uniformia.

†† Uredosporæ pseudo-peridio inclusæ.

Melampsora. Sori crustiformes, atrii vel atro-brunnei, determinati.

Melampsorella. Sori explanati, pallide rufescentes, indeterminati.

B. Sori verticales, columella cylindraceo-elongata instructi.

Conartium. Uredosporae pseudoperidio inclusae.

2. *Didymosporae* Sacc. et DE-TONI.

Teleutosporae biloculares vel, si mavis, sporae simplices geminatim conjunctae.

A. Sori horizontaliter expansi, plus minus pulverulenti.

Puccinia. Teleutosporae (saltem pro parte) transverse uniseptatae (nunquam longitudinaliter).

Uropyxis. Teleutosporae transverse uniseptatae, tegumento hyalino haud diffluente obvolutae.

Diorchidium. Teleutosporae longitudinaliter uniseptatae.

B. Sori verticales, subtremelliformi-gelatinosi.

Gymnosporangium. Teleutosporae transverse uniseptatae.

3. *Phragmosporae* Sacc. et DE-TONI.

Teleutosporae una directione tantum 3-pluriseptatae.

A. Teleutosporae pseudoperidio haud inclusae.

† Teleutosporae transverse septatae.

§ Uredosporae solitariae.

Phragmidium. Teleutosporae cylindraceae, loculis ægre secedentibus.

Xenodochus. Teleutosporae submoniliformes, loculis facile secedentibus.

§§ Uredosporae saltem primitus catenulatae.

Coelosporium. Episporium teleutosp. crassiusculum, subvitreum; promycelium simplex, apice sporidiolum unicum gerens.

Chrysomyxa. Episporium teleutosp. tenue; promycelium 3-septatum, in quoque loculo sporidiolum unicum sterigmati ope gerens.

†† Teleutosporae longitudinaliter vel oblique septatae (rarius tantum 1-septatae).

§ Extra cellulas matricis evolutae.

Pucciniastrum. Uredosporae pseudoperidio inclusae.

§§ Intra cellulas matricis evolutae.

Thecopsora. Uredosporae pseudoperidio inclusae; species homoicae.

Calypsozona. Uredosporae nullae; species heteroicae.

B. Teleutosporae pseudoperidio inclusae.

Endophyllum. Teleutosporae catenulatae, facile secedentes, verrucosae.

Milesia. Teleutosporae catenulatae (?), echinulatae; pseudoperidium reticulatum, basi inter cellulas matricis radicans.

4. *Dictyosporae* Sacc. et DE-TONI.

Teleutosporae transverse, longitudinaliter et oblique vario modo septatae.

Triphragmium. Teleutosporae 3-septatae.

Ravenelia. Teleutosporae pluriseptatae.

Status secundarii Uredinearum.

A. Sporæ pseudoperidio instructæ.

Æcidium. Pseudoperidium (pseudoperithecium) plerumque flavo-melleum, conoideum, dein sæpe nigrescens; sporulæ minutæ, continuæ, hyalinulæ. (Status spermogonicus).

Æcidium. Pseudoperidium cupulatum vel suburceolatum, rarius cylindraceum, plerumque pallide coloratum; sporæ (æcidiosporæ) globosæ v. angulatæ, continuæ, ut plurimum aurantiaco-flavæ, catenulatæ; margo pseudoperidii sæpe dentatus vel crenatus recurvatusque.

Ræstelium. Pseudoperidium elongatum, plerumque cylindraceum vel conicum, mox sursum fimbriatum; sporæ (æcidiosporæ) globosæ, continuæ, brunneæ vel aurantiacæ, catenulatæ.

Peridermium. Pseudoperidium variæ formæ, albidum, irregulariter erumpens; sporæ (æcidiosporæ) catenulatæ. Viget præcipue in plantis Coniferis.

? *Pericladium*. Pseudoperidium irregulariter subglobosum, perfecte clausum, tandem vertice fissum vel varie ruptum; sporæ (æcidiosporæ?) subglobosæ vel irregulares, maturæ fuliginæ, liberæ (an primitus?).

B. Sporæ pseudoperidio carentes.

Uredo. Sporæ (uredosporæ) apice pedicelli solitariae.

(*Cocoma*. Sporæ catenulatæ. Genus ad interim *Uredine* inclusum).

Dispositio Schroeteriana ex characteribus præcipue biologicis.

A. Teleutosporæ liberæ.

† Teleutosporæ pseudoperidio haud inclusæ, non catenulatæ.

§ Teleutosporæ poro unico germinationis instructæ; spermogonia et æcidia rotundata, regularia.

a. Teleutosporæ semper tantum uniloculares.

Uromyces.

b. Teleutosporæ (saltem pro parte) biloculares.

Puccinia.

§§ Teleutosporæ sæpius 4 poris germinationis instructæ; spermogonia et æcidia strata explanata irregulariter limitata efformantia.

a. Teleutosporæ semper uniloculares.

Trachyspora.

b. Teleutosporæ 3-loculares, loculo superiori unico, inferioribus duobus.

Triphragmium.

c. Teleutosporæ (plerumque) ultra quam 3-loculares, loculis superpositis, valide coherentibus.

Phragmidium.

†† Teleutosporæ pseudoperidio inclusæ, catenulatim evolutæ, loculis s. cellulis facile secedentibus.

Endophyllum.

B. Teleutosporæ biloculares, soros gelatinosos magnos efformantes.

Gymnosporangium.

C. Teleutosporæ in strata explanata coalitæ.

† Teleutosporæ uniloculares vel e loculis contiguis efformatæ.

a. Teleutosporæ in planta viva crustas atras vel atro-brunneas maculis minutis limitatis insidentes efformantes.

Melampsora.

b. Teleutosporæ in cellulis epidermicis evolutæ et strata explanata, haud limitata, dilute rufescentia efformantes.

Melampsorella.

- c. Telentosporæ septis in 4-loculos contiguos divisæ, strata late extensa, pallida efformantes. *Calypptospora*.
- †† Telentosporæ pluriloculares; loculi superpositi.
- a. Episporium telentosporarum crassum, vitreum; promycelium simplex, nunquam septatum, sporidiolum singulum acrogenum gerens. *Coleosporium*.
- b. Episporium teleutosporarum tenue; promycelium 4-loculare, loculis singulis sporidiolum sterigmatis ope gerentibus. *Chrysomyxa*.
- D. Teleutosporæ in columellam subuliformem, erectam coalitæ. *Cronartium*.

I. Amerosporæ Sacc. et DE-TONI.

UROMYCES Link in Berl. Magaz. VII, 1816, p. 28 ut subgenus Tul. in Ann. Scienc. Nat. 1854, p. 145 (Etym. *oura* cauda et *myces* fungus), *Cromurus* Link Obs. I, p. 7, (1809), *Uredinis* sp. Pers., DC. Duby etc. *Cromatis* sp. auct., *Pileolaria* Cast. Pl. Mars. p. 204, t. III, Flora 1850, p. 628. — Spermogonia plerumque globosa, immersa, collo conoideo prominula; æcidia regularia, immersa, primo globosa, dein cupulato-aperta, ut plurimum pseudoperidio bene evoluto instructa; sori uredosporiferi explanati; sori teleutosporiferi plus minus pulverulenti, explanati vel pulvinati; teleutosporæ continuæ, pedicellatæ, apice porum unicum germin. præbentes; sporidiola ovoidea vel ellipsoidea vel uno latere explanata, hyalinula.

I. EU-UROMYCES Schroet. In fungi cyclo evolutionis spermogonia, æcidia, uredosporæ et teleutosporæ observantur; telentosporæ post matricis mortem mox germinantes.

a) *Auto-Euromyces* Schroet. Omnes formæ in eadem matrice evolutæ.

1. Teleutosporæ pedicello firmo, substrato arcte adnato fultæ.

1. **Uromyces Fabæ** (Pers.) De Bary in Ann. Scienc. Nat. IV, 1863, 1921 tom. XX, Burrill Paras. Ill. p. 161, Schroet. Pilz. Schles. p. 298, *Uredo Fabæ* Pers. in Römer N. Magazin. I, pag. 93, *Æcidium Orobi* Pers. l. c. p. 92, *Uredo Viciæ* Rebert. Prodr. Fl. Neomarch. p. 355, *Uredo Viciæ-Fabæ* Pers. Syn. Fung. p. 221, *Civoma Leguminosarum* Schlecht. Fl. Berol. II, p. 127, *Civoma appendiculatum* Schlecht. in Linnæa I, p. 607, p. p., *Erysibe appendiculata* Wallr. F. C. Germ. II, n. 1656 p. p., *Uromyces appendiculatus* Lév. in Ann. Scienc. Nat. p. p., *Puccinia fallens* Cooke

in Seem. Journ. IV, et Handb. p. 508 p. p., *Uromyces Orobi* Fuck. Symb. myc. p. 62, Winter Die Pilze p. 158, *Æcidium Leguminosarum* Rabenh. Handb. p. 186, *Uromyces Ervi* West. in Bull. XXI, p. 24 *Trichobasis Fabæ* Lév. — Spermogoniis flavo-melleis, conoideis, in greges parvos collectis, epiphyllis aut cauliculis; æcidiiis plerumque subdistantibus, æque sparsis, in maculis annularibus aut orbicularibus insidentibus; pseudoperidiis cupulatis, brevibus, margine albo, lacerato; æcidiosporis globosis vel breviter ellipsoideis, 16-26 μ . diam., aurantiaco-rufis, subtiliter verrucosis; soris uredosporiferis amphigenis, erumpentibus, orbicularibus vel irregulariter rotundatis, sparsis aut gregariis, dilute fuscis, pulverulentis; uredosporis globosis, ellipticis vel ovoideis, raro piriformibus, 17-35 $\approx$ 17-25, aculeatis, ochraceis; soris teleutosporiferis hypophyllis, subrotundatis, oblongatis vel elongatis, sæpius confluentibus, atro-fuscis, planiusculis; teleutosporis ovoideo- v. clavato-ellipsoideis, apiculatis, episporio vertice 6-9 μ . crasso, 24-47 $\approx$ 17-30, levibus, castaneo-brunneis, apice obscurioribus, pedicello hyalino usque ad 110 μ . longo, persistente, sursum plerumque flavescente fultis.

Hab. in foliis caulibusque Viciæ Fabæ, hirsutæ, pisiformis, dumetorum, onobrycoides, narbonensis, montanæ, Craccæ, villosæ, Sepium, sativæ, angustifoliæ pallidæ, lathyroidis, Lathyri palustris, venenosi et ochroleuci, Orobi tuberosi, lathyroidis alpestris, verni, nigri, Ervi hirsuti, Lentis in Italia, Gallia, Britannia, Belgio, Austria, Helvetia, Germania, Neerlandia, Bohemia, Hungaria et Fennia; in Sibiria asiatica nec non pr. Somerset East Africæ australis in America boreali et australi. — Cl. Spegazzini Uredosporas describit leves.

2. **Uromyces Limonii** (DC.) Lév. in Demidoff Voyage t. 6, f. 1, Winter Die Pilze p. 156, Schroet. Pilz. Schles. p. 300, *Puccinia Limonii* DC. Fl. Franç. II, p. 595, *Cecoma Armeriæ* Schlecht. Fl. Berol. II, p. 126, *Cecoma* (*Æcidium*) *Statices* Rud. in Linnæa IV, p. 510, *Uredo Statices* Desm. Pl. cr. n. 132, *Uredo Armeriæ* Duby Bot. Gall. II, p. 899, *Erysibe Armeriæ* Wallr. Fl. Crypt. Germ. II, n. 1652, *Uromyces Armeriæ* Lév. in Ann. Scienc. Nat. 1847, p. 375. — Spermogoniis flavo-melleis, conoideis, in parvos greges maculiformes congestis; æcidiiis irregulariter orbiculatis, circa spermogonia dispositis; pseudoperidiis breviter cylindricis, albis, margine suberecto, lacerato-fisso; æcidiosporis rotundato-angularis,

17-26 $\approx$ 17-21, subtiliter verrucosis, flavescentibus; soris uredosporiferis bullato-vesiculosus, castaneo-brunneis, parvulis, sparsis v. orbiculariter dispositis; uredosporis globosis vel breviter ovatis, 24-35 $\approx$ 24-30, verrucosis, dilute brunneis; soris teleutosporiferis minutis, subrotundatis, pulvinatis, epidermide bullata tectis, deincinctis atro-fuscis; teleutosporis breviter cylindricis vel ovoideis, rarius clavatis vel globosis, apice incrassatis sæpeque angustatis, 26-50 $\approx$ 14-26, levibus, obscure brunneis, pedicello persistenti, usque ad 40 μ . longo, deorsum angustato suffultis.

Hab. in foliis *Statice Limonii*, alpinae, speciosae, Gmelini, longibracteatae, *Armeriae vulgaris*, maritimae in Italia, insula Sicilia, Gallia, Belgio, Austria, Neerlandia, Germania, Britannia nec non in desertis prope fluv. Uss et Minussinsk Sibiriae asiaticae et in America boreali.

3. **Uromyces Polygoni** (Pers.) Fuck. Symb. myc. p. 64, Winter Die 1923 Pilze p. 154, Burrill Paras. Fungi of Ill. p. 164, Schroet. Pilz. Schles. p. 301, *Puccinia Polygoni* Pers. Disp. meth. p. 39, *Uredo Centumnodii* Schum. Pl. Saell. II, p. 231, *Puccinia Aviculariae* DC. Fl. Franc. II, p. 221, *Uredo flexuosa* Strauss in Wett. Ann. II, p. 96, *Puccinia vaginalium* Link Sp. II, pag. 10 p. p., *Uredo longipes* et *clavigera* Lasch in Klotzsch Herb. myc. I, n. 893 et 1295, *Aecidium rubellatum* var. *d.* Rabenh. Krypt. Fl. I, p. 16, *Capitularia Polygoni* Rabenh. in Bot. Zeit. 1851, p. 449, *Aecidium Aviculariae* Kunze in Fic. Fl. Dresd. pag. 129, *Uredo Polygoni-Aviculariae* Alb. et Schwein. Consp. pag. 127, *Puccinia Polygoni-Aviculariae* Pers. Syn. Fung. pag. 227, *Uromyces Aviculariae* Schroet. Rost. und Br. Pilz. Schles. pag. 8. — Spermogoniis flavo-melleis, conoideis, parvo numero congregatis; aecidiis orbiculariter numerose congregatis; plerumque hypophyllis; pseudoperidiis breviter cylindraceo-cupulatis, margine lato, albo, pluries fisso; aecidiosporis angulatis, globosis vel oblongis, 16-28 μ . diam. subtiliter verrucosis, aurantiaco-flavis; soris uredosporiferis dilute cinnamomeis, sparsis, plerumque amphigenis, minutis, pulverulentis, rotundatis aut irregularibus; uredosporis subglobosis, 20-30 $\approx$ 17-23, verrucosis, episporio pallide brunneo, intus hyalinis; soris teleutosporiferis sparsis, elongatis vel sublinearibus, atro-fuscis, pulvinatis, etiam cauliculis, sæpe confluentibus; teleutosporis globosis, ellipticis vel ovatis, 21-35 $\approx$ 15-24, levibus, castaneis, apice valde incrassatis, obscuriori-

bus, poro conoideo instructis, pedicello hyalino, sæpe flavescenti, persistenti, usque ad 60 μ . longo fultis.

Hab. in foliis caulibusque Polygoni Aviculariæ et ramosissimi et Rumicis Acetosellæ in Italia, Belgio, Britannia, Neerlandia, Helvetia, Austria, Bohemia, Germania, Fennia et Lapponia, nec non in America boreali, Sibiria asiatica et Africa australi.

4. **Uromyces Silenes** (Schlecht.) Fuck. Symb. myc. p. 61, Schroet. Pilz. Schles. p. 301, *Cavoma Silenes* Schlecht. Fl. Berol. II, p. 128, vix *Erysibe Silenes* Wallr. Fl. Crypt. Germ. II, n. 1647 p. p., *Uromyces inæquialtus* Lasch in Rabenh. Fungi europæi n. 94, Winter Die Pilze p. 161. — Spermogoniis flavo-melleis, conoideis; æcidiiis orbiculariter dispositis plerumque hypophyllis; pseudoperidiis breviter cylindræis, margine albo, lacinulato; æcidiosporis globosis, 15–22 μ . d., aurantiacis, verruculosus; sporis uredosporiferis sparsis, cinnamomeis; uredosporis subglobosis, asperulis, 20–25 μ . diam., ochraceo-pallidis; soris teleutosporiferis pulvinatis, compactiusculis, atro-brunneis; teleutosporis globosis aut ellipsoideis, 24–32 $\approx$ 17–24, levibus, castaneo-brunneis, episporio apice usque ad 6 μ . crasso obscuriorique, pedicello persistente.

Hab. in foliis vivis, languidis aridisve radicalibus *Silenes* nutantis, *Otites* et *Dianthi Armeriæ* in Italia, Germania, Hungaria et pr. lacum Dzojewo Sibiricæ asiaticæ (MARTIANOFF). — Ab *Urom. Behen's* caute dignoscenda.

2. Teleutosporæ pedicello gracili fultæ, ideoque facile deciduæ.

5. **Uromyces Trifolii** (Hedw.) Lév. Winter Die Pilze p. 159, Schroet. Pilz. Schles. p. 301, *Puccinia Trifolii* Hedw. Fungi ined. t. 18 et in DC. Fl. Franç. VI, p. 66, *Cavoma apiculatum* Schlecht. Fl. Berol. II, pag. 128, *Æcidium Trifolii repentis* Cast. in Klotzsch Herb. myc. n. 1994. *Puccinia fallens* Cooke Handb. p. 508 p. p., *Uredo Leguminosarum* Rabenh. Krypt. Fl. I, p. 7, p. p., *Uredo Fabæ* var. *Trifolii* Alb. et Schwein. Consp. p. 127, *Uromyces apiculatus* Strauss in Fr. Summa Veg. Scand. p. 514. — *Uredo apiculata* Strauss in Wett. Ann. II, p. 97. — Spermogoniis melleis, in greges parvos dispositis; æcidiiis orbiculariter dispositis, plerumque uniseriatis; pseudoperidiis cupulatis, margine albo, lacinulato; æcidiosporis angulatis, 14–23 μ . diam., verruculosus, pallide aurantiacis; soris uredosporiferis rotundatis vel ellipticis, sparsis, epidermide diu cupulati cinctis, castaneo-brunneis; uredo-

sporis irregulariter globosis vel breviter ellipticis, 22-26 $\approx$ 18-20, aculeolatis, 3-4 poros gerentibus, brunneis; soris teleutosporiferis ad folia minoribus, rotundatis, ad petiolos majoribus, elongatis, obscure brunneis, bullatis, diu tectis; teleutosporis ellipsoideis, globosis vel piriformibus, apice incrassatis, papilla verruciformi dilute brunnea auctis, 20-35 $\approx$ 15-22, levibus, pedicello plus minus evoluto, mox deciduo fultis.

Hab. in foliis, petiolis caulibusque Trifoliorum nonnullorum in Gallia, Italia, Austria, Germania, Britannia, Hungaria, Neerlandia, Helvetia, Fennia, Amer. bor. — *Æcidia* in maculis sæpe convexis pallide viridulis, flavescentibus vel brunneolis insidentia; — «Fortasse huc ducendus est *Uromyces Anthyllidis*».

6. **Uromyces appendiculatus** (Pers.) Link Obs. II, p. 28, Burrill Pa. 1926
 parasitic Fungi of Illinois p. 161, Schroet. Pilz. Schles. pag. 302, *Uredo appendiculata* Pers. Obs. I, p. 17, *Uredo appendiculata* var. *Phaseoli* Pers. Syn. p. 221, *Uromyces Phaseoli* Wint. Die Pilze p. 157, *Uredo Phaseoli* Strauss in Wetter. Ann. II, p. 98, *Puccinia Phaseoli-trilobi* Schwein. Syn. Am. bor. p. 296, n. 2942, *Æcidium Phaseolorum* Wallr. Fl. Crypt. Germ. n. 1785, *Uromyces Phaseolorum* De Bary in A. S. N. IV, p. 20, *Erysibe appendiculata* Wallr. Fl. Crypt. Germ. II, n. 1656, p. parte. — Spermogoniis in macula parva insidentibus, albis; æcidiis in maculas annulatas 1-2 mm. latas dispositis; pseudoperidiis breviter cylindraceis, margine profunde inciso, albido, revolutis; æcidiosporis angulatis, 17-32 $\approx$ 14-23, hyalinis, subtiliter punctulatis; soris uredosporiferis rotundatis, pallide cinnamomeo-brunneis; uredosporis rotundatis vel breviter ellipsoideis, 24-33 $\approx$ 16-20, episporio dilute brunneo, intus hyalinis, aculeolatis; soris teleutosporiferis atrobunneis mox laxis; teleutosporis ellipticis vel subglobosis, 26-35 $\approx$ 20-26, vertice valde incrassatis papillulaque hyalina verruciformi auctis, levibus, obscure brunneis.

Hab. in foliis *Phaseoli vulgaris*, multiflori, trilobi diversifolii, helvoli, nani, nec non *Galactiæ pilosæ*, in Italia, Germania, Britannia, Helvetia, Austria, Lusitania, Belgio, Hungaria, Neerlandia, Amer. bor. — *Uromyces appendiculatus* in foliis *Desmodii* errore determinationis videtur indicatus; in *Vicia*, *Lathyro* etc. cfr. *Uromyces Fabæ*.

7. **Uromyces Geranii** (DC.) Othl. et Wartm. Schw. Krypt. n. 401, 1927
 Winter Die Pilze p. 160, Schroet. Pilz. Schles. p. 302, *Uredo Geranii* DC. Syn. plant. pag. 47, *Trichobasis Geranii* Berk. Ontl.

p. 208, Cooke Handb. n. 1589, *Uromyces puccinioides* Rabenh. in Klotzsch-Rabenh. Herb. myc. I, n. 1596, *Æcidium Geranii* DC. Fl. Franc. VI, p. 93. — Spermogoniis aurantiacis, in macula parva insidentibus; æcidiis in macula rotundata, plus minus expansa evolutis; pseudoperidiis breviter cylindricis, margine albo, irregulariter lacinulato; æcidiosporis angulatis, $20-35 \approx 16-30$, verruculosus, aurantiacis; soris uredosporiferis obscure castaneo-brunneis, sparsis vel gregariis aut orbiculariter dispositis, sæpe confluentibus, rotundatis; uredosporis globosis, ellipsoideis vel ovatis, $22-27 \approx 19-22$, aculeolatis, pallide brunneis; soris teleutosporiferis rotundatis, hypophyllis, sæpe orbiculatim congestis, atro-brunneis, plerumque immixtis uredosporiferis, mox nudis; teleutosporis ovoideis, clavatis vel subglobosis, $26-37 \approx 15-24$, levibus, brunneis, apice papilla verruciformi, pallidiore, subhyalina, majuscula auctis, pedicello gracili, hyalino, $30-35 \approx 5-7$, evanido fultis.

Hab. in foliis Geraniorum nonnullorum in Italia, Gallia, Helvetia, Austria, Germania, Britannia, Neerlandia, Bohemia. in America boreali, in Patagonia Amer. australis et prope Somerset East Africæ australis.

8. **Uromyces Betæ** (Pers.) Kühn in Bot. Zeit. 1869, pag. 540, Fuck. Syst. Myc. p. 64, Winter Die Pilze p. 155, Schroet. Pilz. Schles. p. 303, *Uredo Betæ* Pers. Syn. Fung. pag. 220, *Trichobasis Betæ* Lév. in Cooke Handb. n. 1587, *Uredo cincta* Strauss in Wett. Ann. II, p. 96. — Spermogoniis flavo-melleis, in parvos greges dispositis; æcidiis in maculas flavescentes orbiculatas vel oblongatas, sæpe late expansas congestis; pseudoperidiis albis, cupulatis, margine lacinulato; æcidiosporis angulatis, globosis vel oblongis, $22-26 \approx 16-22$, aurantiacis, levibus; soris uredosporiferis cinnamomeo-vel castaneo-brunneis, orbiculariter dispositis, parvis; uredosporis ellipticis vel subglobosis aut ovoideis $23-32 \approx 17-24$, aculeatis vel sublevibus flavo-brunneis; soris teleutosporiferis atro-fuscis, epidermide rupta marginatis, sparsis vel orbiculariter dispositis; teleutosporis ovatis vel ellipsoideis, apice papilla verruciformi, hyalina auctis, $26-35 \approx 19-25$, levibus, brunneis, pedicello tenui, longiusculo, mox deciduo suffultis.

Hab. in foliis petiolisque Betæ vulgaris et B. Cyclæ in Britannia, Austria, Germania, Hungaria, Gallia, nec non prope Somerset East Africæ austr.

9. **Uromyces Valerianæ** (Schum.) Fuck. Symb. Myc. p. 63, Winter Die Pilze p. 157. Schroet. Pilz. Schles. p. 303, *Uredo Valerianæ*

Schum. Pl. Saell. II, p. 233, *Æcidium Valerianearum* Duby Bot. Gall. II, pag. 908, *Lecythea Valerianæ* Berk. in Cooke Handb. n. 4595, *Trichobosis Parnassiæ* Cooke in Seem. Journ. II, p. 344, *Uredo Parnassiæ* West. Bull. Brux. XIX, n. 87, Herb. crypt. belg. n. 676. — Spermogoniis in parvos greges dispositis, flavo-melleis; æcidiis orbiculariter dispositis, subinde late expansis; pseudoperidiis cupulato-cylindræis, margine albo, lacinulato; æcidiosporis angulatis, 16-24 $\approx$ 13-17, granulatis, aurantiaco-flavis; soris uredosporiferis minutis, rotundatis, ferrugineis, solitariis vel gregariis, plerumque diu tectis; uredosporis globosis vel irregulāriter rotundatis, 24-30 $\approx$ 16-22, aculeatis, castaneo-brunneis, soris teleutosporiferis semper tectis, minimis, dendritice plerumque confluentibus, epidermidem griseo coloratam vix tumefacientibus; teleutosporis ovatis, subapiculatis, demum atro-brunneis, 20-28 $\approx$ 13-19, levibus, amœne brunneis, pedicello brevi, deciduo suffultis.

Hab. in foliis Valerianæ officinalis, dioicæ, capensis, sambucifoliæ, tripteridis et montanæ nec non Parnassiæ palustris in Helvetia, Italia, Germania, Belgio, Arduennis, Gallia, Britannia et Hungaria.

10. **Uromyces Acetosæ** Schroet. in Rabenh. Fung. Eur. n. 2080, Pilz. 1930 Schles. p. 304, Winter Die Pilze p. 155. — Spermogoniis flavo-melleis, in parvos greges dispositis; æcidiis numerosis in maculas planas, magnas, rotundatas vel rhombeas, ferrugineas congestis; pseudoperidiis breviter cylindræis, margine albo, lacinulato; æcidiosporis 17-20 $\approx$ 15-17, sublevibus, aurantiacis, episporio hyalino; soris uredosporiferis cinnamomeis, parvis, sæpe orbiculariter dispositis, rufo-cinctis; uredosporis subglobosis, rarius ellipticis, 17-20 $\approx$ 17-22, subtiliter verrucosis, exoletis sublevibus, aurantiaco-brunneis; soris teleutosporiferis uredosporis immixtis plerumque in maculas atro-brunneas dispositis; teleutosporis globosis aut ellipsoideis apice subincrassatis, rotundatis vel obtusis, secus lineas undulatas verruculis obsitis, 23-35 $\approx$ 19-24, apiculo destitutis, castaneo-brunneis, pedicello longo at deciduo fultis.

Hab. in foliis Rumicis Acetosæ et Acetosellæ in Germania. — Fungillus maculas plerumque obscure rufas efficit.

11. **Uromyces Caladii** (Schwein.) Farlow in Ellis N. Am. Fungi 1931 n. 232 Burrill Paras. Fungi of Illinois p. 166, *Uredo Caladii* Schwein. Syn. fung. Carol. n. 480, *Cwoma (Uredo) Ari-virginici* Schwein. Syn. Fung. Amer. bor. n. 2839, *Uromyces Pellandracæ* Howe in Bull. Torrey bot. Club 1874, p. 43, *Uromyces Ari-virgi-*

nici (Schwein.) Howe l. c., *Uromyces Pontederiae* Gerard in Bull. Torr. bot. Club 1875, p. 31, *Uromyces Arisæmæ* Cooke ibidem p. 32. — Spermogoniis hypophyllis, sparsis, præcedentibus, subinde æcidia comitantibus; æcidiis per totam inferiorem folii paginam sparsis, brevibus, margine patenti; æcidiosporis, subglobosis vel ellipsoideis, angulatis, $18-24 \approx 15-18$, subtiliter rugulosis; soris amphigenis, sparsis, rotundatis vel oblongis, sæpe epidermide tectis, frequenter confluentibus; uredosporis piriformibus, basi truncatis, episporio crasso vertice leniter incrassatulo, $25-32 \approx 15-21$, conspicue echinulatis; teleutosporis ovatis, subglobosis aut piriformibus, apiculatis, $25-32 \approx 15-21$, levibus, pedicello fragilissimo, deciuo, sporam subæquante fultis.

Hab. in foliis Caladii (?) *Arisæmæ triphyllæ* et *Dracontii* nec non *Peltandræ virginicæ* in America boreali. — Ipse Schweinitz in Syn. Amer. bor. n. 2839 fatetur se erravisse de matrice, nam non in Caladio sed in Aro species reperta est; tamen non videtur nomen pristinum mutandum, quum fungillus facillime etiam in Caladio sit inveniendus.

12. *Uromyces Salicorniæ* (DC.) De Bary in Rabenh. Fung. Europ. n. 1386 et 2477, Wint. Die Pilze pag. 156, *Æcidium Salicorniæ* DC. Fl. Franc. VI, pag. 92, Duby Botan. Gall. II, p. 906, *Cecoma salicorniatum* Link Sp. II, pag. 45. — *Æcidiis* amphigenis, solitariis vel parce gregariis; pseudoperidiis breve cylindraceo-cupulatis, margine suberecto, albo, irregulariter lacerato, cellulis contextus usque ad 50μ . long. usque ad 35μ . diam.; æcidiosporis polygonis, isodiametricis vel oblongis, $17-35 \mu$. diam., subtiliter verruculosus, aurantiaco-flavis; soris uredosporiferis rotundatis vel ellipticis, minutis, sæpe subdistantibus, diu epidermide lacerata cinctis; uredosporis globosis vel ovatis vel oblongo-clavatis, $20-35 \approx 17-21$, aculeatis, flavescenti-brunneis; soris teleutosporiferis plerumque majoribus, confluentibus, crassiuscule pulvinatis, obscure brunneis, mox nudis; teleutosporis irregulariter globosis, ovatis vel oblongo-clavatis, vertice subincrassatulis, $24-36 \approx 17-26$, levibus, obscure brunneis, pedicello longiusculo, hyalino, crasso, persistenti fultis.

Hab. in foliis, præcipue cotyledoneis, *Salicorniæ herbacæ* in Gallia, Britannia, Germania. — Huic affinis videtur *Uromyces Salsolæ* Rabenh. in Hedwigia 1871, p. 19, in *Salsola* pr. Tiflis Rossicæ.

13. *Uromyces arizonicus* Tracy et Gall. in Journ. of Mycology 1888, 1

p. 20. — *Æcidii* hypophyllis, maculis conspicuis, latiusculis, pallidis; pseudoperidiis numerosis in greges definitos sparsis vel sæpius confertis, parvis, brevibus, margine sæpe grosse dentato; æcidiosporis subglobosis, episporio tenui, levi donatis, 18-21 μ . diam.; soris uredo- et teleutosporiferis epiphyllis, maculis minutis, rotundatis vel ovatis, rufescenti-brunneis, diu epidermide tectis; uredosporis ovoideis, pallidis, 23-25 $\approx$ 20-22, episporio tenui, subtiliter echinulato instructis; teleutosporis globosis vel obovatis, vertice subinde leniter incrassatis, 25-27 $\approx$ 20-22, brunneis, pedicello teleutosporâ sesqui-duplo longiore hyalino, deorsum attenuato fultis.

Hab. in foliis *Eriogoni racemosi*, Arizona Americæ borealis. — Mihi videtur eadem esse species ac *Uromyces Eriogoni* Ell. et Harkn.

14. **Uromyces Eriogoni** Ellis et Harkn. New Calif. Fungi p. 9. — 1924

Æcidii 5-20 in orbes congestis; pseudoperidiis cylindraceis, margine subtiliter lacerato; æcidiosporis flavis, plura vacuola præbentibus, levibus; uredosporis brunneis, globosis, rugosis; soris oblongis, in ellipses concentricas dispositis; teleutosporis obovatis vel oblongis, 27-38 $\approx$ 26, episporio vertice incrassato, flavescenti-brunneis, pedicello teleutosporâ 3-4-plo longiore fultis.

Hab. in caulibus *Eriogoni virgati* in California Americæ borealis.

15. **Uromyces Hyperici** (Schwein.) Curt. in Burrill F. of Illinois 1935

pag. 157, *Uromyces triquetus* Cooke in Journ. Portl. Soc. Nat. Hist. vol. I, part II, p. 184 sec. Burrill, *Uredo Hyperici* Schwein. N. Am. Fungi n. 2842, pag. 292. — *Æcidii* hypophyllis, minutis, plerumque 6 (1-9) in orbes dispositis, semiimmersis, brevibus, maculis parvis, sparsis, purpurascentibus; æcidiosporis aurantiacis; soris hypophyllis, maculis parvis læte cinnamomeis vel purpureis insidentibus, numerosis, sparsis; uredosporiferis minutis, rotundatis, diu epidermide tectis, dein ea rupta cinctis, teleutosporiferis majoribus, angulatis, epidermide disrupta prominentibus; uredosporis globosis vel elliptico-oblongis, 19-27 $\approx$ 16-19, subtiliter echinulatis, læte flavis; teleutosporis ellipsoideis vel oblongatis, basi angustatis, vertice rotundato vel obtuso incrassatis, 21-27 $\approx$ 12, pedicello colorato, usque ad duplum teleutosporæ longo.

Hab. in foliis caulibusque *Hyperici perforati*, corymbosi et mutili nec non *Elodeæ virginicæ* in America boreali. — Forma uredosporifera et teleutosporifera sæpe in eodem soro immixta.

16. **Uromyces Urgines** Kalchbr. in Grevillea, XI, p. 19, *Uredo Lepisclinis* Thüm. in Flora n. 81. — *Æcidii*s hypophyllis, paucis, in macula flava congestis; pseudoperidiis cylindrico-elongatis, apice truncatis, pallide flavis; soris uredosporiferis subamphigenis, sparsis, parvis, aurantiis, plerumque maculæ discolori, purpureo-cinctæ insidentibus; uredosporis globosis; teleutosporis (in iisdem soris) breviter ovatis, 60-70 μ . longis, breviter pedicellatis, fuscis.

Hab. in foliis *Helychrysi* petiolati pr. Somerset. East Africæ australis.

17. **Uromyces Prunellæ** Schneid. in 48. Jahresb. Schles. Gesellsch. 1870, p. 120, Wint. Die Pilze, p. 164. — *Æcidii*s in maculis flavis brunneolis vel violaceo-marginatis insidentibus, plerumque orbiculariter dispositis, raro sine ordine gregariis, cupulatis, albidis, margine albido, pluries lacinulato, revoluti; *æcidiosporis* polygonis, 14-21 μ . diam., subtiliter verrucosis, hyalinulis; uredosporis brunneis, globosis; teleutosporis brunneis, late ovatis subglobosisve, pedicello brevissimo, hyalinulo fultis.

Hab. in foliis *Prunellæ* vulgaris in Silesia Germaniæ. — Suadente cl. Schroeter Pilz. Schles. p. 303 ad *Urom. Valerianæ* pertinere videtur.

18. **Uromyces Cnotheræ** Burrill Parasit. Fungi of Illinois, p. 162. — Pseudoperidiis irregulariter sparsis, amphigenis, minutis, brevibus, rotundatis vel leniter elongatis, margine albido, patenti vel sæpe recurvato, irregulariter lacerato; *æcidiosporis* globoso-angulatis, 15 μ . diam., pallidis; maculis rufo-purpureis, indeterminatis; soris uredosporiferis epiphyllis, rotundatis, mox nudis, brunneis; uredosporis subglobosis, 16-24 $\approx$ 15-18, subtiliter echinulatis, brunneis; soris teleutosporiferis rotundatis vel oblongis, epiphyllis et mox denudatis vel caulinis et diu epidermide tectis, nigrescentibus; teleutosporis ovatis, ellipticis vel oblongis, vertice valde incrassatis, late rotundatis vel vario modo acuminatis, 24-30 $\approx$ 16-18, obscure brunneis, pedicello teleutospora sesquilingiore, colorato fultis.

Hab. in foliis caulibusque *Cnotheræ* linifoliæ, Illinois Americæ borealis. — Folia infecta sæpius involuta vel revoluta.

b) *Hetero-uromyces*. *Spermogonia* et *Æcidia* in una, uredosporæ et teleutosporæ in altera matrice.

19. **Uromyces Dactylidis** Otth. in Verh. d. Bern. nat. Ges. 1861, p. 85, Winter Die Pilze p. 161, Schroet. Pilz. Schles. p. 304, *Æcidium Ranunculi-acris* Pers. Syn. Fung. p. 210, *Æc. Ranuncu-*

laccarum DC. Flor. Franc. VI, p. 97, Rab. Krypt. Flor. I, p. 18, *A. crassum* var. *Ficarie* A. et S. Consp. p. 117, p. p. *A. bifrons* b. DC. Fl. Fr. II, p. 246, *Puccinella graminis* Fuck. Symb. myc. p. 61, *Uromyces graminum* Cooke Brit. Fung. II, p. 520, *Capitularia graminis* Niessl in Rabenh. F. E. n. 1191, *Uromyces Poe* Rabenh. in Univ. it. n. 1866, n. XXXVIII, Winter l. c. p. 162, *Uromyces graminum* Cooke Handb. p. 520. — *Spermogoniis* flavomelleis, in parvos greges dispositis; æcidiis dense aggregatis ut plurimum in circulos concentricos plures dispositis; pseudoperidiis cylindræis, margine lacerato, albis vel flavescentibus; æcidiosporis angulato-sphæroideis, aurantiacis, 25-26 μ . diam.; soris uredosporiferis aurantiacis, epiphyllis, diu tectis, elongatis, convexis, minutis; uredosporis subsphæroideis, subtilissime echinulatis, flavescentibus, 18-28 $\approx$ 16-21, pedicello hyalino, circiter 20 μ . longo præditis, paraphysibus (semper ne?) immixtis filiformibus apiceque sphæroideo-vel ovoideo-incrassatis; soris teleutosporiferis semper tectis, orbicularibus vel elongatis, planis, atro-fuscis, minutis; teleutosporis ovoideis ellipsoideis vel clavatis, brunneis, levibus, 18-30 $\approx$ 14-18, pedicello sæpe brevi (7-17 μ . longo), deciduo, flavescenti præditis.

Hab. æcidia et æcidiola in Ranunculis variis, uredosporæ et teleutosporæ in foliis Dactylidis, Poæ, Avenæ, Brachypodii et Brizopyri in Italia, ins. Sardinia, Gallia, Belgio, Britannia, Austria, Germania, Hungaria, Helvetia, Fennia et Lapponia nec non in America boreali.

20. **Uromyces Junci** (Desm.) Tul. in Ann. Scienc. Nat. 1854, p. 146, 1940 Winter Die Pilze p. 162, *Puccinia Junci* Desm. Pl. crypt. ed. II, n. 170 non alior., *Puccinella truncata* Fuck. Enum. p. 18, *Puccinella Junci* Fuck. Symb. p. 60, *Æcidium zonale* Duby Bot. Gall. II, pag. 906? *Æcidium Compositarum* var. Rabenh. Krypt. It. Germ. I, pag. 16. — *Æcidiis* secus orbes plures vel singulos sæpe interruptos dispositis aut in greges densos irregularesque congestis; pseudoperidiis cupulatis, margine albido, lacinulato; æcidiosporis polygonis, sphæroideis vel oblongis, 14-23 μ . diam., dilute aurantiacis, levibus; soris in maculis flavidis vel brunneolis, versiformibus insidentibus, sine ordine sparsis, rotundatis, ellipticis vel oblongis, sæpe confluentibus; uredosporis rotundatis v. ellipticis, rarius piriformibus, 17-28 $\approx$ 14-17, aculeolatis, pallide brunneis; teleutosporis ovoideis, ellipticis vel clavatis, vertice valde incrassatis, sæpe subangulatis, 20-42 $\approx$ 14-20, levibus, obscure brunneis, pedicello longiusculo plerumque 35 $\approx$ 4-5 brunneolo, rigidulo fultis.

Hab. æcidia in foliis Buphtalmi salicifolii et Pulicariæ dysentericæ, uredosporæ et teleutosporæ in culmis Junci glauci, obtusiflori, effusi et tenuis nec non Scirpi triquetri in Italia, Britannia, Germania, Gallia, Belgio, Hungaria, Helvetia et America boreali. — « An revera huc pertinet ut forma æcidiospora *Æcidium zonale* Duby? »

21. **Uromyces Pisi** (Pers.) De Bary in Ann. Sc. nat. Ser. IV, t. XX, Winter Die Pilze p. 163, Schroet. Pilz. Schles. p. 305, *Uromyces Lathyri* Fuck. Symb. Myc. p. 62, *Æcidium exanthematicum* Unger. *Puccinia Pisi* DC., Fl. Fr. II, p. 244 ex p., *Uredo appendiculata* f. *Pisi* Pers. Syn. Fung. p. 222, *Ur. appendiculata* Rab. Krypt. Flor. I, p. 5, p. p. — Spermogoniis plerumque hypophyllis, conoideis, melleis; æcidiiis æque sparsis; pseudoperidiis cupulato-rotundatis, margine albo, profunde laciniato; æcidiosporis angulatis, globosis vel oblongis, 17-26 μ . diam., verruculosi, aurantiaco-flavis; soris uredosporiferis hypophyllis, per epidermidem fissam erumpentibus, sparsis, orbicularibus v. irregulariter rotundatis, planiusculis, dilute fuscis; uredosporis sphæroideis vel ovoideis, flavescentibus, 17-24 μ . diam., aculeatis; soris teleutosporiferis hypophyllis vel cauliculis, sparsis, orbicularibus vel irregulariter rotundatis, majusculis, atro-fuscis; teleutosporis ovoideo-sphæroideis vel subsphæroideis membrana vertice haud aut vix incrassata, undique punctulis impressis ornata, flavidis, 20-32 $\approx$ 17-21, pedicello tenui, hyalino, longo, mox deciduo fultis.

Hab. æcidia et æcidiola in foliis Euphorbiæ Cyparissiae, Esulæ et lucidæ, uredosporæ et teleutosporæ in foliis caulibusque Pisi, Viciæ et Lathyri in Italia, Sicilia, Gallia, Belgio, Britannia, Austria, Germania, Bohemia, Helvetia, Fennia et Sibiria asiatica.

22. **Uromyces striatus** Schroet. in Abhandl. Schles. Ges. 1869, p. 11, Pilz. Schles. p. 307, *Uromyces Medicaginis* Pass. in Thüm. Herb. myc. œcon. n. 156 (1872), *Uromyces Medicaginis-fulcata* Wint. Die Pilze p. 159, *Uredo Fabæ* var. *Medicaginis-fulcata* DC. Fl. Franc. VI, p. 69, *Uredo apiculata* var. *Trifolii* Strauss in Wett. Ann. II, p. 97, p. p. — Spermogoniis æcidiiisque *U. Pisi* simillimis; soris uredosporiferis castaneo-cinnamoneis, explanatis, rotundatis, parvis; uredosporis subglobosis vel ellipticis, 17-23 μ . diam., dilute brunneis, aculeis obtusiusculis ornatis; soris teleutosporiferis atro-brunneis, rotundatis, pulverulentis; teleutosporis ovatis, ellipticis aut piriformibus, 18-28 $\approx$ 14-20, castaneo-brunneis, subinde longitudi-

naliter lineolatis, apice papilla explanata, brunneola auctis, pedicello tenui, mox evanido fultis.

Hab. aecidia et aecidiola in foliis Euphorbiae Cyparissiae, uredosporae et teleutosporae in foliis Loti, Trifolii et Medicagoe in Italia, Austria, Helvetia, Germania et Arnas Galliae (GANDOGGER) nec non in Carolina et Massachusset Americae borealis et in Sibiria asiatica. — Aecidiosporae, suadente Winter, usque ad 30 μ . longae, 15–20 μ . diam.

- I. BRACHY-UROMYCES Schroet. Spermogonia, uredosporae et teleutosporae adsunt; aecidia nulla.

Huc forte probabiliter species nonnullae sectionum sequentium.

- III. HEMI-UROMYCES Schroet. Spermogonia et aecidia ignota; uredosporae et teleutosporae in eadem matrice evolutae

a) Teleutosporae leves.

23. **Uromyces ambiguus** (DC.) Fuck. Symb. Myc. pag. 64, Schroet. 1943 Pilz. Schles. p. 307, *Uredo ambigua* DC. Fl. Franc. VI, p. 64. — Soris uredosporiferis rufo-ferrugineis, parvis; uredosporis ellipticis vel ovatis, 20–27 $\approx$ 17–20, episporio hyalino, aculeatis; teleutosporis in soros atros, diu epidermide tectos congestis, ellipticis, ovato-clavatis aut piriformibus, 20–35 $\approx$ 17–22, levibus, apice paullo incrassatis, non papillatis, castaneo-brunneis, pedicello tenui fultis.

Hab. in foliis Allii Scorodoprasi in Germania et Gallia. — Teleutosporae sunt simillimae illis abnormiter unilocularibus *Pucciniae Porri*.

24. **Uromyces Veratri** (DC.) Schroet. Brand. und Rostp. Schles. p. 307, 1944 *Uredo Veratri* DC. Encycl. VIII, p. 224, *Puccinia Veratri* Duby Bot. Gall. II, p. 890, non Niessl. — Soris uredosporiferis castaneo-brunneis, hypophyllis, rotundatis, pulverulentis, saepe confluentibus; uredosporis ellipsoideis, 22–26 $\approx$ 17–22, aculeatis, pallide brunneis; soris teleutosporiferis diu tectis, 1–2 mm. latis, atro-brunneis, rotundatis aut linearibus; teleutosporis plerumque ovoideis vel oblongis, apice papilla obtuse conica, dilutiori, usque ad 6 μ . alta auctis, 20–38 $\approx$ 15–21, levibus, brunneis, pedicello brunneolo, plerumque teleutosporam subaequante, deciduo fultis.

Hab. in foliis Veratri nigri, albi et Lobeliani in Italia, Gallia, Hungaria, Helvetia, Germania et Sibiria asiatica.

25. **Uromyces lineolatus** (Desmaz.) Schroet. in Rab. F. E. n. 2077, 1945 Winter Die Pilze pag. 143, *Puccinia lineolata* Desmaz. in Ann.

Scienc. Nat. III, 11, 1849, p. 273. — Amphigenus; soris uredosporiferis oblongis vel lanceolato-elongatis, sparsis, sæpe confluentibus, diu epidermide lacerata cinctis; uredosporis sphæroideis vel breviter ellipticis, 17-26 $\approx$ 15-21, aculeatis, pallide brunneis; soris teleutosporiferis punctiformibus, epidermide inflata tectis, sparsis; teleutosporis plerumque oblongis, utrinque attenuatis, raro ovoideis, sæpe inaequilateralibus, apice incrassatis, 26-40 $\approx$ 17-20, levibus, dilute flavido-brunneis, pedicello brevi deciduo fultis.

Hab. in foliis culmisque Scirpi maritimi in Gallia (Desmazières), Italia (Passerini), Belgio (Westendorp), Bohemia (Niessl) et Hungaria (Linhart). — Maculas pallidas, flavescentes vel brunneolas efformat.

26. **Uromyces Rumicis** (Schum.) Winter Die Pilze pag. 145, Schroet. Pilz. Schles. p. 307, *Uredo Rumicis* Schum. Pl. Saell. II, p. 231, *Uredo bifrons* DC. Fl. Franc. II, pag. 229, *Uredo Rumicum* DC. l. c. VI, pag. 66, *Uredo sororia* Lasch in Rabenh. Herb. myc. I, n. 1294, *Uromyces Rumicum* Lév. in Ann. Scienc. nat. 1847, *Uromyces fraternus* Lasch l. c. II, n. 693. — Soris uredosporiferis hypophyllis vel amphigenis, epidermide fissa cinctis, sparsis vel gregariis, suborbiculatis, planis, cinnamomeis vel pallide brunneofuscis; uredosporis sphæroideis vel ellipsoideo-sphæroideis, subspinulosis, flavescentibus, 24-33 $\approx$ 18-26; soris teleutosporiferis suborbicularibus, hypophyllis, epidermide lacerata cinctis, crustiformibus, circiter 1 mm. latis, rufo-brunneis aut fuscidulis; teleutosporis sphæroideis vel ovoideis aut clavatis, apice vel sublateraliter papilla dilutiori, rotundata auctis, levibus, apice verruculosis, subflavo-brunneis, 24-35 $\approx$ 17-23, pedicello gracili, brevi, deciduo fultis.

Hab. in foliis Rumicum nonnullorum in Italia, Gallia, Britannia, Belgio, Austria, Helvetia, Neerlandia, Hungaria, Bohemia, Germania, Fennia et Lapponia nec non in Rep. Argent. et Africa australi. — Maculae nullae vel minutae, rotundatae, flavescentes aut brunneolae.

27. **Uromyces alpinus** Schroet. Pilz. Schles. p. 307. — Soris uredosporiferis cinnamomeo-brunneis, orbicularibus, parvis, pulverulentis; uredosporis globosis, ellipticis vel ovoideis, 20-26 $\approx$ 18-22, aculeis obsitis, dilute ochraceis; soris teleutosporiferis crustiformibus, circiter 1 mm. latis, pallide rufo-brunneis, confertiusculis, epidermide tectis; teleutosporis ellipticis, ovatis vel clavatis, sæpe acuminatis, 28-45 $\approx$ 11-15, pallide aurantiaco-rufis, levibus, episporio

dilutissime brunneolo, subhyalino, vertice apiculo circiter 5 μ . alto aucto.

Hab. in pagina inferiore foliorum Rumicis alpini, in Silesia Germaniæ.

28. **Uromyces sparsus** (Kunze et Schm.) Lév. in Ann. Scienc. Nat. 1948 1847, p. 369, Winter Die Pilze p. 148, *Uredo sparsa* K. et S. Deutsch. Schwämme p. 170, *Cwoma sparsum* Link Sp. II, p. 27. — Soris subrotundatis vel ovatis, amphigenis caulinisque, convexis, diu epidermide tectis, dein ea rupta cinctis, maculis pallidis; uredosporis globosis oblongisque, 25-30 $\approx$ 19-23, pallide brunneis, sublevibus vel breviter aculeolatis; teleutosporis globosis, ellipsoideis vel oblongis, sæpe deorsum angustatis, sursum valde incrassatis, 28-38 $\approx$ 14-25, levibus, brunneis, pedicello longiusculo, crasso, persistenti fultis.

Hab. in foliis caulibusque Lepigoni medii, Spergulariæ rubræ, salinæ, Stellariæ mediæ, arenariæ et trinerviæ, in Belgio, Britannia et Germania.

29. **Uromyces caryophyllinus** (Schrank) Schroet. Brand. p. 10, Winter 1949 Die Pilze, p. 149, *Lycoperdon caryophyllinum* Schrank Bayersche Flora II, p. 668, *Uredo Dianthi* Pers. Syn. Fung. p. 222, *Uromyces Dianthi* Niessl Beitr. p. 12, t. 3, f. 9. — Soris minutis, rotundatis vel oblongis, uredosporiferis sparsis, mox denudatis, teleutosporiferis præsertim in caulibus secus lineas elongatas confluentibus, diu epidermide cinerescenti tectis; uredosporis sphaeroideis, ellipticis vel oblongis, 40 $\approx$ 17-28, aculeatis, pallide brunneis; teleutosporis globosis, irregulariter rotundatis vel ovoideis, rarius oblongis, plerumque apice late pallideque incrassatis, 23-35 $\approx$ 15-22, levibus, fusciculis, pedicello 4-10 μ . longo, valde deciduo fultis.

Hab. in foliis caulibusque Dianthi superbi, proliferi, Caryophylli nec non Gypsophilæ paniculatæ, prope Kufstein in Tyrolia, prope Czeisch Moraviæ nec non in Italia et Germania.

30. **Uromyces Martinii** Farlow Not. p. 79, Ell. North Amer. Fungi 1950 n. 1068. — Soris rotundatis, nudis, sparsis, irregulariter amphigenis; uredosporis ovatis vel subinde ambitu irregularibus, 18-22 μ . diam., pallide brunneis, echinulatis; teleutosporis globosis lateve ellipsoideis, 26-35 $\approx$ 22-26, episporio crasso, levi vel subtiliter ruguloso, apice papilla lata conica, hyalina auctis, obscure brunneis, breviter pedicellatis.

Hab. in foliis *Melantheræ hastatæ*, Florida Americæ borealis (MARTIN). — Ab *Ur. Melantheræ* caute dignoscendus.

31. **Uromyces Melantheræ** Cooke in Grev. X, p. 127. — Soris uredosporiferis fuscis, subpulverulentis; uredosporis globosis, castaneo-fuscis, papillatis, episporio apice incrassato, 26 μ . diam.; soris teleutosporiferis pallidis, compactis, hemisphericis; teleutosporis lanceolatis, pallidis, levibus, 50 $\approx$ 20, episporio supra incrassato.

Hab. in foliis *Melantheræ Brownii*, ad Inanda Africae (Wood).

32. **Uromyces Phacæ** Thüm. in Bull. Soc. Natur. Moscou 1878, p. 218, Myc. univ. n. 1339. — Soris uredosporiferis linearibus, immersis, epidermide subtumefacta cinctis, ferrugineo-fuscis, parvis, sæpe fere absconditis, densis, plerumque caulicolis; uredosporis plus minusve globosis, episporio levi, tenui, fuscis, 20-26 μ . diam.; soris teleutosporiferis uredosporiferis similibus, brunneis, paullo majoribus, semper caulicolis; teleutosporis ellipsoideis vel globoso-ellipticis, vertice rotundatis, basi minime angustatis, fuscis, episporio tenui, levi, pedicello brevissimo, hyalino, subconico imposito, 3-4 μ . longo, 24-26 $\approx$ 18.

Hab. ad caules vivos foliaque *Phacæ alpinæ* et *astragalinae*, prope Patroschilowo et Minussinsk in Sibiria asiatica (M. MARTIANOFF). — In speciminibus nonnullis tantum fungus urosporifer occurrit, sed in plurimis uredo- et teleutosporæ promiscue adsunt.

33. **Uromyces Spermacoces** (Schwein.) Thüm. Myc. Univ. n. 242, Burr. Fungi of Ill. p. 163, *Puccinia Spermacoces* Schwein. Syn. Carol. pag. 74, n. 502. — Soris utriusque formæ amphigenis, et caulicolis (maculis non visis), numerosis, sparsis, prominentibus, rotundatis, atris, epidermide rupta cinctis; uredosporis subglobosis, 22-27 $\approx$ 21-25, flavescentibus, minutissime verruculosi; teleutosporis subglobosis, usque ad 30 μ . longis, 24-27 μ . latis, obscure coloratis, levibus, pedicello persistenti, 3-4-plo teleutosporæ longiore fultis.

Hab. in caulibus foliisque *Spermacoces* et *Diodiæ tereitis*, in Carolina superiore, Newfield et Illinois Americæ borealis.

34. **Uromyces transversalis** (Thüm.) Wint. in Flora 1884, n. 14, *Uredo transversalis* Thüm. in Flora 1876, p. 570. — Soris amphigenis, sparsis, transversali-linearibus, liberis, pulchre aurantiacis; uredosporis globosis vel globoso-subpiriformibus, episporio crasso, hyalino, subpellucidis, 18-22 μ . diam., dilute fulvis; soris

teleutosporiferis, cum iis uredosporiferis consociatis, plerumque densissime stipatis, minutis, punctiformibus, hemisphæricis vel ellipticis, sæpe confluentibus, greges irregulares vel rarius transverse parum elongatos formantibus, epidermide cinerescente, pustulatum inflata longe tectis velatisque; teleutosporis plerumque piriformibus, rarius rotundatis vel ellipsoideis, apice incrassatis, truncatis, rotundatis vel conice attenuatis, $21-31 \approx 14-19$, levibus, luteo-fuscis, pedicello longo sed fragili, hyalino vel superne perparum infuscato.

Hab. in foliis vivis Tritoniæ securigeræ, prope Somerset East Africæ australis (MAC OWAN).

35. **Uromyces vesiculosus** Wint. in Hedw. 1885, p. 22. — Soris sparsis seu gregariis, sæpe confluentibus, rotundatis vel irregularibus, epidermide cinerescente, vesiculiformi velatis; uredosporis subglobosis, ellipticis vel ovatis, luteo-fusculis, densissime verruculosus, episporio tenui præditis, $26-35 \approx 19-24$; teleutosporis globosis, ellipticis, ovatis seu subpiriformibus, $23-31 \approx 17-21$, apice incrassatis, rotundatis vel apiculo lato, plus minus brevi, conico instructis, episporio crasso, levibus, maturis intense spadiceis, pedicello longissimo crassoque, persistenti plerumque infuscato. 1955

Hab. ad folia caulesque viva Zygophylli ammophili, Spicir's Gulf, Australiæ (MÜLLER).

36. **Uromyces Ixiæ** (Lév.) Winter in Flora 1884, n. 14, t. IV, f. 4, 1956
Uredo Ixiæ Lév. in Ann. Scienc. Nat. III, 3, pag. 70? — Soris uredosporiferis rotundatis irregularibusve, sparsis, sine macula, circ. 1 mm. diam., flavidis, epidermide demum fissa longe velatis; uredosporis plerumque globosis vel irregulari-rotundatis, auran-tiacis, $19-26 \mu$. diam., membrana crassa, pallida, echinulata præditis; soris teleutosporiferis sparsis gregariisve, interdum maculæ luteæ insidentibus, annulato-rotundatis vel transverse oblongis, non raro confluentibus, usque ad 2 mm. longis, primo epidermide tectis, mox autem eam disrumpentibus et nudis, atris; teleutosporis irregulari-rotundatis, obovatis vel late ellipticis, ad apicem valde incrassatis, truncatis, rotundatis vel late conicis, spadiceis, $23-32 \approx 17-24$, levibus, pedicello usque ad 80μ . longo, $7-9 \mu$. cr., persistente, toto vel apicem modo versus infuscato.

Hab. in foliis languescentibus Lapeyrousiæ corymbosæ, prope Paarl ad Caput Bonæ Spei (P. MAC OWAN) et Ixiæ, ad Caput Bonæ Spei Africæ australis (LÉVEILLÉ).

37. **Uromyces graminicola** Burrill Parasitic Fungi of Illinois p. 170. 1957

— Soris amphigenis, sparsis, minutis, oblongis vel linearibus, mox denudatis, uredosporiferis flavescentibus, teleutosporiferis atro-brunneis; uredosporis sphaeroideis vel ovatis, $18-22 \approx 15-18$, subtiliter echinulatis; teleutosporis variabilibus, subglobosis, ovoideis vel oblongis, levibus, apice rotundato vel angulato, incrassato, $21-30 \approx 12-18$, pedicello sæpius colorato, crassiusculo, vix deorsum angustato, 1-2-plo teleutosporæ longiore.

Hab. in foliis Panici virgati et Elymi virginici, Illinois Americæ bor. — Habitus fere *U. Junci* (Schwein.) Tul.

38. **Uromyces Peckianus** Farlow Not. p. 78, Ellis North Amer. Fungi 1888 n. 240. — Soris oblongis vel linearibus, nudis, demum convexis; uredosporis breviter pedicellatis, globosis, $18-21 \mu$ diam., flavo-brunneis, echinulatis; teleutosporis paraphysibus filiformibus immixtis, ovatis vel ellipticis, $22-34 \approx 16-23$, levibus, obscure brunneis, basi angustatis, apice obtusis, episporio apice vix incrassato, longe pedicellatis.

Hab. in Brizopyro spicato, New Jersey et Gloucester Americæ borealis.

39. **Uromyces Chenopodii** (Duby) Schroet. in Kunze F. sel. n. 214, 1891. *Uredo Chenopodii* Duby Bot. Gall. II, p. 899, *Uromyces giganteus* Speg. Dec. myc. ital. n. 30. — Soris in caulibus compactis, sparsis, per epidermidem erumpentibus eaque fissa cinctis, crassissimis, obscure fuscis, 3 cm. usque longis, $1,5-2$ cm. latis; uredosporis subglobosis, $15-18 \approx 15$, asperulis, flavidis; teleutosporis ovoideis vel subsphaeroideis, subinde clavatis, tunica tenui vestitis, levibus, intus granulosis, fuligineis, $25-30 \approx 15-20$, pedicello longissimo, usque ad 110μ longo, $3-5 \mu$ cr., hyalino v. fuscescente præditis.

Hab. in caulibus vivis emortuisque nec non in foliis Chenopodii fruticosi et Schoberiae maritimæ, in agro veneto Italiæ (SPEGAZZINI), in ins. Sicilia (BELTRANI) et in Saxonia (KUNZE). — «An huc *Uromyces Salicorniæ*?».

40. **Uromyces bonariensis** Speg. Fungi Argentini, pug. III, n. 34, 1891. *Uredo argentina* Speg. F. Arg. I, n. 47. — Soris uredosporiferis hypophyllis, macula epiphylla pallide flavescente, majusculis, in orbem 2-3 mm. d. dispositis, pulverulentis, cinnamomeis; uredosporis sphaeroideis, crassiuscule tunicatis, granuloso-farctis, $25-27 \mu$ diam., minute verruculosi, fulvo-ochraceis; soris teleutosporiferis hypophyllis sparsis, erumpentibus minutis, $\frac{1}{3}-1$ mm. diam., atro-fuligineis, subpulverulentis; maculis epiphyllis fuscescenti-fer-

rugineis, arescendo dealbatis, determinatis, minutis, sori magnitudi-
ne; teleutosporis levibus, globoso-ovoideis, apice acutiuscule rotun-
datis, episporio crasso, deorsum rotundato-truncatis, non vel 1-
guttulatis, granuloso-farctis, ochraceo-fuliginis, 25-28 $\approx$ 18-20;
pedicello cylindræo, basim versus attenuato, hyalino, longiusculo,
50-70 $\approx$ 6-7.

Hab. in foliis vivis Gomphrenæ elegantis, pr. la Boca del
Riachuelo, in Republica Argentina Amer. australis.

41. **Uromyces acuminatus** Arthur Bull. Minn. Acad. Nat. Scienc. XI, 1961
p. 35, Burrill Parasitic Fungi of Illinois p. 169. — Soris linea-
ribus, angustis, elongatis, hypophyllis, planis vel convexulis, mox
nudis, epidermide rupta cinctis, uredosporiferis flavescentibus, sub-
inconspicuis, teleutosporiferis atro-brunneis; uredosporis globosis
vel ellipticis, subtiliter echinulatis, 20-30 $\approx$ 25-35, flavo-brunneis;
teleutosporis subglobosis vel clavatis, subinde rotundatis vel trun-
catis, sed plerumque conspicue acuminatis, levibus, aureo-brun-
neis, apice obscurioribus, 24-40 $\approx$ 15-20, pedicello æquicrasso, teleu-
tosporam æquante vel triplo longiore, sæpius colorato.

Hab. in foliis Spartinae cynosuroidis, in America bor.
— «Forte idem ac *Uromyces Spartinae* Farlow.».

42. **Uromyces Lespedezæ** (Schwein.) Peck in Ell. North Am. Fungi 1962
n. 245, Burrill Fungi of Illinois pag. 160, *Puccinia Lespedezæ-
procumbentis*, *Lespedezæ-polystachia* et *Lespedezæ-violaceæ*
Schwein. Syn. Carol. n. 497 e 498, *Uredo Lespedezæ* Thüm. Myc.
univ. n. 643. — Soris teleutosporiferis hypophyllis sæpeque sparse
epiphyllis (maculis flavis, minutissimis) parvis, sparsis, primo epi-
dermide tectis, haud coloratis, dein erumpentibus, atris, epider-
mide lacerata cinctis; soris uredosporiferis amœne brunneis; para-
physibus curvulis; uredosporis subglobosis, 18-21 $\approx$ 16-18, pallidis,
echinulatis; teleutosporis rotundatis vel oblongis, obtusis v. apice
incrassatulo acuminatis rotundatisve, 21-27 $\approx$ 12-15, levibus, atro-
brunneis, pedicello hyalino, crassiusculo, circ. 36 μ longo; para-
physibus subæquilatis, apice rotundatis, 6-9 μ . latis, hyalinis.

Hab. in foliis Lespedezæ procumbentis, repentis,
violaceæ, hirtæ, capillatæ, polystachia, in America bo-
reali. — Huc pertinet etiam *Uromyces macrosporus* Berk. et
Curt.

43. **Uromyces Spartinae** Farlow Not. p. 77. — Soris longis, angu- 1963
stis, dein nudis; uredosporis globosis vel subinde ellipsoideis, 25-
34 μ . diam. (plerumque 30 μ . diam.), aurantiacis, echinulatis, longe

pedicellatis; teleutosporis ovatis, basi angustatis, apice acutis vel raro truncatis, 26-32 $\approx$ 15-19, obscure brunneis, levibus, episporio crasso, longe pedicellatis.

Hab. in *Spartina stricta*, Wood's Holl, Massachussets Americæ borealis.

b. Teleutosporæ punctulatæ verruculosæ vel lineolatae.

44. **Uromyces Astragali** (Opiz) Sacc. M. S. pag. 208, Schroet. Pilz. 1 Schles. p. 308, *Uredo Astragali* Opiz Sezman p. 151, *Uromyces punctatus* Schroet. in Abhandl. Schles. Gesellsch. 1867, p. 10. — Soris uredosporiferis parvis, pulverulentis, pallide brunneis; uredosporis subglobosis vel ellipticis, 20-24 $\approx$ 18-20, aculeis acutis ob-
sitis, pallide castaneo-brunneis; soris teleutosporiferis sæpe late expansis, pulverulentis, castaneo-brunneis; teleutosporis globosis aut ellipsoideis, 17-22 $\approx$ 15-16, castaneo-brunneis, udis punctulatis, vertice apiculo plano, pallide brunneo, obtuso auctis, pedicello tenui, mox deciduo fultis.

Hab. in foliis *Astragali glycyphylli*, danici, hypoglottidis, testiculati, melilotoidis, arenarii, pontici, opaci, nigrescentis, alopecuroidis, leucophæi nec non *Onobrychidis viciifoliae*, in Italia, Germania et Bohemia nec non in Sibiria asiatica. — Var. **Lupini** (B. et C.) *Uromyces Lupini* B. et C. in North Pacif. Exped. n. 133 nec Sacc. Hypoepiphyllus; soris irregularibus; teleutosporis brunneis, papilla crassa terminatis; pedicello teleutosporâ suâ longiore. In foliis *Lupini*, California Americæ borealis.

45. **Uromyces Genistæ-tinctoriæ** (Pers.) Fuck. Symb. 63 (*U. Genistæ*), 1 Winter Die Pilze p. 146, Schroet. Pilz. Schles. p. 308, *Uredo appendiculata* var. *Genistæ-tinctoriæ* Pers. Syn. Fung. p. 222, *Puccinia Laburni* DC. Fl. Franç. II, p. 224, *Uredo Laburni* DC. Fl. Franç. VI, p. 63, *Uredo Cytisi* Strauss in Wett. Ann. II, p. 98, *Ur. Leguminosarum* var. *Genistarum* Rabenh. Handb. p. 62, *Uromyces Laburni* Fuck. Symb. myc. p. 62, *Uromyces Cytisi* Schroet. in Rabh. F. E. n. 2731, *Uromyces Onobrychidis* Lév. Disp. meth. Ured. — Soris uredosporiferis pulverulentis, pallide brunneis, minutis, rotundatis, oblongis vel irregularibus, sparsis vel orbiculariter dispositis, sæpe etiam subconfertis confluentibusque; uredosporis ellipsoideis vel ovatis, 19-32 $\approx$ 17-24, aculeolatis, brunneolis; soris teleutosporiferis similibus, castaneo-brunneis; teleutosporis irregulariter rotundatis, ovatis, breviter ellipticis vel

oblongis, 18-28 $\approx$ 14-22, apice haud aut paullulum incrassatis vel papilla lata, compressa, dilutiore auctis, episporio verrucis majusculis instructo vel lineolis ornato præditis, brunneis, pedicello longiusculo, valde deciduo suffultis.

Hab. in foliis caulibusque Genistæ tinctoriæ, sericæ, germanicæ, pilosæ, Cytisi sagittalis, Laburni, alpini, nigricantis, capitati, hirsuti, ratisbonensis, Sarrothamni scoparii, Coluteæ arborescentis, Galegæ officinalis, Caraganzæ pygmææ, Onobrychidis sativæ, in Italia, Gallia, Belgio, Austria, Helvetia, Germania, Hungaria et prope Minussinsk Sibiriz. — «An huc, suadente Doct. Winter, pertinent *Uromyces Anagyridis* (Rabenh.) Roum., *Uromyces Trifolii* Fuck., *Uromyces Ononidis* et *Trigonellæ* Pass., *Uromyces Oxytropidis* Kunze?». Formæ ad *Cytisum* et *Caraganam* episporium teleutosporarum leniter punctulatum præbent.

46. **Uromyces Anthyllidis** (Grev.) Schroet. in Hedw. 1875, p. 162, 1966

Uredo Anthyllidis Grev. in Sm. Engl. Fl. V, p. 383. — Soris uredosporiferis rotundatis parvis, rufo- v. castaneo-brunneis; uredosporis globosis, 22-24 μ . diam., castaneis, 4-5 poros gerentibus, aculeatis; soris teleutosporiferis atro-fuscis; teleutosporis breviter ellipticis vel globosis, 19-22 $\approx$ 17-20, obscure brunneis, verrucis validis, obtusis ornatis, apice rotundatis, pedicello gracili, mox deciduo fultis.

Hab. in foliis Anthyllidis Vulnerariæ et Lupini lutei, albi et angustifolii, in Italia, Britannia et Germania.

47. **Uromyces Schroeterii** De-Toni, *Uromyces verruculosus* Schroet. 1967

in 50. Jahresb. Schles. Ges. 1872, pag. 140, Pilz. Schles. p. 309, Winter Die Pilze pag. 148, non Berk. et Br. (1870), *Uredo Lychnidis* Schroet. Brand. u. Rost. Pilze Schles. pag. 30. — Soris uredosporiferis rotundatis, sæpe in maculas orbiculariter dispositis, pallide castaneo-brunneis, nudis; uredosporis ovatis vel ellipticis, 20-27 μ . diam., aculeatis, episporio ochraceo, intus subhyalinis; soris teleutosporiferis atro-brunneis, similibus, diutius tectis, in caulibus linearibus vel lanceolatis; teleutosporis ellipsoideis aut subglobosis, 20-30 $\approx$ 17-21, subtiliter verrucosis, obscure castaneis, apice valde incrassatis, pedicello longiusculo, mox deciduo fultis.

Hab. in foliis caulibusque Melandryi albi, Cucubali bacciferi in Silesia Germaniæ.

48. **Uromyces cristatus** Schroet. et Niessl in Rabenh. Fungi europæi n. 2366, Schroet. Pilz. Schles. p. 309, Winter Die Pilze p. 149. — 1968

Soris uredosporiferis sparsis vel orbiculariter congestis, amphigenis, rotundatis vel irregulariter oblongis, epidermide lacerata cinctis, castaneo-brunneis; uredosporis ovatis vel ellipticis, etiam late ellipsoideis, 17-32 $\approx$ 17-21, aculeatis, pallide brunneis; contextu hyalino; soris teleutosporiferis atro-fusculis, annulatim dispositis; teleutosporis ovoideis aut subglobosis, apice rotundatis, lineolatis, 20-35 $\approx$ 19-24, obscure brunneis, pedicello gracili, brevi suffultis.

Hab. in foliis Viscariæ vulgaris et Dianthi Armeriæ prope Brünn Moraviæ.

49. **Uromyces Terebinthi** (DC.) Winter Die Pilze p. 147, Burrill Paras. Fungi of Illinois p. 158, *Uredo Terebinthi* DC. Fl. Franç. VI, p. 71, *Uredo Decaisneana* Lév. in Demidoff Voyage p. 129, *Pileolaria Terebinthi* Cast. Observ. Ured. I, p. 22, *Uromyces Toxicodendri* Berk. et Rav. North Amer. Fungi n. 562, *Pileolaria brevipes* Berk. et Rav. in Grevillea III, p. 56. — Soris uredosporiferis irregulariter confertis, sæpe orbiculariter dispositis, mox denudatis, confluentibus, rufescenti-brunneis; uredosporis sphæroideis, piriformibus, ellipticis vel oblongis, apice plerumque incrassatis, minute verrucosis, verrucis spiraliter dispositis, 23-44 $\approx$ 20-26, obscure flavo-brunneis; soris teleutosporiferis rotundato-pulvinatis, nudis, brunneis vel atro-brunneis, solitariis aut confertis confluentibusque; teleutosporis lenticulari-sphæroideis, e basi apiceque sensim compressis, ad pedicelli insertionem umbonatis, apice plus minus angustatis, 22-26 $\approx$ 28-35, obscure brunneis, verrucosis, pedicello elongato, hyalino, persistenti fultis.

Hab. in foliis Pistaciæ Terebinthi et Rhois Toxicodendri, in Hungaria, Tauria, Gallia et America boreali. — Sori uredosporiferi in maculis hypophyllis flavidis et epiphyllis brunneis flavoque marginatis, teleutosporæ in maculis rotundatis amphigenis flavo-rufis vel rufescentes insidentes.

50. **Uromyces scutellatus** (Schrank) Lév. Disp. meth. p. 371, Winter Die Pilze p. 144 p. p., Schroet. Pilz. Schles. p. 313, *Lycoperdon scutellatum* Schrank Baier. Fl. II, p. 631, *Uredo excavata* DC. Syn. p. 47, *Uromyces excavatus* Cooke in Grevillea 1874, p. 160, Magnus in Hedw. 1877, p. 71, *Uromyces levis* Körn. in Hedw. 1877, p. 38, *Uromyces tuberculatus* Fuck. Symb. p. 64, p. p., *Cæoma excavatum* Link Sp. II, p. 34. — Soris hypophyllis, rotundatis, congestis, primo subcupulatis, clausis, dein explanatis, atro-brunneis; teleutosporis ellipsoideis, ovoideis vel subclavatis, 20-38 $\approx$ 16-25, apice rotundatis vel incrassatulis, episporio læte brunneo,

levi v. vertice subtiliter punctulato-striolato tectis, pedicello hyalino brevi deciduo; uredosporis immixtis rotundatis, ellipticis, oblongis aut piriformibus, $17-35 \approx 14-23$, plerumque granulatis.

Hab. in foliis Euphorbiæ Cyparissiae, Esulæ, exiguae, verrucosæ, palustris, Gerardianæ, pannonicæ, dulcis, virgatæ, lucidæ, nicæensis, Chamæsyces, Seguieri, in Italia, Britannia, Gallia, Austria, Helvetia, Germania, Hungaria et Neerlandia. — «Cave ne confundas cum affinibus *Urom. Kal-musii* Sacc. et *Urom. præminenti* Lév.».

51. **Uromyces Alchemillæ** (Pers.) Fuck. in Botan. Zeitung 1861, n. 35, 1971
Symb. myc. p. 65, Schroet. Pilz. Schles. p. 350, *Uredo Alchemillæ*
Pers. Syn. p. 205, *Cavoma minutum* Lib. Exs. n. 292, *Trachyspora Alchemillæ* Schroet. Brandp. p. 10, *Uredo intrusa* Grev. Engl. Fl. V, p. 382, Fl. Edinb. p. 436, *Erysibe Alchemillæ* Wallr. Fl. Crypt. Germ. II, n. 1619, *Uromyces intrusus* Lév. Cfr. Cooke Hb. n. 1547. — Soris uredosporiferis, rotundatis vel elongatis, mox confluentibus, plerumque totam inferiorem folii paginam occupantibus, læte miniatis; uredosporis globosis, ellipticis vel ovoideis, $16-24 \approx 16-20$, episporio hyalino, intus aurantiaco-rufis, breviter subtiliterque echinulatis; soris teleutosporiferis sparsis, rotundatis, cinnamomeo- vel castaneo-brunneis, laxiusculis; teleutosporis ellipticis vel ovatis, plerumque $20-38 \approx 20-28$, episporio læte castaneo-brunneo, verrucis obtusis, sparsis instructo, pedicello gracili, hyalino fultis.

Hab. in foliis Alchemillæ vulgaris, pubescentis et alpinæ, in Italia, Austria, Helvetia, Fennia, Lapponia, Germania, Britannia, Arduennis et Belgio.

52. **Uromyces præminens** (Duby) Lév. Disp. p. 371, *Uredo præminens* 1972
Duby Bot. Gall. II, p. 896, *Urom. Chamæsyces* Sacc. Rugg. p. 13, f. 13-15, *Uromyces tuberculatus* Fuck. Symb. myc. p. 64, p. p., Winter Die Pilze p. 145, *Uredo tuberculata* Fuck. Enum. Fung. Nass. I, p. 17 p. p. — Soris sparsis, in foliis rotundatis rariusque ellipticis, in caulibus elongatis, diu epidermide fissa cinctis; uredosporis sphæroideis aut breviter ellipticis, $26 \approx 19-23$, aculeatis, brunneolis; teleutosporis sphæroideis vel ellipsoideis, apice haud incrassatis, papillulatis, verrucis majusculis, solitariis æqualiter ornatis, castaneo-brunneis, $20-32 \approx 15-21$, pedicello brevi hyalino, valde deciduo fultis.

Hab. in foliis caulibusque Euphorbiæ exiguae, Chamæsyces, pseudo-chamæsyces, Gerardianæ et Cyparis-

siaë, in Italia, Belgio, Gallia, Germania et in Sibiria asiatica. — Soris in maculis flavidis vel rufescentibus insidentes.

53. **Uromyces Schanginiæ** Thüm. in Grevillea VI, pag. 103, *Uredo Schanginiæ* Thüm. in Grevillea VI, p. 104, Mycoth. univ. n. 1043. — Soris uredosporiferis magnis vel plerumque confluentibus, sæpe folia baccasve ex toto occupantibus, liberis, subinquantibus, concavis, rubiginosis; uredosporis ovoideis vel ovato-globosis, episporio levi, subtenui, æquali, luteo-fuscis vel dilute rhabarbarinis, intus subgrumulosis, 20-24 $\approx$ 16-20; soris teleutosporiferis maximis, caulicolis, erumpentibus v. protuberantibus, confluentibus, badiis, bullas concavas formantibus; teleutosporis globosis v. suboblongo-globosis, vix verruculosi, epidermide tenui, vertice non incrassato, 24-26 μ . diam., ochraceo-fuscis; pedicello longo, subrecto, in umbilico dilatato, basi angustissime apiculato, 50 μ . longo, superne 8-10 μ ., inferne 3-4 μ . crasso hyalino; paraphysibus nullis.

Hab. in caulibus vivis Schanginiæ baccatæ, rarissime, Damiette, Ægypti (SCHWEINFURTH).

54. **Uromyces acutatus** Fuck. Symb. Myc. p. 64, Schroet. Pilz. Schles. pag. 309. — Soris uredosporiferis minutis, erumpentibus, aurantiacis; uredosporis aurantiacis, aliis globosis, 24 μ . diam., aliis ovatis, 32 $\approx$ 22; soris teleutosporiferis primo tectis, dein per epidermidem longitudinaliter fissam erumpentibus, atro-fuscis; teleutosporis ovatis obovatisve, 22-30 $\approx$ 17-20, breviter stipitatis, apice hyalino-apiculatis, subtilissime clathratis, fuscis.

Hab. in foliis Allii sphærocephali, victorialis, Gægae pratensis et arvensis, in Germania (FUCKEL) et Sibiria occidentali (MARTIANOFF).

55. **Uromyces Lupini** Sacc. in Nuov. Giorn. bot. Ital. 1873, p. 274. Di alcune nuove ruggini, p. 11, f. 5-8, nec Berk. et Curt. — Soris hypophyllis, rarius amphigenis et caulicolis, subcircularibus, magnitudine variis, ex ochraceo brunneis; uredosporis et teleutosporis adsociatis; uredosporis globosis, flavescentibus, 16-18 μ . diam., sublevibus; teleutosporis ex ovato piriformibus, muricatis, longitudinaliter subplicatis, 16 $\approx$ 14, atro-brunneis, breviter hyalino-stipitatis.

Hab. in foliis Lupini albi, lutei et digitati, in Italia, Germania et Ægypto. — Adest species homonyma nunc ut subspecies *U. Genista-tinctoriæ*. « An eadem? ».

56. **Uromyces punctato-striatus** Cooke et Harkn. in Grev. XIV, p. 8. — Soris bullatis, difformibus; uredosporis globosis, levibus, castaneo-

fuscis, 25 μ . diam.; teleutosporis oblongis, utrinque acuminatis, pallide fuscis, 40 $\approx$ 20; episporio tenui, longitudinaliter punctato, striato, striis reticulato-anastomosantibus.

Hab. in ramulis Rhois, in California Amer. bor. (HARKNESS).

57. **Uromyces papillatus** Kaleh. et Cooke in Grev. X, p. 20, *Uredo Heteromorphæ* Mac Owan in litt. — Soris hypophyllis, irregulariter sparsis, minutis, fulvis, maculæ plerumque angustæ, flavæ insidentibus; uredosporis heteromorphis, pallidis, 20 $\approx$ 10 vel 30 $\approx$ 12, episporio crasso, echinulato; teleutosporis ovatis, 30 $\approx$ 18, pedicellatis, fulvis, echinulatis, apice papilla hyalina instructis et nonnunquam fere rostratis. 1977

Hab. in foliis vivis *Heteromorphæ arborescentis*, pr. M. Boschberg Africae australis. — Haud multum distat ab *U. apiculato*.

58. **Uromyces Hypoxidis** Cooke in Grevillea X, p. 127. — Uredosporis subglobosis, fuscis, 26 $\approx$ 20, episporio granulato, immixtis; soris bullatis, in maculis nigricantibus sparsis; teleutosporis elliptico-piriformibus vel ellipticis, pallide-fuscis, glabris, intus granulosi, 30-40 $\approx$ 20. 1978

Hab. in foliis *Hypoxydis*, Inanda, Natal Africae (WOOD).

59. **Uromyces Hedysari-paniculati** (Schwein.) Farlow in Ellis N. Am. Fungi n. 246, Burrill Parasitic Fungi of Illinois p. 159, *Puccinia Hedysari-paniculati* Schwein. Syn. Carol. n. 503, *Phragmidium Hedysari* Schwein. Syn. Amer. bor. Fungi p. 297, n. 2947, *Uromyces Desmodii* Cooke in Hedw. 1878, p. 38, Thümen in Bull. Torr. bot. Club. VI, pag. 215. — Maculis flavis vel nullis; soris amphigenis per totam inferiorem folii superficiem sparsis, superne paucis, uredosporiferis minutis, flavescenti-brunneis, sparsis, teleutosporiferis parvis, compactis, mox diffusis confluentibusque, atris vel atro-fuscis; uredosporis subglobosis, 18-21 μ . diam., echinulatis; teleutosporis acutis vel ovoideo-ellipticis, conspicue papillatis, rufo-brunneis, 24-30 $\approx$ 15-18, episporio crasso, dense verruculoso, pedicello lato, leniter colorato, elongato-flexuoso, paraphysibus nullis. 1979

Hab. in foliis *Desmodii canescentis*, ciliaris, paniculati, cuspidati, canadensis, rotundifolii, in America boreali. — Ab *Uromycete solido* et *U. appendiculoso* in *Desmodii* speciebus crescentibus differre videtur.

60. **Uromyces fusisporus** Cooke et Mass. in Grevillea XVI, p. 2. — 1980
Amphigenus; soris discoideis, erumpentibus, atris, epidermide cin-

ctis; uredosporis subglobosis, breviter stipitatis, levibus, fuscis, 35-40 μ .; teleutosporis immixtis, fusiformibus, ad apicem hyalino-apiculatis, episporio obtuse verrucoso, fuscis, 60-70 $\approx$ 25-30.

Hab. in phyllodiis *Acaciæ salicinæ*, ad Melbourne Australiæ (MÜLLER).

61. **Uromyces Euphorbiæ** Cooke et Peck in 30 Rep. p. 90, Burrill Paras. Fungi of Illinois pag. 165. — Soris amphigenis, maculis purpureis vel flavescentibus impositis, sparsis, parvis, rotundatis, uredosporiferis late brunneis; uredosporis globosis, 15-21 μ . diam., subtiliter rugulosis, pallide brunneis; teleutosporis subglobosis, ovatis vel obovatis, leniter apiculatis, 18-25 $\approx$ 15-18, verrucosis, sæpe late nucleatis, paraphysibus gracilibus numerosis interspersis; pedicello breviusculo, gracili, hyalino, deciduo.

Hab. in foliis *Euphorbiæ maculatæ*, *hypericifoliæ*, *dentatæ*, *heterophyllæ*, in America boreali, socio sæpe *Æcidio Euphorbiæ* Pers.

62. **Uromyces digitatus** Wint. in Rev. mycol. 1886, p. 209, nec Halsted. — Soris utriusque formæ in centro maculæ rotundatæ vel orbicularis, determinatæ, linea angustissima fusca limitatæ, atræ, circ. 0,4-1 mm. diam. solitariis, niveis vel demum albidis, minutis, ab epidermide demum fissa velatis; uredosporis numerosis, ovatis vel ellipticis, aureo-fulvis, dense verruculosis, 32-35 $\approx$ 20-25, episporio apice interdum parum incrassatis, pedicello fragilissimo, hyalino fultis; teleutosporis oblongo-cuneatis, apice valde incrassatis processusque plures (3-6) digitiformes erectos vel divaricatos, sæpe recurvatos, obtusos gerentibus, primo aureis, demum expallentibus, hyalinis, 50-56 $\approx$ 14-18, pedicello longo, persistenti, hyalino instructis.

Hab. in foliis vivis *Acaciæ* notabilis, prope Gawler in Australia meridionali (FEPPEL).

63. **Uromyces Cluytiæ** Kalchbr. et Cooke in Grev. XI, p. 20. — Soris uredosporiferis hypophyllis, majusculis, sparsis, pulvinatis, epidermide vix colorata, demum rimose dehiscente tectis; uredosporis subglobosis, 20 μ . diam., pallide flavo-fuscescentibus; soris teleutosporiferis hypophyllis, solitariis, minutis, subpunctiformibus, umbrinis; teleutosporis ovato-oblongis, 40-45 $\approx$ 20, episporio granulato, tuberculato, pulchre ferrugineo, pedicello crasso, æquali.

Hab. in foliis *Cluytiæ pulchellæ* et *Cluytiæ* cujusdam indeterminatæ, ad Somerset East (Mac Owan) et Port Natal (Wood) Africae.

4. **Uromyces Halstedii** De-Toni, *Uromyces digitatus* Halst. in Journ. of Mycology 1887, p. 138, non Winter. — Soris plerumque hypophyllis, minutis, elongatis, series irregulares efficientibus; uredosporis ellipsoideis, $26-30 \approx 22-25$, læte flavis, indistincte echinulatis, apice obscurioribus; soris teleutosporiferis atro-nitidis; teleutosporis irregularibus, $25-33 \approx 17-30$, vertice lato appendices 5-20 acutas vel obtusas, longiorem apice hyalinam gerentibus, pedicello teleutosporæ circiter dimidio brevior.

Hab. in foliis Leersiae virginicæ, Jowa Americæ borealis. — *Uromycti acuminato* Arthur proximus.

5. **Uromyces argentinus** Speg. Fungi Argentini I, p. 171, n. 38. — 1985
Amphigenus, macula nulla; soris minutis rotundatis, prominulis, primo epidermide tectis, dein ea fissa cinctis, initio aurantio-flavidis (uredosporiferis), dein cinnamomeis (teleutosporiferis); uredosporis elliptico-rotundatis v. elongatis, $25-30 \approx 15-18$, levibus, hyalinis, protoplasmate granuloso flavido-aurantiaco repletis; teleutosporis subsphæroideis, $35-45 \approx 30-34$, episporio ubique tenui donatis, præcipue in parte superiore asperulo-muriculatis, granuloso-faretis, læte interne fuliginis, pedicello brevi, $10-15 \approx 5-6$, instructis.

Hab. in foliis vivis Stipæ? speciei, secus Rio de la Plata a la Recoleta in Republica Argentina Americæ australis. — Uredo- et teleutosporæ in eodem folio et tempore (hiemali) videntes.

6. **Uromyces Spragueæ** Harkn. New Calif. Fungi p. 16, *Æcidium* 1986
Spragueæ Harkn. in herb. — *Æcidii* totum folium obtegentibus; pseudoperidiis elongatis; æcidiosporis $17 \approx 14$, aurantio-rubris; uredosporis globosis, 24μ diam., pallide brunneis, levibus; soris irregularibus, pulverulentis, æcidiis immixtis; teleutosporis ovatis, $24-32 \approx 17-21$, brunneis, tortuose striolatis, pedicello hyalino, brevi, deciduo.

Hab. in foliis vivis Spragueæ umbellatæ, S. Nevada Californiæ. — Invento *Æcidio*, species ad sect. I, transferenda.

67. **Uromyces Eriospermi** Kalchbr. et Cooke in Grevillea XI, p. 21. 1987
— Soris hypophyllis, inter venas folii parallelas sparsis, bullatis; uredosporis subglobosis, 15μ diam., echinulatis, flavis; teleutosporis subpiriformibus, $30 \approx 15-20$, longe pedicellatis.

Hab. in foliis Eriospermi ejusdam, ad Somerset East Africae australis.

68. **Uromyces Ononidis** Pass. in Rabenh. Fungi Europæi n. 1692, 1988
U. Anthyllidis f. *Ononidis* Schroet. — Teleutosporis ellipsoideis,

25 $\approx$ 20, minute verruculosus, cinnamomeis, pedicello hyalino, 25-30 $\approx$ 4; uredosporis subovoideis, 30-30 β . diam., ochraceis.

Hab. in foliis *Ononidis spinosæ*, in Italia.

69. **Uromyces Anagyridis** Roum. F. Gallici n. 743. — Soris brunneis; teleutosporis e globoso ellipsoideis, 25 $\approx$ 18, eximie tuberculatis, cinnamomeis, stipite tereti, 6-8 μ . longo, hyalino fultis; uredosporis globosis, magnis, 26-28 μ . diam., flavidis, levibus.

Hab. in foliis *Anagyridis foetidæ*, in Gallia. — *U. Lupini* Sacc. affinis.

c) Teleutosporæ quoad superficiem episporii incertæ.

70. **Uromyces Scirpi** Burrill *Parasitic Fungi of Illinois* p. 168. — Amphigenus; maculis brunneis, indeterminatis; soris diu epidermide tectis, tunc minutis et rotundatis, tunc majusculis et oblongis, sæpe apicibus confluentibus, subatris; uredosporis inter teleutosporas paucis, irregulariter ellipsoideis, flavescenti-brunneis, 27-36 $\approx$ 15-20, sparse echinulatis; teleutosporis clavato-ellipticis, centro amplioribus, frequenter apiculatis, brunneis, vertice incrassatis obscurioribusque, 32-42 $\approx$ 18, pedicello valido, subhyalino, teleutosporam subæquante.

Hab. in foliis *Scirpi fluviatilis*, Illinois Americæ bor. — *Uromyceti Spartine* Farlow subaffinis.

71. **Uromyces indicus** Pat. in *Revue mycologique* 1886, p. 81. — Soris uredosporiferis linearibus, epidermide tectis; uredosporis rotundatis, 18-24 $\approx$ 18, subtiliter verrucosis, flavescentibus, pedicello hyalino, brevi, deciduo; soris teleutosporiferis linearibus, epidermide cinctis, massam compactam, duram, brunneam, hic illic nitentem continentibus; teleutosporis utrinque attenuatis, superne incrassatis, 30-36 $\approx$ 15-18, brunneo-rufescentibus, pedicello hyalino, teleutosporam æquante fultis; paraphysibus apice incrassatulis, 45-60 $\approx$ 5-7, hyalinis vel fuscidulis.

Hab. in foliis *Scirpi* affinis, in India orientali (JACQUEMONT).

72. **Uromyces microsorus** Kalch. et Cooke in Grev. XI, p. 18. — Hypophyllus; soris uredosporiferis minimis, pallidis; uredosporis globosis, brunneis, 22-25 μ . diam., episporio asperulo; soris teleutosporiferis compactis minimis (in consortio) ochraceis; teleutosporis amygdaliformibus, pallide fuscis, 30 $\approx$ 18-20, episporio superne incrassato.

Hab. in foliis ignotis (potius *Drupaceæ*) in Africa australi.

73. **Uromyces Albucæ** Kalch. et Cooke in Grev. XI, p. 20, *Uromyces*

Alliorum Welwitsch Fungi angolenses pro parte, *Uredo semper-tecta* Thüm. l. c., n. 60. — Soris amphigenis, sparsis, elevatis, epidermide tectis, demum rima longitudinali apertis, fuscescentibus in macula non limitata, flavida; uredosporis subglobosis, 18-22 μ . diam., episporio inconspicue punctulato, tenui, dilute flavis.

Hab. in foliis vivis Albucæ aureæ et minoris, prope Somerset East nec non Angola Africæ.

4. *Uromycopsis* Schroet. Spermogonia, æcidia et teleutosporæ in eadem matrice; uredosporæ nullæ.

a) Teleutosporæ leves vel quoad episporium incertæ.

4. **Uromyces Behenis** (DC.) Unger Infl. Bod. pag. 216, Winter Die Pilze p. 153, Schroet. Pilz. Schles. p. 309, *Uredo Behenis* DC. Fl. Franc. VI, p. 63, *Æcidium Behenis* DC. Encycl. VIII, pag. 239, *Cecoma Behenis* Link Sp. II, p. 27, *Capitularia mycelospora* Ces. in Rabenh. Herb. myc. n. 283. — *Æcidii* in greges rotundatos, sæpe confluentes vel sparsos, subinde fere totam superficiem obtegentes dispositis, sæpius orbiculariter distributis; pseudoperidiis cupulatis, margine flavescente, lacerato, latiusculo; æcidiosporis sphaeroideis vel oblongis, 16-26 μ . d., verruculosus, aurantiaco-flavis; soris teleutosporiferis atris, diu tectis, cauliculis vel rarius æcidiiis intermixtis, erumpentibus, pulveraceis, confluentibus, latis; teleutosporis oblique ovoideis, obovatis, ellipticis, clavatis vel sphaeroideis, 36-40 = 17-26, levibus, apice amplo rotundatis vel retusis episporio usque ad 8 μ . crasso, castaneo-brunneis; pedicello longissimo, crasso, persistenti, sæpe flavescenti-brunneolo fultis.

Hab. in foliis caulibusque *Silenes inflatae*, vulgaris, italicæ, chloranthæ, alpinæ et *Otites* in Italia, Britannia, Gallia, Austria, Germania, Hungaria. — Maculæ flavæ vel albidæ vel violacæ.

5. **Uromyces Scrophulariæ** (DC.) B. et Br. sec. Schroet. Pilz. Schles. pag. 310, Winter Die Pilze pag. 151, *Æcidium Scrophulariæ* DC. Flor. Franc. VI, pag. 91, *Uredo Scrophulariæ* Lasch in Klotzsch Herb. myc. n. 489, *Cecoma scrophulariatum* Link Sp. II, p. 47, *Æcidium Verbasci* Ces. in Kl. Rab. H. M. n. 1491, *Uromyces Verbasci* Niessl Mähr. Crypt. II, n. 57, *Puccinia Scrophulariæ* Lib. *Uromyces concomitans* Berk. et Br. in Cooke Microfungi p. 213. — *Æcidii* in greges irregulares, rotundatos vel elongatos, sæpe late expansos congestis; pseudoperidiis cupulatis, margine latiusculo, prominulo, flavo-albido, erecto vel introrsum invo-

luto, glabro; æcidiosporis rotundato-polygoniis, 17-30 μ . diam., aurantiacis, verruculosis; soris teleutosporiferis (sæpe æcidiis immixtis) crustiformibus, late expansis, atro-brunneis, rotundatis vel oblongis, minutis, sæpe confluentibus; teleutosporis globosis, ovoideis vel clavatis, apice incrassatis, sæpe conoideo-attenuatis, 20-35 $\approx$ 10-20, levibus, castaneo-brunneis, pedicello tereti, plerumque 20 $\approx$ 5, hyalino, deciduo fultis.

Hab. in foliis caulibusque Scrophulariæ nodosæ, aquaticæ et Ehrharti, Rhinanthi majoris, Verbasci Schraderei, thapsiformis, Thapsi, phlomoidis, orientalis, nigri, in Gallia, Italia, Austria, Germania, Britannia, Belgio, Hungaria. — Fungus maculas irregulares, rotundato-angulatas, pallidas, flavescentes aut violaceo-brunneolas efficit.

76. **Uromyces Cacaliæ** (DC.) Unger Infl. Bod. Winter Die Pilze p. 152, Schroet. Pilz. Schles. p. 310, *Puccinia Cacaliæ* DC. Synops. p. 46, *Uredo Cacaliæ* DC. Encycl. VIII, p. 223. — Spermogoniis epiphyllis, in greges parvos dispositis, flavo-melleis; æcidiis hypophyllis in parvos orbes congestis, in macula pallidiore plerumque insidentibus; pseudoperidiis cupulato-explanatis, margine albido, lacinulato, latiusculo; æcidiosporis angulatis, 20-26 μ . diam., subtiliter granulatis, aurantiacis; soris teleutosporiferis minutis, castaneo-brunneis, dein in maculas rotundatas, sæpe 1-1,5 cm. latas confluentibus; teleutosporis ovatis vel piriformibus, 25-38 $\approx$ 14-20, levibus, amœne brunneis, apice papilla pallidiore, conoideo-acutiuscula instructis incrassatisque, pedicello brevi, hyalino, mox deciduo.

Hab. in foliis Adenostylis albifrontis, alpinæ, alliaræ et Cacaliæ hastatæ, in Italia, Gallia, Hungaria, Austria, Helvetia, Britannia, Germania et Sibiria. — Huc pertinet etiam *Coleosporium Cacaliæ* Fuck. Symb. myc. p. 43.

77. **Uromyces minor** Schroet. Pilz. Schles. pag. 310. — Æcidiis in maculas rotundatas aut oblongatas, sæpe usque ad 1 cm. longas, seriatim adproximatis; pseudoperidiis explanatis, margine albo, lacinulato; æcidiosporis aurantiaco-rufis; soris teleutosporiferis rotundatis vel oblongis, pulverulentis, parvis, atro-brunneis; teleutosporis ovatis vel subglobosis, 16-20 $\approx$ 15-17, apiculatis, levibus, vivide castaneo-brunneis, pedicello gracili, mox deciduo fultis.

Hab. in foliis Trifolii montani, in Silesia Germaniæ.

78. **Uromyces Hedysari** (DC.) Fuck. Symb. myc. III, p. 15, Schroet. 1 Pilz. Schles. p. 310, *Uredo Hedysari-obscuri* DC. Fl. fr. V, p. 64, *Puccinia Hedysari-obscuri* DC. Syn. n. 601, *Uromyces Hedysari-*

obscuri Carest. et Picc. in Rabenh. F. Eur. Cent. XVII, Winter Die Pilze p. 152. — Spermogoniis melleis, in parvos greges dispositis; æcidiis in orbes ordinatis; pseudoperidiis hypophyllis, plerumque dense congestis, margine lato, candido, denticulato; æcidiosporis globoso-angulatis, 15-22 μ . diam., verrucosis, aurantiacis; soris rotundatis, atro-brunneis, pulverulentis, irregulariter sparsis, mox nudis; teleutosporis ellipticis, ovoideis aut oblongis, 18-32 $\approx$ 12-18, levibus, castaneo-brunneis, apice papilla hemisphærica, hyalina vel conoidea auctis, pedicello longiusculo, deciduo.

Hab. in foliis petiolisque *Hedysari obscuri* et *setigeri*, in Italia, Gallia, Hungaria, Helvetia, Germania, Sibiria et Mongolia.

79. **Uromyces borealis** Peck in Botanical Gazette 1881, p. 276. — *Æci-* 1999
diis sine maculis; pseudoperidiis plerumque epiphyllis, sparsis vel rarius gregariis, brevibus, albis; æcidiosporis subglobosis, 16-20 μ . long.; soris teleutosporiferis more epiphyllis sparsis, parvis, atris vel atro-brunneis; teleutosporis obovatis vel subellipticis, levibus, 24-30 $\approx$ 12-16, apice umbone pallido prominenti auctis, pedicello brevissimo fultis.

Hab. in foliis vivis languidisve *Hedysari borealis* et *MacKenziei*, in America boreali. — *Æcidiosporæ* in sicco albidæ, forte in fungillo recenti flavæ.

80. **Uromyces Aconiti-Lycoctoni** (DC.) Winter Die Pilze pag. 153, 2000
Æcidium bifrons var. *Aconiti-Lycoctoni* DC. Fl. Fr. II, pag. 246, *Ceoma Ranunculaceatum* Link Sp. II, p. 54 p. p., *Uredo Lycoctoni* Kalchbr. Verz. Zips. Schw. n. 900 in Mitth. Ung. Acad. III, 1865, *Uromyces Aconiti* Fuck. Symb. mycol. p. 61, p. p. — *Æcidiis* in greges rotundatos vel oblongatos, sæpe valde elongatos, plerumque laxos dispositis; pseudoperidiis rotundatis vel ellipsoideis, confluentibus, vix prominulis, late apertis, margine albo, latiusculo, lacerato; æcidiosporis diversiformibus, episporio crasso, verrucoso donatis, usque ad 45 μ . longis, 22-28 μ . diam.; soris teleutosporiferis minutis, rotundatis vel ellipsoideis, subinde confluentibus, sine ordine vel suborbiculariter gregariis, præcipue epiphyllis; teleutosporis plerumque ovatis, raro irregulariter rotundatis vel oblongis, apice haud vel vix incrassatis, levibus, 22-38 $\approx$ 17-24, obscure brunneis, pedicello brevi, deciduo fultis.

Hab. in foliis *Aconiti Lycoctoni*, in Italia, Helvetia, Gallia, Germania, Hungaria et Sibiria. — E diagnosi Fuckeliana uredosporæ globosæ ovatæve, leves, flavescences videntur teleutospo-

ris immixtæ. *Æcidia maculis flavis*, sæpe confluentibus insidentia, sori maculas magnas, sæpe angulatas, flavas occupantes.

81. **Uromyces lathyrinus** Speg. Fungi Argentini pugillus IV, n. 70. *Æcidium lathyrinum* Speg. Fungi Argent. IV, n. 94. — *Æcidii* amphigenis vel cauliculis, maculis nullis; pseudoperidiis varie aggregatis v. sparsis, minutis, 0,2-0,3 mm. diam., primo hemisphærico-depressis, tectis, dein margine orbiculari integro vix v. non exserto deliscentibus, intus extusque albo-flavescentibus, contextu polyhedrico-parenchymatico, cellulis 25-35 μ . d., sphæricis v. elongatis, margine intense radiatim ruguloso-striatis; æcidiosporis globosis, 18-20 μ . diam., e mutua pressione angulatis, episporio levissimo, granulis protoplasmatis pareis, oleosis, aureo-fulvis ornatis; maculis nullis; soris amphigenis vel cauliculis, mox erumpentibus, parvulis, subpulveraceis, subatro-cinnamomeis; telentosporis elliptico-elongatis, 35-45 $\approx$ 14-16, episporio hyalino, levissimo, apice incrassatissimo, quandoque normaliter rotundato sæpeque in umbonem producto, protoplasmate dense granuloso, aureo-fulvo faretis, pedicello elongato, 50-80 $\approx$ 7-12, crassiusculo, hyalino fultis.

Hab. ad folia caulesque viva *Lathyri Clymeni*?, in herbosis uliginosis, Boca del Riachuelo, in Republica Argentina Americæ australis.

82. **Uromyces vernalis** Speg. Fungi Arg. pug. IV, n. 73 (*U. primaverilis*) *Æcidium vernale* Speg. Fungi Argent. IV, n. 95. — *Æcidii* amphigenis, in matrice pallide flavescente ac tumefacta insidentibus; pseudoperidiis irregulariter laxe gregariis v. sparsis, primo globoso-lenticularibus, tectis, dein poculiformi-apertis, margine latiusculo, 0,2-0,3 mm. d., margine exserto-reflexo, 3-5 laciniato-fisso, squamuloso-fimbriatulo, extus albis, intus aurantiacis, contextu e cellulis polyhedricis 30-35 μ . d., obtuse angulatis, tunica præcipue margine crassa, protoplasmate denso fulvo-aurantiaco repletis composito; æcidiosporis globosis e mutua pressione sæpe irregularibus, 20-25 μ . diam., levissimis, tenui membranaceis, protoplasmate oleoso-granuloso, aurantio-luteo faretis; maculis nullis; soris elongato-ellipticis, parvulis, sæpe ob confluentiam linearibus, diu epidermide cinctis velatis, dein erumpenti-prominulis, intense cinnamomeis; telentosporis obovatis vel subsphæroideis, mutua pressione obtuse angulatis, 30 $\approx$ 20, episporio levissimo, sursum incrassatulo ac in mucronem papilliformem, hyalinum producto, protoplasmate dense granuloso, 1-guttulatis, dilute fulvo-fuliginosis, pedicello hyalino, fragilissimo, 25-40 $\approx$ 5, fultis.

Hab. Ad folia viva Allii striatelli, in herbosis Parque de Palermo, Argentinæ Amer. australis.

83. **Uromyces Guayacurû** Speg. Fungi Argentini pugillus IV, p. 26, 2003
 n. 69, *Æcidium Guayacurû* Speg. Fungi Argentini pugillus IV,
 n. 92. — *Æcidii* amphigenis, sæpius epiphyllis; pseudoperidiis
 sæpius concentrice dispositis, 3-12 aggregatis, pulvinulo incre-
 sato, aurantio-purpurascente insidentibus, primo globosis, tectis,
 dein erumpentibus, poculiformibus, 0,2-0,3 mm. diam., margine
 parvulo, vix exserto, reflexo, parce crenulato ornatis; contextu pa-
 renchymatico, cellulis polyhedricis, 28-32 μ . diam., episporio cras-
 siusculo, radiatim striolato; æcidiosporis globosis, 22-25 μ . diam.,
 e mutua pressione obtuse angulatis, episporio levi, hyalino, proto-
 plasmate aurantiaco, grosse oleoso-guttulato fœtis; soris amphige-
 nis, minutis, 0,15-0,3 mm. diam., pulvinulo incrassato aurantio-
 purpureo insidentibus, primo tectis, dein erumpentibus, subpulve-
 rulentis, cinnamomeis; teleutosporis obovatis v. subrhomboideo-el-
 lipticis, 30-36 $\approx$ 20, episporio levi, sursum incrassatulo, protoplas-
 mate dense granuloso, intense et vivide fuligineis, pedicello sub-
 clavulato, 59-60 $\approx$ 5, hyalino fultis.

Hab. in foliis caulibusque Staticis brasiliensis (vulgo *Guayacurû*), in arenosis maritimis pr. promontorium «Cabo S. Antonio», in Republica Argentina et pr. Misioneros ad Rio S. Cruz in Patagonia. — *Uromyces Limonii* Lév., secundum specimina in Thüm. Mycoth. Univ. edita, teleutosporis majoribus 35-42 $\approx$ 15-18, gracilioribus, pedicello longiore atque crassiore 80-100 $\approx$ 10, soris majoribus, compactiusculis, pulvinulo incrassato deficientibus ab hoc satis differre videtur.

84. **Uromyces Zygaeni** Peck in Botanical Gazette 1881, p. 239. — 2004
 Maculis pallidis aut flavescentibus, subinde confluentibus; æcidii
 amphigenis; pseudoperidiis brevibus, sparsis vel gregariis; æcidio-
 sporis subglobosis, 20-23 μ . diam., aurantiacis, episporio tenui,
 hyalino instructis; soris amphigenis, confertis, minutis, atro-brun-
 neis, subinde æcidii intermixtis; teleutosporis obovatis vel sub-
 piriformibus, obtusis, 26-30 $\approx$ 20-23, pedicello teleutospora bre-
 viore.

Hab. in foliis vivis, quæ enecat, *Zygaeni paniculati*, Utah Americæ borealis (Jones).

85. **Uromyces Brodiaë** Ell. et Harkn. New Calif. Fungi pag. 8, 2005
Æcidium Brod. E. et H. — *Æcidii* amphigenis, maculis flavidis,
 2-4 mm. diam., orbiculariter congestis, 6-10 depressis; pseudope-

ridiis cupulatis, disco aurantio-flavo, margine anguste lacerato; soris amphigenis (maculis obsoletis), sparsis, oblongis, circ. 1 mm. diam., subinde in plagulas elongatas subconfluentibus, obscure umbrino-brunneis; teleutosporis obovatis, 20-28 $\approx$ 13-20, episporio vertice leniter incrassatulo, pedicello teleutosporam longit. æquante.

Hab. in foliis vivis *Brodiaëæ laxæ*, Antioch Californiæ Am. bor. — *U. Zygadeni* Peck affinis; ab *U. Liliacearum* Schw. diversus.

b) Teleutosporæ punctulatæ, lineolatæ vel verrucosæ.

86. **Uromyces Erythronii** (DC.) Passer. in Comment. Soc. critt. ital. II, p. 452, Winter. Die Pilze p. 149, Schroet. Pilz. Schles. p. 311, *Æcidium Erythronii* DC. Fl. Franc. II, p. 246, *Uredo æcidiiiformis* Strauss in Wett. Ann. II, p. 94, *Cæoma Lolii* Link Sp. II, p. 8, *Ur. Erythronii* DC. Fl. Franc. VI, p. 67, *Erysibe variolosa* Wallr. Fl. Crypt. Germ. p. 195, *Cæoma Fritillariæ* Schlecht. in Linnæa I, p. 240, *Uredo Fritillariæ* Chaill. in herb., *Uromyces Fritillariæ* Thüm. in Cest. bot. Zeits. 1876, p. 297, *Æcidium Meleagris* Duby Bot. Gall. II, pag. 904, *Uromyces Liliacearum* Unger Infl. Bod. p. 216, *Æcidium Scillæ* Fuck. in Fungi Rhen. n. 282, *Uromyces Rabenhorstii* Kunze in Fungi Eur. n. 1693, *Uromyces Plumbaginis* Schneid. Jahrb. Schles. Ges. 1874, pag. 90?, *Uromyces Lilii* Kunze in Rabenh. F. E. n. 1693 non Clinton. — Spermogoniis flavo-melleis, conoideo-prominulis, in maculas epiphyllas, minutas vel usque ad 2 mm. latas congestis; æcidiiis in maculis orbicularibus aut oblongis insidentibus; pseudoperidiis latis, diu clausis, demum margine brevi, obtusiusculo; æcidiosporis globosis vel oblongis, 40 $\approx$ 20-28, verrucosis, aurantiacis; soris minutis rotundatis, diu tectis, castaneo-brunneis, sparsis vel gregariis, sæpe confluentibus; teleutosporis ellipticis vel ovoideis, vertice apiculo hyalino verruciformi ornatis, 26-45 $\approx$ 17-30, plerumque plicato-lineatis, cinnamomeis episporio æqualiter incrassato, pedicello brevi, mox deciduo fultis, hyalino.

Hab. in foliis caulibusque *Lilii candidi*, bulbiferi, carniolici, *Muscari racemosi*, *Erythronii Dentis-Canis*, *Scillæ bifoliæ*, *Allii victorialis* et striati et *Fritillariæ Meleagri*, in Italia, Gallia, Austria, Helvetia, Hungaria, Germania et Sibiria asiatica nec non in America boreali. — Teste cl. Burrill Parasit. Fungi of Illinois pag. 167, æcidiosporæ 21-27 $\approx$ 15-21, leves vel obscure rugulosæ.

87. **Uromyces Primulæ** (DC.) Lév. in Cooke M. F. p. 211, Schroet. 2007
 Pilz. Schles. p. 311, *Æcidium Primulæ* DC. et *Uredo Primulæ-integrifoliæ* DC. Fl. Franç. VI, p. 90 et 69, *Uromyces Primulæ-integrifoliæ* Niessl. Beitr. p. 13. — *Æcidii* in greges laxos congestis, plerumque hypophyllis; pseudoperidiis cupulatis, margine obtuso, indiviso, flavidulis; æcidiosporis sphæroideo-angulatis, sæpe oblongiusculis, 14-20 μ . diam., verrucosis, aurantiaco-rufis; soris teleutosporiferis (sæpe æcidiiis immixtis) gregariis, sæpe confluentibus nervosque foliorum sequentibus, minutis, rotundatis vel oblongis, atris, diu epidermide tectis; teleutosporis ellipticis aut ovoideis, 20-35 $\approx$ 10-20, verrucosis, brunneis, apice papilla dilatiori auctis, pedicello gracili, brevissimo, mox deciduo fultis.

Hab. in foliis caulibusque *Primulæ integrifoliæ*, minimæ, *Balbisii*, villosæ, *sibiricæ* et *Auriculæ*, in Italia, Austria, Gallia, Britannia et Germania nec non in Sibiria asiatica.

88. **Uromyces Hazslinskii** De-Toni, *Uromyces Hedyari* Hazsl. Ma- 2008
 gyar. Usz. Rag. et in Just Jahresb. 1877, pag. 72, nec Fuckel. — Soris minutissimis, rotundatis, sparsis, brunneis, epiphyllis, rarius hypophyllis, macula nulla; teleutosporis ovoideis vel ellipticis, vertice rotundatis, hyalinis, grossiuscule verrucosis, 30-34 μ . longis, pedicello brevissimo cylindraceo fultis.

Hab. in foliis *Hedyari* obscuri, in M. Tatra (KALCHBRENNER). — «Forte cum *Æcidio Hedyari* Kalchbr. videtur connexus».

89. **Uromyces unitus** Peck in Bull. Torr. bot. Club 1883, p. 74. — 2009
Æcidii maculas suborbiculares, subinde confluentes, flavas vel sanguineas efformantibus; pseudoperidiis amphigenis, brevibus, subinde confertis maculamque totam occupantibus, plerumque concentricæ ad marginem dispositis; æcidiosporis subglobosis vel subellipticis, 20-25 μ . diam., aurantiaco-flavis; soris amphigenis in eadem macula ac æcidiiis pseudoperidiisque intermixtis, prominulis, orbiculatis, ex atro brunneis; teleutosporis globosis, 25-27 μ . diam., subtiliter granulosi, pedicello brevissimo, hyalino fultis.

Hab. in foliis vivis *Calandrinæ* *Leanæ*, in America bor. (BRANDEGEE).

90. **Uromyces Dolichi** Cooke in Grevillea X, p. 127, *Uredo Dolichi* 2010
 B. et Br. Fungi of Ceylon n. 829? *Uromyces Phaseolorum* f. *Dolichi* auct. — Pseudoperidiis semiimmersis, sparsis, margine reflexo, albo; æcidiosporis aurantiacis; soris uredosporiferis hypo-

phyllis, sparsis, epidermide cinctis, pallidis; uredosporis subglobosis, echinulatis, 25 μ . diam. teleutosporis ut in *U. Fabæ*.

Hab. in foliis, petiolis et leguminibus *Dolichi axillaris*, gibbosi etc., in insula Ceylon (?) et Inanda Natali Africæ. — Forte huc spectat *Uromyces Phaseolorum* De Bary in foliis *Dolichi monachalis* prope Coimbra Lusitanicæ (MOLLER) et Vignæ melanophthalmicæ prope Parma Italiæ (PASSERINI).

91. **Uromyces affinis** Winter in Hedwigia 1885, p. 259. — *Æcidiiis* greges rotundatos vel plus minus elongatos, sæpe laxos formantibus; pseudoperidiis gregariis, brevissime cylindraceis aut fere patelliformibus, margine inciso, erecto, albidis, circ. 250 μ . altis; *æcidiosporis* rotundato-angulatis, 17-23 μ . diam., minutissime verruculosi, aurantiaci; soris sparsis vel gregariis, non raro confluentibus, ellipticis vel plus minus elongatis, primo epidermide tectis, demum erumpentibus, pulverulentis, fuscis; teleutosporis ovoideis, ellipticis vel oblongis, subinde irregularibus vel piriformibus, 24-30 $\approx$ 14-21, apiculo brevi, conico, subhyalino auctis, fuscis, episporio longitudinaliter striato, pedicello longiusculo, valde fragili, hyalino fultis.

Hab. in foliis scapisque vivis *Hypoxidis erectæ*, Missouri Amer. bor. (DEMETRIO). — *U. Erythronii* DC. proximus, ab *U. Hypoxidis* Cooke distinctus.

V. MICRO-UROMYCES Schroet.: Teleutosporæ tantum notæ, post matricis mortem germinantes. Pedicellus pro more deciduus.

a) Teleutosporæ leves.

92. **Uromyces Solidaginis** (Sommerf.) Niessl Beitr. Kenntn. Pilz. (1872), pag. 13, t. III, f. 10, Winter Die Pilze p. 141, Schroet. Pilz. Schles. p. 311 non Fuck. En. F. Nass., *Cavoma Solidaginis* Sommerf. Suppl. Fl. Lappon. p. 234. — Sori amphigeni, maculæ flavescenti insidentibus, per epidermidem fissam erumpentibus, in cæspitulum per paucos aggregatis sæpeque confluentibus, convexis, compactis, majusculis, fusco-atris; teleutosporis ovoideo-sphæroides, obtusissimis, episporio vertice valde incrassato et conoideo-angustato, levibus, flavis, 22-32 $\approx$ 14-22, pedicello hyalino, circiter 50 μ . longo.

Hab. in foliis *Solidaginis Virgaureæ*, in Germania, Moravia, Fennia et Lapponia rossica nec non Portland Maine Amer. bor. — Teleutosporæ primitus vertice in apicem conicum productæ et flavescentes; sori 0,5-2,5 mm. lati.

93. **Uromyces Phyteumatum** (DC.) Unger Infl. Bod. Winter Die Pilze 2013
p. 151, Schroet. Pilz. Schles. p. 312, *Puccinia Phyteumatis* DC.
Fl. Franç. II, p. 225, *Puccinia Anemones* var. *Phyteumatis* Funk
Krypt. Gew. n. 283, *Uredo Betonicæ* var. *Phyteumatis* Röhl
Deutsch. Fl. III, p. 130. — Soris teleutosporiferis rotundatis, ca-
staneo-brunneis, laxe dispositis, mox nudis, sæpe totum folium oc-
cupantibus; teleutosporis variabilibus plerumque ovatis vel ellipti-
cis, apice incrassatis, papilla conoidea lata, obtusa, pallidiori au-
ctis, 24-35 $\approx$ 17-24, levibus, brunneis, pedicello longiusculo, cras-
so, hyalino fultis.

Hab. in foliis petiolisque *Phyteumatis* spicati, orbicu-
laris, hemisphærici, *Michelii*, *Halleri*, *betonicifolii*,
in Italia, Helvetia, Germania. — Maculæ flavescentes, dilute viri-
dulæ, sæpius etiam violaceæ. «An huc spectat ut status æcidiospor-
us *Æcidium Phyteumatis* Unger?: pseudoperidiis gregariis mar-
gine subtiliter regulariterque laceratis, candidis; æcidiosporis an-
gulato-globosis, 16 μ . diam., flavis (Fuckel)».

94. **Uromyces Scillarum** (Grev.) Wint. Die Pilze pag. 152, Schroet. 2014
Pilz. Schles. p. 312, *Uredo Scillarum* Grev. in Sm. Engl. Fl. V,
p. 376, *Uredo Muscari* Duby Bot. Gall. II, p. 898, *Uredo con-
centrica* Desmaz. in Ann. Scienc. Nat. III, 6, p. 62, *Uromyces
concentricus* Lév. in Ann. Scienc. Nat. 1846, p. 62, *Trichobasis
Scillarum* Berk. Outl. p. 332, *Puccinia Scillarum* Baxt. Exsicc.
n. 40, *Uromyces Muscari* Lév. in Ann. Scienc. Nat. III, 8, p. 376,
— Soris rotundatis vel oblongis, concentrice dispositis, castaneo-
brunneis, primo epidermide tectis, dein ea rupta cinctis pulveru-
lentisque, in maculas rotundatas vel rhombeas, usque ad 1 cm. la-
tas confluentibus; teleutosporis ovatis vel subglobosis aut subela-
vatis, 19-30 $\approx$ 14-24, levibus, episporio apice æqualiter incrassato,
brunneis, pedicello tenui, 10-30 μ . longo, mox deciduo instructis.

Hab. in foliis *Scillæ* bifoliæ et prasinæ, *Muscari* co-
mosi, racemosi, botryoidis et tenuiflori, in Italia, Bri-
tannia, Græcia, Hungaria, Gallia, Austria, Germania et in Africa
ad Somerset East et in Ægypto. — Maculæ brunneolæ aut palli-
dæ, ellipticæ vel lanceolatæ.

95. **Uromyces Ornithogali** Lév. Disp. méth. Ured. p. 371, Winter Die 2015
Pilze p. 141, Schroet. Pilz. Schles. p. 312. — Soris ellipticis, 1-2
mm. longis, primo epidermide bullata clausis, dein pulverulentis,
atro-brunneis, sparsis vel in pustulas confluentibus; teleutosporis
breviter ellipsoideis, ovatis vel piriformibus, deorsum angulatis ro-

tundatisve, vertice apiculo hyalino, verruciformi, minuto ornatis, 26-50 $\approx$ 17-26, levibus, rarius verruculosus, dilute vel castaneo-brunneis, pedicello longiusculo, tenui, hyalino, deciduo fultis.

Hab. in foliis vivis *Ornithogali umbellati* et nani nec non *Gageæ luteæ*, *pratensis*, *arvensis*, *bohemicae*, *stenopetalæ*, *saxatilis*, in Gallia, Germania, Hungaria, Lusitania et Britannia. — Huc spectat *Erysibe rostellata* var. *Ornithogali* Wallr. Fl. Crypt. Germ. II, p. 209. — ***Uromyces Gageæ** Beck Zur Pilzfl. Niederost. p. 20. Teleutosporis levibus. In Gagea in Austria.

96. **Uromyces Ficariæ** (Schum.) Lév. in Ann. Sc. Nat. VIII, p. 390, Winter Die Pilze p. 141, Schroet. Pilz. Schles. p. 312, *Uredo Ficariæ* Schum. Pl. Saell. II, p. 232. — Hypophyllus vel petiolicola; soris rotundatis, castaneo-brunneis, in maculas pallidas, magnas, rotundatas confluentibus; teleutosporis globosis, ellipticis, ovoideis vel oblongo-clavatis, apice papilla pallidiore vel verrucula auctis, 25-44 $\approx$ 16-26, levibus, castaneo-brunneis.

Hab. in foliis *Ranunculi Ficariæ*, in Italia, Belgio, Gallia, Britannia, Austria, Helvetia, Bohemia, Hungaria et Germania.

b) Teleutosporæ verrucis vel striolis ornatae.

97. **Uromyces Croci** Pass. in Rabenh. Fungi europ. n. 2078, Winter Die Pilze pag. 142. — Soris subrotundis vel linearibus, primo epidermide velatis, dein nudis, sæpe confluentibus, fuscis; teleutosporis subrotundis, 35 $\approx$ 26-30, apice non vel leniter incrassatis, badio-fuscis, episporio scabriusculo, pedicello persistenti, hyalino.

Hab. ad folia viva *Croci* biflori et verni, in Italia et Germania.

98. **Uromyces Mucunæ** Rabenh. in Fung. europ. n. 2372, et in Hedwigia 1878. pag. 62. — Soris punctiformibus, mox erumpentibus minutissimis, pulverulentis, obscure brunneis; teleutosporis subglobosis, paullum depressis badiis, 13-14 μ . diam., episporio æquicrasso, subtiliter ruguloso, pedicello plerumque valido, subæquali, circ. 15 μ . longo, hyalino, mox deciduo fultis.

Hab. in foliis *Mucunæ* (prurientis?), in horto botanico, Calcutta Indiæ orient. (S. Kurz).

VI. LEPTO-UROMYCES Schroet.: Teleutosporæ tantum notæ, in matrice adhuc viva germinantes. Sori pulvinati; pedicellus plerumque persistens.

99. **Uromyces pallidus** Niessl Beitr. p. 14, Winter Die Pilze p. 140, s

Schroet. Pilz. Schles. p. 313. — Soris gregariis, circulos formantibus, minutis, orbicularibus, pulvinatis, humidiusculis fere tremellosis, ochraceis; teleutosporis anguste clavatis, elongatis, apice rotundatis, episporio levi, dilute flavis, 30-44 $\approx$ 10-17, pedicello elongato, hyalino, persistenti, usque ad 60 μ . longo.

Hab. in foliis vivis *Cytisi hirsuti*, capitati et prostrati, in Germania et Buczacz Pol. austr. (KRUPA). — Sori 0,5 mm. d.

Species quoad sectionem ulterius inquirendæ.

a) Teleutosporæ episporio levi donatæ.

100. **Uromyces pervius** Speg. Fungi Guaranitici I, n. 124. — Maculis 2020
amphigenis, determinatis, arescendo fragilibus, griseis, primo minutis, 2-3 mm. diam., dein confluentibus sæpeque fere totum folium occupantibus; soris hemisphærico-pulvinatis, minutis, 200-250 μ . diam., compactiusculis, cinnamomeis, centro macularum concentricæ et sublaxe insidentibus ac per ætatem cum parenchymate macularum secedentibus foliumque totum perforatum relinquentibus; teleutosporis plus minus interne cinnamomeis, e fronte orbiculari obovatis, 15-18 $\approx$ 13, apice late truncatis, postice truncato-subattenuatis, episporio levissimo, vertice præcipue valde incrassato ac sæpius latiuscule perforato, grosse 1-guttulatis, e latere compresse strictis, latere altero concavo, altero convexo (in sicco) vel lenticularibus (in vivo); pedicello 25-30 $\approx$ 3-4, tereti vel vix deorsum gradatim attenuato, hyalino.

Hab. ad folia viva *Cupaniæ* speciei cujusdam in dumetis prope Villa Rica Americæ australis.

101. **Uromyces intricatus** Cooke in Grevillea VII, p. 3. — Epiphyllus 2021
lus; soris compactis, convexis, purpureo-brunneis; teleutosporis ovatis, 35 $\approx$ 25, glabris, læte brunneis; pedicello elongato, hyalino, long., infra attenuato.

Hab. in foliis, pedunculis caulibusque *Gayophyti ramosissimi*, in California.

102. **Uromyces juncinus** Thüm. Myc. univ. n. 1436. — Soris subepi- 2022
dermicis, sparsis, ellipticis, postremo epidermidem longitudinaliter disrumpentibus sed non vero liberis, ferrugineis; teleutosporis aut globosulis aut ovoideis aut interdum clavatis, plerumque utrinque truncatis, simplicibus, dilute fumoso-fuscis, episporio subtenui, fere levi sed cum omentis minutissimis vix visibilibus dense ornato, concolori, 30-37 $\approx$ 18-24; pedicello valde caduco, hyalino, arcuato, sursum sensim dilatato, usque 28 μ . crasso, plerumque 12-18 $\approx$ 6.

Hab. in culmis vivis Junci acutiflori, Licata Siciliæ (V. BELTRANI). — Ab *Uromycele Junci* Tul. valde differt habitu et teleutosporarum forma magnitudineque, pedicello hyalino etc.

103. **Uromyces Lantanæ** Speg. Fungi Guaranitici I, n. 121. — Maculis amphigenis, majusculis, 3-6 mm. latis, fusciscenti-arescentibus, determinatis, orbicularibus vel angulatis; soris hypophyllis, totam maculam occupantibus, vix prominulis, cinnamomeis; teleutosporis obovatis, $20 \approx 15$, antice acutato- vel truncato-rotundatis, crassissime tunicatis, episporio levi, intense, melleo-fuligineo; pedicello $35-42 \approx 4-6$, pallide melleo.

Hab. ad folia viva Lantanæ speciei cujusdam in dumetis prope Paraguari Americæ australis. — In soris teleutosporæ pucciniiformes sed rarissime adsunt intermixtæ; diu pedicello ad tertium superum 1-septato et segmentum superum tandem locus abortivus videtur; episporium per ætatem subcrustaceum evadit et apice sæpe irregulariter rimoso-diffractum.

104. **Uromyces Malvacearum** Speg. Fungi argentini pug. IV, n. 71. Fungi Guaranitici pug. I, n. 122. — Maculis epiphyllis, pallide fulvescentibus, indeterminatis, hinc inde minute umbilicatis; soris hypophyllis, minutis, 0,2-0,3 mm. diam., innato-prominulis, compactis, in glomerulos orbiculares, 2-3 mm. diam., sæpe confluentibus, dense aggregatis, atro-cinnamomeis; teleutosporis globosis vel globoso-obovatis, episporio levissimo sursum valde incrassato, $16-25 \approx 14-18$, fuligineis, pedicello tereti, deorsum subattenuato, $60-100 \approx 5-6$, hyalino, apice subfuscescente fultis.

Hab. in foliis vivis Abutilonis mendozini et speciei cujusdam ignotæ in montuosis « Sierra Chica » prope S. José, Cordoba, in Republica Argentina (Dr. Hieronymus) nec non prope Paraguari Amer. austr. — Species ut videtur pluribus notis cum *Uromycele heterogeneo* Cooke congruens.

105. **Uromyces pictus** Thüm. in Revue Mycologique 1879, p. 9. — Soris dense gregariis, orbiculatim dispositis, hypophyllis, in macula indistincta, subexpallida, badiis, firmis sed liberis, mediis, verruculiformibus; teleutosporis globosis vel late ellipticis, utrinque rotundatis, episporio tenuissimo, levi, fuscidulis, $21-30 \mu$ diam., pedicello usque ad 58μ longo, 4μ cr., facillime caduco, subarcuato, subæquali, hyalino.

Hab. in foliis vivis Abutilonis elæocarpoidis in Abyssinia (Dr. C. KECK).

106. **Uromyces Sidæ** Thüm. in Revue Mycologique 1879, pag. 9. —

Hypophyllus, soros solitarios orbiculatos, dense gregarios, mediores, elevatos, pustuliformes denum confluentes, firmos, castaneos (in macula indeterminata grisea, in pagina superiore purpureo-fusca) formans; teleutosporis globosis vel late ovoideis, sæpe apice verticeque subangustato-acutatis, episporio subtenui, levi, vertice valde incrassato, intus homogeneis, $25 \approx 16$, pedicello subarcuato, hyalino, æquali, $20-22 \approx 5$.

Hab. in foliis vivis Sidæ spinosæ in Kordofania australi. — Ab *Urom. picto* Thüm. episporio vertice crassissimo, pedicello brevior plane distinguendus.

107. **Uromyces magellanicus** Speg. Fungi Patagonici p. 29, n. 88. — 2027

Soris hypophyllis, sparsis vel hinc inde irregulariter subgregariis, non vel rarius seriatim dispositis, non vel subelongatis, epidermide laciniata vel suboperculatum disrupta diu ornatis, pallide fulvescentibus, subminutis, $300-500 \mu$ d.; teleutosporis globosis ellipticis vel obovatis, $25-30 \approx 18-22$, episporio subtenui, vix antice incrassatulo, levi donatis, pallide fulvescentibus, grosse 1-guttulatis, pedicello breviusculo? (an diffluente?) suffultis.

Hab. in foliis vivis Caricis pallidæ? in herbosis Gregory bay in Patagonia Americæ australis.

108. **Uromyces nevadensis** Harkn. New Calif. Fungi p. 16. — So. 2028

ris minutis, aggregatis (in maculis 1-4 mm. latis), primo cuticula subargentea tectis, pulverulentis; teleutosporis oblongis vel obovatis, $36-42 \approx 12-14$, obscure brunneis, levibus; pedicello hyalino, deciduo, teleutosporam subæquante.

Hab. in foliis vivis Primulæ suffrutescentis pr. Lacum Tahoe Calif. Amer. bor., 2000 m. circ. altit. — Ab *U. Primulæ* Lév. in primis teleutosporis levibus differt.

109. **Uromyces novissimus** Speg. Fungi Argentini pag. III, n. 35. — 2029

Maculis nullis; soris hypophyllis, sparsis vel rarius laxè gregariis, erumpentibus, pulvinulatis, orbicularibus, atro-fuligineis, pulverulentis, minutis, $\frac{1}{4}-\frac{1}{2}$ mill.; teleutosporis levibus, globosis, sursum acutiuscule rotundatis, subumbonato-mucronatis, episporio crassissimo, deorsum rotundato-subtruncatis, $25-30 \approx 20-22$, ochraceo-fuligineis, pedicello cylindræo, hyalino, $30-50 \approx 5$.

Hab. in foliis vivis Trianospermæ ficifoliæ in sepibus de la Boca del Riachuelo et del Bagnado de S. José de Flores in Republica Argentina Amer. australis.

110. **Uromyces pulvinatus** Kalchbr. et Cooke in Grevillea IX, p. 21, 2030

Winter in Hedwigia 1884, p. 167. — Epiphyllus; soris discoideis

pulvinatis, sclerotioideis, atro-brunneis, compactis; teleutosporis subglobosis, 18-20 μ . diam., fuscis, levibus.

Hab. in foliis *Euphorbiæ inæquilatæræ* in Africa australi. — Suadente Winter, loco citato, verisimiliter idem ac *Uromyces Euphorbiæ* C. et P.

111. **Uromyces platensis** Speg. Fungi Argentini pug. IV, n. 72. — Soris caulogenis, maximis, 5-100 mm. long., 2-15 mm. lat., longitudinalibus, primo tectis, dein reticulatim erumpentibus, compactis, atro-cinnamomeis; teleutosporis ellipticis, ovatis vel obovatis, apice plus minusve obtusatis ac crasse tunicatis, 35-40 $\approx$ 30-25, levissimis, granuloso-farctis, grosse 1-guttulatis, pulchre et vivide cinnamomeis; pedicello prælongo, 150-200 $\approx$ 5-7, sub apice non vel vix pallescente deorsum leniter attenuato.

Hab. ad caules languidos *Mogiphanes glaucæ*, in paludibus secus el Rio de la Plata, Barracas del Sur in Republica Argentina Americæ australis.

112. **Uromyces piriformis** Cooke in Peck XXIX Rep. N. Y. Mus. p. 69, Burrill Fungi of Illinois p. 167. — Maculis nullis; soris amphigenis, erumpentibus, linearibus, elongatis, subinde confluentibus, subpulverulentis, obscure brunneo-purpureis, epidermide rupta cinctis; teleutosporis piriformibus, obtusis, apice incrassatis, levibus, 25-28 $\approx$ 15-20, obscure brunneis, pedicello teleutosporæ dimidio longiore, sursum colorato, persistenti, crassiusculo.

Hab. in foliis *Acori Calami*, in America boreali. — *Urom. Sparganii* valde affinis.

113. **Uromyces Bulbinis** Thüm. in Flora 1877, p. 410. — Soris amphigenis, parvis, dense gregariis, in circulos maximos concentrice dispositis, epidermide tectis, firmis, subconcavis, fuscis; teleutosporis clavatis vel oblongo-clavatis, plerumque vertice subacutatis, basi subangustatis, pedicellatis, episporio levi, subcrasso, vertice incrassato, 30-36 $\approx$ 20-22, pedicello caduco, inæquali, 12 $\approx$ 4, recto vel leniter curvato, hyalino, flavo-fuscis, epidermide obscuriore, intus granulosis; paraphysibus nullis.

Hab. in foliis vivis *Bulbinis aloidis* et *latifoliæ*, in monte « Boschberg » pr. Somerset-East in Africa austr. (P. MacOWAN). — A *U. Muscaris* Lév. episporio vertice incrassato et pedicello brevior valde differt.

114. **Uromyces concomitans** B. et Br. Gard. Chron. 1874, pag. 228, Grevillea III, pag. 74 cum icone. — Soris in annulum congestis,

irregularibus, explanatis; teleutosporis obovatis, levibus, deorsum angustatus.

Hab. in foliis *Scrophulariæ nodosæ*, in Britannia.

115. **Uromyces circinalis** Kalchbr. et Cooke in Grevillea VIII, p. 71. 2035

— Amphigenus; soris minimis, circinatis vel sparsis, purpureo-fuscis; teleutosporis ovalibus vel subovatis, levibus, 20-25 $\approx$ 15-18, pedicello hyalino, tenui, deciduo fultis.

Hab. in foliis monocotyledoneæ ejusdam ad Natal Africae.

116. **Uromyces Aristidæ** Ell. et Everh. in Journal of Mycology 1887, 2036

p. 56. — Soris linearibus, 1-2 mm. longis, maturitate nudis, obscure ferrugineo-brunneis; teleutosporis laxè congestis, ellipticis vel obovatis, 25-35 $\approx$ 18-22, levibus, flavescenti-brunneis, pedicello 80-100 μ . longo, valido at deciduo fultis.

Hab. in foliis *Aristidæ*, New Mexico. — Ab *U. Poæ* Rabenh. et *U. Dactylidis* Otth. sporis elongatis sporisque majoribus differre videtur.

117. **Uromyces Commelinæ** Cooke Trans. Roy. Soc. Edin. 1887, p. 342. 2037

— Soris compactis, convexis, atro-fuscis, epidermide cinctis; teleutosporis obovatis, longe pedicellatis, fuscis, levibus, episporio ad apicem incrassato, 30 $\approx$ 18 μ ., pedicellis tenuibus, hyalinis, flexuosis, diu persistentibus.

Hab. in foliis *Commelinæ*, ad Socotra.

118. **Uromyces fuegianus** Speg. Fungi Fuegiani p. 49, n. 137. — 2038

Soris epiphyllis, linearibus, majusculis, 2-5 mm. longis, 300-500 μ . crassis, planiusculis, parallelis, primo tectis sed mox erumpenti-subsuperficialibus, saturate fulgineis; teleutosporis versiformibus, sæpius obovatis vel lanceolatis, antice obtusis sæpeque latis ac subtruncatis, rotundatis, 35-40 $\approx$ 30-35, non vel uniguttulatis, superne modice incrassato-tunicatis, levissimis, intense cinnamomeis, pedicello longiusculo, 60-80 $\approx$ 6-7, subfulvescente suffultis, densissime constipatis, aparaphysatis.

Hab. ad folia viva *Festucæ purpurascantis*, in Staten Isl. nec non per totam Fuegiam Americæ australis. — Species certe *U. cuspidato* Winter peraffinis nisi identica, numquam tamen teleutosporis apice cuspidatis et hinc ab eo recedens.

119. **Uromyces cuspidatus** Winter in Hedwigia 1887, I, pag. 15. — 2039

Soris elongatis, submagnis, erumpentibus, ab epidermidis fissæ fragmentis cinctis, nudis, applanatis, fuscis; teleutosporis obovatis, ellipsoideis v. oblongis, haud raro etiam piriformibus, lanceolatis, vertice plus minus incrassatis, rotundatis vel sæpius oblique conoideo-

acuminatis, levibus, primo luteolis, demum badiis, 25-61 = 18-22, pedicello perlongo validoque, sursum parum incrassato, pallide fuscido, persistenti suffultis.

Hab. ad folia viva Festuæ Commersonii, ad Caput Horn Americæ australis (HARIOT). — Cum *Uromycele fuegiano* Speg., cui forte identicus est, comparandus.

120. **Uromyces? hemisphæricus** Speg. Fungi Argentini pug. IV, n. 68. — Maculis nullis; soris prominulis, semper(?) epidermide tenui, subcinerescente velatis, magnitudine ludentibus, 0,4-1 mm. diam., cinamomeis, compactiusculis; teleutosporis subhemisphæricis, superne obtuse rotundatis, inferne abrupte truncatis, non vel vix convexiusculis, 30 μ . d., 20 μ . alt., episporio hyalino, levissimo, crassiusculo, protoplasmate granuloso, grosse uni-multi-guttulatis, intense fuligineis, inferne pedicello centrali, vix evoluto, persistente fultis.

Hab. in foliis caulibusque Bowlesiae teneræ, in herbosis Parque de Palermo, in Republica Argentina. — Species perrara, semel tantum parcellissime inventa. An *Uredo*? an *Raveneliæ* species oblitterata? an novum genus? Ulterius inquirendum.

121. **Uromyces Salsolæ** Reichardt in Verhandl. Zool. bot. Ges. Wien. 1877, p. 842, nec Rabenhorst. — Soris teleutosporiferis cauliculis et hypophyllis, sparsis, ut plurimum suborbicularibus, rarius plus minusve longitudinaliter protractis, magnis, usque ad 6 mm. diam., e spadiceo nigricantibus, convexis, primo tectis, demum epidermide lacerata cinctis; teleutosporis subglobosis vel obovoideis, 18-24 = 15-20, apice obtusis, basi parum angustatis, episporio intense fusco, levi, pachydermo, vertice evidentissime incrassato, granuloso-farctis, pedicello 75-105 μ . longo, hyalino, persistente fultis.

Hab. in foliis caulibusque Salsolæ Sodæ, pr. Kalocsa Hung.

122. **Uromyces Sparganii** C. et P. 26 Rep. of N. Y. Stat. Mus. p. 77. Burrill Parasitic Fungi of Illinois p. 167. — Maculis inconspicuis vel nullis; soris amphigenis, sparsis v. secus greges elongatos dispositis, rotundatis vel oblongis, sæpe confluentibus, minutis, atris, pulverulentis; teleutosporis piriformibus vel oblongatis, 24-32 = 15-20, apice rotundatis vel truncatis, episporio levi, vertice incrassato, pedicello colorato teleutosporam æquante vel dimidio brevior.

Hab. in foliis Sparganii eurycarpi, Buffalo (CLINTON), New Baltimore (HOWE), Illinois (BURRILL) aliisque Americæ borealis locis.

123. **Uromyces Symphiostemi** Speg. Fungi Patagonici n. 29. — Soris sparsis vel hinc inde gregariis, linearibus, seriatim dispositis sæ-

peque confluentibus, majusculis, 1-5 mm. longis, 500 μ . ad 1 mm. latis, turgidulis, epidermide vix rimose fissa diu tectis, obscure fuliginéis; teleutosporis irregulariter e globoso obovatis, 22-26 $\approx$ 18-20, sæpe angulatis, cinnamomeis, episporio tenuiusculo, apice non vel incrassato, levi instructis, antice rotundatis vel obtuse acutatis, basi subcollariato-annulatis (an semper?) ac in pedicellum breviusculum, 12-20 $\approx$ 5, hyalinum productis.

Hab. ad folia, vaginas nec non scapos *Symphio stemi nar- cissoidis*, secus Rio S. Cruz in Patagonia Americæ australis.

124. **Uromyces linearis** B. et Br. Ceylon Fungi n. 827. — Soris 2044
hypophyllis, linearibus, epidermide arcte constrictis; teleutosporis globosis, 25 μ . longis, levibus, brunneis, quandoque obliquis vel obtusissime apiculatis, pedicello 85-88 μ . longo.

Hab. in foliis *Panici repentis*, ad Peradenya in insula Ceylon.

125. **Uromyces Tanacetii** Rabenh. in Hedwigia 1871, p. 19. — Te- 2045
leutosporis oblongis, utrinque rotundatis, glabris, brunneis, absque paraphysibus, 33-38 $\approx$ 25, episporio crasso, levi, pedicello hyalino, 5 μ . circ. longo.

Hab. in *Tanaceto leucophyllo*, in M. Soffdagh Cirrha in Græcia.

b) Teleutosporæ episporio granulato, verrucoso, striolato vel aculeolato donatæ.

126. **Uromyces Jonesii** Peck in Botan. Gazette 1882, p. 45. — Ma- 2046
culis nullis; soris amphigenis, minutis, sparsis, rufo-brunneis; teleutosporis subglobosis vel ellipticis, 27-35 $\approx$ 22-27, verruculosis, pedicello brevi, hyalino fultis.

Hab. in foliis vivis *Ranunculi*, in California Americæ bor. (JONES).

127. **Uromyces Kalmusii** Sacc. in Michelia II, p. 45. — Soris hypo- 2047
phyllis, dense gregariis, convexo-prominulis, epidermide vix excedente cinctis, rufo-cinnamomeis; teleutosporis ellipsoideis, utrinque acutiusculis, magnis, 38 $\approx$ 25, apice papilla obtusa hyalina ornatis, initio longitudinaliter striatulis, denique (udis) fere omnino levibus, pedicello cylindræo, hyalino, teleutosporæ quadruplo brevior.

Hab. in pag. inf. foliorum *Euphorbiæ Cyparissiæ*, prope Prag Bohemiæ (KALMUS). — Ab *U. excavato* (DC.) Magn., cui affinium, statim dignoscitur soris emergentibus, teleutosporis conspicue majoribus, initio striatulis.

128. **Uromyces Lili** Clinton in Peck 27 Rep. p. 102. — Soris amphigenis, parvis, sparsis, epidermide rupta cinctis et partim tectis, brunneis; teleutosporis obovatis, 36-37 $\approx$ 20-25, rugulosis, apice minute apiculatis, pedicello brevissimo suffultis.

Hab. in foliis Lili canadensis, Buffalo, in America boreali.

— *Urom. Euphorbiæ* proximus.

129. **Uromyces Myristica** B. et B. North American Fungi n. 568. — Maculis nullis; soris sparsis congestisve, brunneis; teleutosporis ovatis, 25 μ . longis, breviter pedicellatis, punctatis.

Hab. in foliis Euphorbiæ bicoloris, sociâ *Dartucâ Filo*, Texas Americæ borealis (WRIGHT).

130. **Uromyces Blainvilleæ** Berk. Ceylon Fungi n. 826. — Maculis nullis; soris hypophyllis, effusis, brunneis; teleutosporis globosis, 32-38 μ . diam., verrucosis, processu obtuso, apicali hyalino ornatis.

Hab. in foliis Blainvilleæ latifoliæ, ad Batticabra in ins. Ceylon.

131. **Uromyces Cisnerioanus** Speg. Fungi Argentini pug. III, n. 36. — Maculis quandoque nullis, quandoque epiphyllis, cinereo-albis, arescentibus, determinatis, quandoque amphigenis, areolaribus, flavescentibus, indeterminatis, parvulis; soris sæpius hypophyllis, erumpentibus, subpulvinatis, atro-cinnamomeis, pulverulento-compactiusculis, orbicularibus, minutis, 0,5-1 mm. d.; uredosporis nullis; teleutosporis minute granuloso-asperulis, ellipticis vel ovoideis, superne acutiuscule attenuato-mucronatis, rotundatis, intense et pulchre cinnamomeo-fulgineis, 40-45 $\approx$ 22-26; pedicello longiusculo, crassiusculo, cylindrico, hyalino, apice subapophysato atque fulvescente, 70-80 $\approx$ 8-10.

Hab. ad folia viva Excæcarie (Sapii) biglandulosæ var. serratæ, en Barracas del Sur Amer. aust. (J. CISNEROS) — Forma **Sapii-aucuparii**: *Uromyces Cisnerioanus* Speg. F. guaran. I p. 120; teleutosporis obovatis vel ellipticis, 40-40 $\approx$ 25-30, intense cinnamomeis, episporio vertice incrassato-mucroniformi, pallidiore, ubique anguloso-verruculosis. Ad folia viva Sapii aucuparii, in dumetis prope Paraguari Amer. austr.

132. **Uromyces? effusus** (Peck) De-Toni, *Pilcolaria effusa* Peck in Botan. Gazette 1882, p. 55. — Soris continuis vel circumambientibus, velutinis, rufescenti-brunneis, stratiformibus; teleutosporis subglobosis, subtiliter rugulosis, 22-26 μ . diam., uninucleatis, pedicello brevi, hyalino, 12-20 μ . longo fultis.

Hab. in ramulis, petiolis folisque vivis Rhœis imprimis R.

aromaticæ et trilobæ, Arizona Americæ borealis (PRINGLE).

Urom. Terebinthi (DC.) Winter proximus.

133. **Uromyces echinulatus** Niessl in Hedwigia 1881, p. 149. — Te- 2053
leutosporis ovoideis vel subangularibus, apice late rotundatis vel
subrotundatis, inferne cuneatis, pedicellatis, 30-35 μ . diam., fuscis,
episporio spinuloso; pedicello 30-48 μ . longo.

Hab. in foliis Bassiæ latifoliæ, in horto botanico Calcutta
Indiæ orientalis (KURZ).

134. **Uromyces gemmatus** B. et C. Fungi of Cuba n. 600. — Soris 2054
sparsis, ferrugineis, pulveraceis; teleutosporis obovatis, 32-33 μ .
longis, truncatis, nodulosis; pedicello brevi, pellucido.

Hab. in pagina inferiore foliorum Convolvuli etc., in insula
Cuba.

135. **Uromyces Gypsophilæ** Cooke in Grevillea X, pag. 14. — Hypo- 2055
phyllus vel caulinus; soris orbicularibus, atro-fuscis, magnis; te-
leutosporis subglobosis, intense fuscis, 25-27 μ . diam., episporio
verruculoso; pedicello evanido.

Hab. in foliis caulibusque Gypsophilæ, Kurdistan.

136. **Uromyces Heteromorphæ** Thüm. in Flora 1877, p. 409, Mycoth. 2056
univ. p. 1640. — Soris hypophyllis, sparsis, parvis, planis, fuscis,
liberis, in macula parvula expallescenti; teleutosporis brevissime
pedicellatis, ovatis, vertice rotundato, basi in pedicellum angustatis,
episporio tenuissimo, dense aculeato, aculeis hyalinis, minutis, 32-
35 = 22-24, dilute griseo-fuscis; pedicello sæpe evanido, brevissi-
mo, hyalino.

Hab. in foliis vivis Heteromorphæ arborescentis, in
monte Boschberg prope Somerset-East Africæ australis (P. MAC
OWAN).

137. **Uromyces verruculosus** B. et Br. Fungi of Ceylon n. 825 (1870) 2057
nec Schroet. (1872). — Maculis flavis, amphigenis; soris subcirci-
nantibus; teleutosporis ellipticis, breviter pedicellatis, verrucosis.

Hab. in foliis Bauhiniæ tomentosæ, ad Damboul in insula
Ceylon.

138. **Uromyces Howei** Peck 23 Rep. St. Mus. p. 58 (*Trichobasis*), 2058
Barrill Fungi of Illinois p. 163. — Maculis nullis; soris hypo-
phyllis, usque ad 2 mm. latis, sparsis, sæpe confluentibus, epider-
mide rupta cinctis, atro-purpureis; teleutosporis ovatis vel sub-
globosis, 21-25 = 18-21, verrucosis; pedicello fragilissimo, teleuto-
spora duplo longiori.

Hab. in foliis Asclepiadis Cornuti, tuberosæ et in-

carnatie, in America boreali. — Huc forte pertinet *Uromyces Asclepiadis* Cooke in Grevillea V, p. 172.

- 13). **Uromyces texensis** B. et C. North Amer. Fungi n. 553. — Soris sparsis, brunneis, epidermide cinctis; teleutosporis obovatis, 32-33 μ . longis, hispidis, fuscis, nucleo magno cytoblasto addito.

Hab. in foliis Ruelliae, Texas Americae bor. (C. WRIGHT).

140. **Uromyces Sisyrinchii** Mont. Syll. Crypt. n. 1162. — Amphigenus; maculis flavescentibus aut nullis; soris oblongis, pallidis, epidermide longitrorsum rupta semitectis; teleutosporis brevissime pedicellatis, sphaericis, in sicco stramineis, tandem liberis, subapodis; episporio crasso, hyalino, subruguloso.

Hab. in foliis Sisyrinchii, in pascuis silvarum reip. chilensis Amer. australis.

141. **Uromyces simulans** Peck in Botanical Gazette 1879, p. 127. — Soris epiphyllis, subrotundatis aut linearibus, saepe confertis et subconfluentibus, ferrugineo-brunneis; teleutosporis variabilibus, subglobois, obovatis vel ellipticis, 30-40 $\approx$ 25-28, rugulosis, pedicello teleutosporam æquante vel brevior, facile secedenti suffultis.

Hab. in foliis vaginisque Vilfae, Colorado Amer. bor. — *Pucciniam Graminis* in memoriam refert at sororum colore valde distinctus.

142. **Uromyces scariosus** Berk. Fl. New Zeal. p. 195. — Hypophyllus; soris distinctis, epidermide persistente cinctis; teleutosporis obovatis, echinulatis, pallescentibus, receptaculo prominulo, 33-34 (?) μ .

Hab. in foliis Geranii potentilloidis et G. dissecti, Hawlee's Bay Novae Zelandiae (COLENSO).

143. **Uromyces sinensis** Speg. Dec. Mycol. n. 69. — Soris hypophyllis, rarius epiphyllis, per epidermidem erumpentibus, rotundatis vel elongatis, interdum confluentibus, sparsis vel circulariter dispositis, cinnamomeis, maculae flavo-pallescenti insidentibus; teleutosporis ellipsoideo-sphaeroideis, episporio tenui, minute verruculoso-asperulis, flavo-fuligineis, granuloso-faretis, raro guttulatis, 20-25 $\approx$ 18-20, pedicello brevi hyalino; uredosporis..... non visis.

Hab. ad folia viva vel languida Dianthi sinensis, culti prope Belluno Italiae borealis.

144. **Uromyces Polemanniae** Kalkbr. et Cooke in Grev XI, p. 21. — Soris epiphyllis, sparsis, apertis, planiusculis, umbrinis; teleutosporis ovalibus, 25 $\approx$ 15, apiculatis, pedicello longo instructis, fuscis, episporio minute granulato vel reticulato.

Hab. in foliis vivis Polemanniae grossulariifoliae, ad Somerset East Africae australis.

145. **Uromyces Pseudarthriae** Cooke in Grevillea X, pag. 127. — 2065
 Soris aggregatis, minimis, atro-fuscis; teleutosporis (?) subglobosis, 25 $\approx$ 22, laete fuscis, episporio asperato.

Hab. in foliis Pseudarthriae robustae, Inanda Port Natal Africae (Wood).

146. **Uromyces Microtidis** Cooke in Grevillea XIV, p. 12. — Amphigenus; soris gregariis, subhemisphaericis, atro-fuscis, epidermide cinctis; teleutosporis ovalibus, verrucoso-asperatis, hyalino-apiculatis, fuscis, 30 $\approx$ 16, apiculo incluso; pedicellis brevissimis, deciduis. 2066

Hab. in foliis Microtidis porrifoliae, Bulladulah, N. S. Wales Australiae.

147. **Uromyces Mimusopsidis** Cooke in Grevillea X, p. 137. — Hypophyllus; maculis orbicularibus, brunneis; soris elongatis, cinctis, demum erumpentibus; teleutosporis clavatis, 80 $\approx$ 20, pallidis, granulosis, apice truncatis, ad basim hyalinis, breviter pedicellatis. 2067

Hab. in foliis Mimusopsidis, ad Inanda Natal Africae (Wood).

148. **Uromyces rugulosus** Pat. in Journ. de botanique 1888, p. 151. — Amphigenus; soris minutis, atris, epidermide subbullata cinctis; teleutosporis globosis vel ovatis, rugoso-foveolatis, apice papillatis, 22-26 $\approx$ 16-20, brunneo-fuscis; pedicello hyalino, teleutosporam longitudine subaequante. 2068

Hab. in foliis Lespedezae yunnanensis, Yun-nan (DELAWAY).

c) Teleutosporae quoad superficiem episporii incertae.

149. **Uromyces malvicola** Speg. Fungi Guaranitici I, n. 133. — Maculis nullis; soris hemisphaerico-pulvinatis, minutis, 180-300 μ . d., epiphyllis, paucissimis, sparsis, hypophyllis numerosissimis, hinc inde in plagulas majusculas, 1-2,5 mm. d., laxe ac subconcentrice aggregatis, nudis, compactiusculis, cinnamomeis; teleutosporis globoso-obovatis, 16-20 $\approx$ 15-17, antice rotundatis vel subtruncato-rotundatis, episporio molice gradatimque incrassato, protoplasmate nubiloso-granuloso, pulchre cinnamomeis; pedicello longo, 70-80 $\approx$ 5-10, saepius ad tertium superum fusoides- vel phialoideo-incrassato, hyalino fultis. 2069

Hab. ad folia viva Abutilonis speciei cujusdam, in campis prope Guarapi Americae australis.

150. **Uromyces oblongus** Vize in Grevillea 1877, p. 110. — Macula 2070

nulla; soris oblongis, hypophyllis; teleutosporis subglobosis, 20-25 $\approx$ 15-20, fuscis, breviter pedicellatis.

Hab. in foliis caulibusque Lappæ (Burr cloves) in California.

151. **Uromyces Orchidearum** Cooke et Massee in Grev. XVI, p. 74. — 20

Epiphyllus, erumpens; soris bullatis, demum erumpentibus fuscis; teleutosporis subglobosis, longe pedicellatis, læte fuscis, apice apiculatis, 40 $\approx$ 30, episporio crasso, hyalino, pedicellis crassiusculis duplo longioribus, deorsum attenuatis.

Hab. in foliis Chiloglottidis diphyllæ, M. Victoria (HAMILTON).

152. **Uromyces pluriannulatus** B. et C. Notices of North American 20

Fungi n. 566. — Maculis nullis; soris cuticula arcte inclusis; teleutosporis magnis, nucleatis, globosis, 24 μ . diam., episporio concentric membranaceo.

Hab. in foliis verisimiliter Saniculæ, Alabama Amer. bor. (PETERS).

153. **Uromyces polymorphus** P. et C. in 31 Rep. Stat. Mus. p. 43. 20

— Maculis brunneolis; soris atro-brunneis, epidermide cinctis, prominulis; teleutosporis polymorphis, subglobosis, ellipticis, ovatis, oblongis vel clavatis, sæpe angulatis, apice acuto, obtuso, truncato vel emarginato, 35-50 μ . longis; pedicello teleutosporam æquante vel paullo superante.

Hab. in pagina inferiore foliorum Lathyri ochroleuci et venosi, Buffalo et Jowa Americæ borealis.

154. **Uromyces Psoraleæ** Peck in Botanical Gazette 1881, p. 226. — 20

Maculis nullis aut indistinctis; soris epiphyllis, sparsis vel gregaris, subinde totam superficiem folii occupantibus, atro-brunneis; teleutosporis ellipticis, obovatis vel piriformibus, obtusis, intus granulosis, 20-40 $\approx$ 20-24, pedicello brevi, hyalino suffultis.

Hab. in foliis vivis Psoraleæ lanceolatae, Utah Americæ bor. (JONES). — Forte huc pertinet ut status æcidiosporus *Æcidium Psoraleæ*, quod socium sæpe adest.

155. **Uromyces plumbarius** Peck in Botanical Gazette 1879, p. 127. 20

— Soris amphigenis, sparsis vel subconfluentibus, primo epidermide tectis et peculiariter nitentibus, demum denudatis et obscure ferrugineo- vel atro-brunneis; teleutosporis obovatis aut subellipticis, obtusis vel rarius acuminatis, 23-30 $\approx$ 20, pedicello brevissimo vel obsoleto fultis.

Hab. in foliis Oenotheræ cæspitosæ, Colorado Americæ borealis. — Nitor plumbeus, unde speciei nomen.

156. **Uromyces Pratiæ** Speg. Fungi Fuegiani p. 50, n. 138. — Soris 2076
sparsis, ramuliculis vel foliiculis atque amphigenis, minutis, 300–500 μ . diam., irregulariter discoideo-angulosis, macula nulla, diu epidermide tectis, pulverulentis, atro-fuliginosis; teleutosporis ex elliptico globosis, 30–35 $\approx$ 22–25, tunica modice incrassata donatis, apice umbone crasso, subtruncato-umbilicato, majusculo ornatis, inferne pedicello hyalino, mox diffuente, 5 μ . crasso, ut videtur, breviusculo suffultis, levissimis, obscure cinnamomeis, aparaphysatis.

Hab. ad folia ramosque vivos Pratiæ repentis, rarissime in Staten Isl. Americæ australis.

157. **Uromyces patagonicus** Speg. Fungi patagonici n. 89. — Soris 2077
minutis, 300–500 μ . diam., densissime gregariis, subconfluentibus, hypophyllum totum (nec non alias partes sæpe) pulvere obscure cinnamomeo obtegentibus; teleutosporis subglobosis vel obovatis, 30–35 $\approx$ 25–28, crasse tunicatis, apice præcipue ibique umbone crasso obtuso sæpeque late truncato, non vel vix pallidiore ornatis, 1-guttulatis, fulgineo-cinnamomeis, pedicello (mox diffuente?) hyalino, breviusculo fultis.

Hab. ad folia viva Astragali speciei, cujusdam in herbosis insulæ Pavon in Rio S. Cruz in Patagonia Americæ australis. «Cum *Uromycele Astragali* Sacc. comparandus».

158. **Uromyces Rudbeckiæ** Arth. et Holw. in Burrill Parasitic Fungi 2078
of Illinois pag. 163, Ellis North Amer. Fungi n. 1439. — Hypophyllus; maculis pallidis, dein brunneis vel atris, numerosis, sparsis; soris minutis, dense gregariis, subinde circinatim dispositis, epidermide evanescente, nudis, cinnamomeis; teleutosporis oblongo-obovatis, obtusis vel obtuse acuminatis, 20 $\approx$ 12, pallidis, pedicello gracili, hyalino, subinde teleutospora longiore suffultis.

Hab. in foliis Rudbeckiæ laciniatæ, Illinois et Jowa Americæ borealis.

159. **Uromyces solidus** B. et C. North Amer. Fungi n. 567. — Ma- 2079
culis nullis; soris punctiformibus; teleutosporis compactis, brunneis, obovatis, pedicello longo, crasso suffultis.

Hab. in foliis Desmodii stricti et speciei cujusdam hujus generis indeterminatæ, in Carolina superiore (RAVENEL) et Texas (C. WRIGHT) Americæ borealis.

160. **Uromyces hyalinus** Peck in Botan. Gazette 1878, pag. 34. — 2080
Maculis nullis; soris numerosis, hypophyllis, primo epidermide membranacea, hyalina tectis, demum nudis, fere ex toto aut omnino totam folii superficiem occupantibus, ferrugineo-brunneis; teleuto-

sporis ovatis vel oblongo-ovatis, apice umbonatis, 25-32 μ . longis, pedicello brevi, hyalino fultis.

Hab. in foliis vivis *Sophoræ sericeæ*, in America boreali.

161. **Uromyces Sophoræ** Peck Torr. Bot. Club. Vol. XII, n. 4, p. 35. 20

— Soris numerosis, minutis, amphigenis, rufo-brunneis; teleutosporis subellipticis, subæqualibus, 28-35 $\approx$ 16-20, episporio apice crassiore, pedicello teleutosporâ breviori.

Hab. in foliis vivis *Sophoræ sericeæ*, New Mexico Amer. bor. (JONES). — «An a præcedenti diversus?».

162. **Uromyces sphæroleus** Cooke in Grevillea 1876, p. 115, t. 63, 20

fig. 3. — Hypophyllus; soris parvis, sparsis, orbicularibus, atro-brunneis; teleutosporis globosis, 17-22 μ . diam., obscure brunneis, subopacis, longe pedicellatis, pedicello usque ad 50 μ . longo.

Hab. in foliis verisimiliter *Ononidis*, Kolapore Bombay Indostaniæ (JULIAN HOBSON). — Sporæ globosæ, opacæ illis *Uromyceti* (*Pileolarie*) *Terebinthi* similes.

163. **Uromyces sanguineus** Peck in Botanical Gazette 1879, p. 128. — 20

Maculis parvis, sparsis, subinde confluentibus, lateritio- vel purpureo-rufis; soris sparsis, in macula singulis, prominulis, cinnamomeo-brunneis, sæpius partim epidermide rupta cinctis; teleutosporis obovatis vel oblongo-piriformibus, 25-40 $\approx$ 16-20, plerumque uninucleatis, pedicello hyalino, teleutosporam æquanti vel brevior, facile secedente suffultis.

Hab. in foliis *Berberidis Aquifolii*, Colorado Amer. bor.

164. **Uromyces triannulatus** B. et C. North Amer. Fungi n. 564. — 20

Maculis nullis; soris fuscis, epidermide cinctis; teleutosporis globosis ellipticisve, episporio triplici instructis.

Hab. in foliis *Borrichiæ frutescentis*, in Carolina inferiori Americæ borealis.

165. **Uromyces Trollipi** Kalchbr. et Mac Owan in Grevillea XI, p. 21. 205

— Soris hypophyllis, sparsis, punctiformibus; teleutosporis subglobosis, brunneis, haud stipitatis, 22-25 $\approx$ 40, episporio hyalino, crasso instructis.

Hab. in foliis *Hypophylli foetidi*, ad mont. Kagaberg pr. oppid. Bedford Africae australis (TROLLIP).

166. **Uromyces versatilis** Peck in Botan. Gazette VII, pag. 56. — 208

Maculis nullis; soris numerosis, minutis, amphigenis, rotundatis vel oblongis, leniter elevatis, ochraceo-brunneis; teleutosporis oblongis vel oblongo-piriformibus, 22-30 $\approx$ 12-15, pedicello brevi, demum

deciduo fultis, pallide ferrugineis vel ex ochraceo rubiginoso-brunneis.

Hab. in foliis, petiolis et ramulis vivis *Acaciae* Greggii, Arizona Amer. bor. (PRINGLE).

167. **Uromyces heterogeneus** Cooke in Grevillea IV, p. 115. — Hy. 2087
pophyllus; soris dense aggregatis, in maculis suborbicularibus, purpureo-brunneis; teleutosporis subglobosis, ovatis, obovatis vel piriformibus, variabilibus, pallide fuscis, 17-30 $\approx$ 10-20, pedicello usque ad 60 μ . longo, gracili fultis.

Hab. in foliis Hibisci, ad Kolapore et Bombay Indostaniæ.

168. **Uromyces Hobsoni** Vize in Cooke in Grevillea IV, p. 115. — 2088
Caulicola; soris irregularibus, in tuberculis magnis, sclerotiformibus collectis, rubro-brunneis; teleutosporis compactis, oblongis, longe pedicellatis.

Hab. in caulibus Jasmini, ad Kolapore et Bombay Indostaniæ. — Fungus pustulas bullatas in caulibus efformat.

169. **Uromyces Chorizanthis** Ell. et Garkn. New Calif. Fungi p. 8. 2089
— Soris ellipticis, convexis, obscure brunneis, 0,5-1 mm. diam.; teleutosporis obovatis, 20-32 $\approx$ 19-22, episporio valde incrassato, pedicello hyalino, firmo, teleutospora triplo longiore.

Hab. in caulibus folisque *Chorizanthis* pungentis, San Francisco California Amer. bor. — Ab *Urom. Polygoni* Fuck. soris magis prominentibus, majoribus obscurioribusque differre videtur.

170. **Uromyces Caricis** Peck in 24 Rep. of Stat. Bot. pag. 90. — 2090
Soris parvis, rotundatis vel ovoides, plerumque sparsis et distinctis; teleutosporis globosis aut ellipticis aut oblongo-piriformibus, brunneis, 16-25 μ . longis; pedicello ut plurimum longissimo, gracili.

Hab. in pagina inferiore foliorum nec non in culmis *Caricis* strictæ, Center et Albany Americæ borealis.

171. **Uromyces compactus** Peck in Botan. Gazette 1882, pag. 56. — 2091
Maculis nullis vel obsoletis; soris compactis, orbicularibus vel oblongis, atro-brunneis; teleutosporis ellipticis aut oblongis, obtusis vel acutiusculis, 35-46 $\approx$ 22-25, pedicello hyalino teleutosporam subæquante vel superante fultis.

Hab. in caulibus emortuis *Compositæ* cujusdam, Arizona Amer. bor. (PRINGLE).

172. **Uromyces Claytoniæ** C. et P. in 29 Rep. St. Mus. p. 50. — 2092
Soris amphigenis, sparsis, parvis, ovatis vel ellipticis, brunneis;

teleutosporis ovoideis aut ellipticis, minute apiculatis, $32-40 \approx 25$, pedicello gracili, brevi, hyalino suffultis.

Hab. in foliis Claytoniæ carolinianæ, Cold Spring in America boreali.

173. **Uromyces Cestri** Mont. Fl. Chil. p. 49, *Uredo Cestri* Mont. Prodr. J. Fern. n. 58. — Epiphyllus; macula nulla; soris orbicularibus, concentrice centrifugis, atro-fuscis, epidermide bullata, primo reticulata tectis, demum eadem rupta cinctis, maculam sordide flavam (pseudo-stroma) relinquentibus; teleutosporis fusco-brunneis, ovoideis, pedicello hyalino, crasso, persistente fultis, episporio crasso, interdum obtuse apiculato.

Hab. in foliis vivis Cestri Parqui, in insula Juan Fernandez (BERTERO) et prope Bahía Blanca Patagoniæ (SPEGAZZINI). — Hæc species eadem folia invadit ac *Æcidium Cestri*, sed occupat adversæ paginæ loca opposita.

174. **Uromyces Brassicæ** Niessl Beitr. p. 12. — Soris erumpentibus, sparsis, fuscis, minutis; teleutosporis inæqualiter obovatis seu angulosis, $32 \approx 22-23$, initio capitellatis, demum apice late rotundatis, infimo fere retusis, fuscis longissime pedicellatis, pedicello usque ad 140 μ . longo, dilute fusco, subhyalinis.

Hab. in caulibus Brassicæ prope Caen Galliæ (ROBERGE). — « Adesse videntur uredosporæ ovatæ, asperulæ, brunneæ ideoque probabiliter *Micro-Uromyces* ».

175. **Uromyces Asclepiadis** Cooke in Grevillea V, p. 152, Ellis North Amer. Fungi n. 235. — Hypophyllus; soris minimis, gregariis, atro-brunneis, epidermide cinctis; teleutosporis piriformibus vel obovatis, minute apiculatis, $30 \approx 20$, læte brunneis, pedicello hyalino, brevi, tenui fultis.

Hab. in foliis Asclepiadis ad Cape Elizabeth, Maine (FULLER) et Bussey Mass. (FARLOW) in America boreali. — « An idem ac *Uromyces Howeii* Peck? ».

176. **Uromyces ambiens** Cooke in Grevillea III, p. 75. — Hypophyllus, sparsus; soris irregularibus, confluentibus, obscure brunneis, compactis, annulos efformantibus, spermogonia centralia includentibus; teleutosporis obovatis, brunneis, pedicello longo, gracili, hyalino fultis.

Hab. in foliis Buxi probabiliter sempervirentis, Himalaya.

177. **Uromyces apiosporus** Haszl. Einige neue oder wenig bekannte Arten der Pilzflora des südöstlichen Ungarns p. 2. — Soris erumpentibus, prominulis; teleutosporis plerumque obovatis vel piriform-

mibus, $30 \approx 22$ μ ., sporis puccinioideis $10 \approx 5$ atro-brunneis intermixtis.

Hab. in *Primula minima*, in Hungaria.

178. **Uromyces tomentellus** Cooke in Grevillea VII, pag. 138, Rav. 2098
Fung. Amer. n. 52. — Amphigenus; soris ellipticis, subconfluentibus, atro-brunneis, sparsis; teleutosporis ovatis, castaneo-brunneis, $32 \approx 22$, supra crassis, infra attenuatis; pedicello 60 μ . longo, elongato, hyalino.

Hab. in foliis plantæ ignotæ (*Potentillæ* vel *Lupini*?), in California (Doct. EDWARDS).

179. **Uromyces lugubris** Kalchbr. in Grevillea XI, pag. 21. — Soris 2099
indeterminate confluentibus, liberis, planis, hypophyllis, nigricantibus; teleutosporis ovatis, vix diaphanis, $24 \approx 18$, pedicello longo, hyalino suffultis, atris.

Hab. in planta non determinata, P. Nataliæ. — E soris ilimitate confluentibus folii pagina inferior fere tota quasi fuligine conspurcata apparet.

180. **Uromyces puccinioides** Berk. et Müll. in Linn Journ. XIII, 2100
p. 178, non Rabenh. — Soris bullatis; teleutosporis fuscis, apiculatis quandoque apice obliquis dentatisve pedicellatis.

Hab. in foliis pedunculisque *Goodeniæ* Holdfast Bay Australiæ. — Huc forte pertinere videtur *Æcidium Goodeniacearum* Berk. Cfr. Grevillea XI, p. 98. *Æcidii*s aggregatis, oppositis; pseudoperidiis sparsis nec circinatis margine brevi; æcidiosporis aurantiacis. In foliis *Sellieræ* in Australia. Maculæ orbiculares, inferne brunneæ.

181. **Uromyces? deformans** Berk. et Br. Fungi Challenger, pag. 52, 2101
n. 270, tab. II, fig. 1-6. — In apicibus disciformibus pedunculorum situs; pseudoperidio operculiformi(?); teleutosporis obovatis, margine striatis, albis, pedicellatis, $36 \approx 25$.

Hab. in *Thuja* sp. dolabrata, Hakone Japonia.

HEMILEIA Berk. et Br. in Gardern. Chron. 1869, Novemb. c. icone Cooke in Pop. Sc. Review n. LIX, plate CXXXV, f. d-h (Etyim. *hemi* dimidia pars et *lejos* levis). — Sori pustuliformes, aurantiaco-fusci, hypophylli; sporæ ovatæ vel piriformes, singulæ, partim leves, partim verruculis ornatae, germinando filamenta unum v. plura (promycelia?), quæ sporas (sporidiola?) sphaericas, uniformes gerunt, emittentes.

1. **Hemileia vastatrix** Berk. et Br. in Gard. Chron. 1869, c. icone 2102

Cooke The Coffee Diseases in Popular Science Review n. LIX, pl. CXXXV, f. d-h. Berl. et Roum. Champ. Tonkin in Revue Mycologique 1888. — Pustulis ex aurantio rufis; mycelio filiformi sporisque secedentibus pallide aurantiacis, acrogenis, continuis, ovatis vel irregularibus, maturis extus verruculis globosis præcipue ad convexum latus obsitis, partim levibus, 35-40 μ . longis, verruculis 3-4 μ . altis.

Hab. in foliis Coffeæ, in insulis Ceylon, Java, Sumatra, nec non Mysore et Tonkin (BALASSA). — Sporæ germinando filamenta singula vel plura (promycelia?) emittunt, quæ sporidiola secundaria sphaerica, uniformia, radiantia, ut in *Aspergillo*, gerunt.

2. **Hemileia Woodii** Kalkbr. et Cooke in Grevillea IX, pag. 22. — Hypophylla; soris parvis, aurantiacis, gregariis; sporangiis (sporis?) globosis vel uno latere depressis, asperulis, 30 μ . diam., longe stipitatis, cum cystidiis hyalinis, triquetris, sterilibus, levibus immixtis.

Hab. in foliis plantæ cujusdam ignotæ, Natali Africae (Woon).

3. **Hemileia Canthii** B. et Br. Fungi of Ceylon n. 833. — Sporis simplicibus triplicibusque extus granulatis, intus concavis levibus.

Hab. in Canthio campanulato, in insula Ceylon.

MELAMPSORA Cast. Observ. II, p. 18 Ct. p. 206, t. 5 (1843) Schroet. Pilzfl. Schles. pag. 359, emend. (Etym. *melas* ater et *psora* scabies, efflorescentia). — Spermogonia strata minuta, orbicularia, explanata, tecta efformantia; *Æcidia* (*Cavoma*) pseudoperidiis destituta; æcidiosporæ catenulatae. Uredosporæ solitariae ad apicem sterigmatis evolutæ, aculeolatae, pseudoperidio plus minus evoluto inclusæ; teleutosporæ uniloculares, obovato-cuneatae, intercellulares, in stratum planum, firmum, atrum v. atro-brunneum coalitæ; sporidiola globulosa, e flavo aurantiaca.

A) Uredosporæ in soris mox apertis (pseudoperidio mox evanescenti) evolutæ.

1. **Melampsora Helioscopiæ** (Pers.) Cast. Cat. plant. Mars. pag. 205, Wint. Die Pilze p. 240, Schroet. Pilz. Schles. p. 359, *Uredo Helioscopiæ* Pers. Disp. p. 13, *Uredo punctata* DC. Fl. Franc. II, p. 236, *Uredo confluens* DC. Encycl. VIII, p. 231, *Uredo polymorpha* var. γ . Strauss in Wett. Ann. II, p. 87, *Cavoma Helioscopiæ* Schlecht. Fl. Berol. II, p. 125, *Cavoma punctosum* Link Sp. II, p. 34, *Rhytisma Euphorbiæ* Schubert in Fl. Dresd. II, p. 310,

Lecythæa Euphorbiæ Lév. in Ann. Scienc. nat. 1847, p. 374, *Erysibe Euphorbiæ* Wallr. Fl. Crypt. Germ. II, n. 1642 p. p. — Soris uredosporiferis convexis, mox apertis, rotundatis, pallide aurantio-rufis, mox expallentibus, sæpe expansis; uredosporis ellipticis vel ovoideis, raro oblongis, 14-23 $\approx$ 10-17, subtiliter aculeolatis, aurantiaco-flavis, episporio hyalino; paraphysibus numerosis, capitatis, sursum 15-17 μ . crassis, intermixtis; soris teleutosporiferis rotundatis vel irregulariter pulvinatis, in caule elongatis, in foliis punctiformibus, minutis, primo rufo-flavis, dein atro-brunneis et tunc crustaceo-explanatis; teleutosporis cuboideo-cuneatis, sursum explanatis, deorsum angustatis, 30-45 $\approx$ 12-15, levibus.

Hab. in foliis caulibusque Euphorbiarum, in Italia, Gallia, Austria, Helvetia, Germania, Neerlandia, Bohemia, Arduennis, Britannia, Belgio, Ægypto, Sibiria asiatica.

Melampsora farinosa (Pers.) Schroet. Pilz. Schles. p. 360, *Uredo* 2106 *farinosa* var. *Salicis-capreæ* Pers. Syn. Fung. pag. 217, *Epitea vulgaris* Fr. Summa Veg. Scand. pag. 512, *Cæoma Caprearum* Schlecht. Fl. Berol. II. p. 124, *Uredo Caprearum* DC. Flor. Franç. VI, p. 80, *Erysibe Caprearum* Wallr. Fl. Crypt. Germ. II, n. 1641, *Sclerotium salicinum* Fr. Observ. II, p. 358, *Leptostroma salicinum* Link Handb. III, p. 345, *Lecythæa salicina* Lév. in Ann. Sc. Nat. 1847, p. 375 p. p., Tul. in Ann. Scienc. Nat. 1854, t. VII, f. 6-7, *Melampsora Caprearum* Thüm. in Mitth. Versuch. Cest. II, 1, p. 12, *Melampsora Salicis-capreæ* (Pers.) Wint. Die Pilze p. 239 p. p., *Melampsora Hartigii* Thüm. in Mitth. aus d. forstl. Vers. Cesterr. II, p. 41, *Physonema pallidum* Bonord. in Karst. F. Fenn. n. 393. — Soris uredosporiferis amphigenis vel ramicollis, sparsis vel subgregariis, demum confluentibus, rotundatis, flavis, subaurantiis vel cineraceis, pseudoperidio inconspicuo; uredosporis ovoideo-sphæroideis v. ellipsoideis, echinatis, pedicello æquali, gracili, longo vel abbreviato præditis, 17-22 $\approx$ 13-15, aurantio-rufis; paraphysibus capitatis seu rarius obovato-claviformibus immixtis, usque ad 66 μ . longis, 15-17 μ . latis; soris teleutosporiferis vulgo epiphyllis, sparsis vel aggregatis, aliis exiguis, rotundatis, aliis majoribus, variis, primo sordide vel fusco-luteis, mox piceo-fuscis, tandem subnigricantibus; teleutosporis oblongatis, 5-6-gonis, episporio dilute fusco, protoplasma rubro-aurantium foveantibus, 32-45 $\approx$ 13-17; sporidiolis sphæroideis, pallide aureis, circiter 10 μ . diam.

Hab. in foliis Salicum imprimis, *Salicis capreæ*, au-

ritæ, dasycladæ et verisimiliter *Salicis phyllicifoliæ*, nigricantis, rosmarinifoliæ, phlomidis, hastatæ, pyrolifoliæ, cinereæ, in Italia, Gallia, Britannia, Belgio, Austria Helvetia, Germania, Fennia, America boreali, Sibiria asiatica. — A *M. epitea*, *mixta* et *Vitellinæ* caute dignoscenda.

3. **Melampsora Lini** (DC) Tul. in Ann. Scienc. Nat. 1854, pag. 96 Winter Die Pilze pag. 242, Schroet. Pilz. Schles. pag. 360, Masal. Ured. Veron. pag. 58, t. III, f. XXI, 1-5, *Uredo Lini* DC Flor. Franç. II, p. 234, *Podosporium Lini* Lév. in Ann. Sc. nat. 1847, p. 374, Cook. Brit. Fung. II, p. 532, *Podocystis Lini* Fr. S. V. S., *Cecoma Lini* Link Obs. II, p. 23. — Soris uredosporiferis sparsis, pseudoperidio deciduo obtectis, rotundatis, aurantiacis minutis; uredosporis subsphæroideis vel obovoideis, pedicellatis echinatis, 15-24 $\approx$ 14-18, aurantiaco-flavis; paraphysibus curvatis apice valde sphæroideo- vel ovoideo- incrassatis, 17-20 μ . crassis soris teleutosporiferis explanatis, primo rufo-brunneis, dein subatris teleutosporis dense sub epidermide congestis, cylindraceo-prismaticis, 45-60 $\approx$ 17-20.

Hab. in foliis *Lini catarthici*, marginalis, usitatissimi, alpini, narbonensis, perennis, nodiflori, stricti austriaci, in Italia, Dalmatia, Britannia, Gallia, Austria, Helvetia, Germania, Hungaria, Bohemia, Fennia, Rossia, Neerlandia Belgio, Sibiria asiatica et Africa boreali nec non prope Murra River Australiæ. — **liniperda* Koern. in Land. und forstw. Zei. Prov. Preuss. 1865 Winter Die Pilze p. 242, *Mel. Lini* a. *majo* Fuck. Symb. myc. p. 44. Forma genuina omnibus partibus major Teleutosporis usque ad 80 μ . longis. In foliis caulibusque *Lini* usitatissimi in Germania et ad Mustiala Fennia.

4. **Melampsora epitea** (Kunze et Schm.) Thüm. in Mitth. Versuch. (Est. 1879, II, 1, pag. 15, Schroet. Pilz. Schles. pag. 361, *Uredo epitea* K. et S. Myc. Hefte I, pag. 68, *Ecidium Salicis* Sow [1803?] *Erysibe epitea* Wallr. Fl. Crypt. Germ. II, n. 1640, *Cecoma epiteum* Schlecht. Fl. Berol. II, p. 124, *Uredo orbiculari* Mart. Fl. Erlang. pag. 318, *Melampsora Salicis-capreae* Win. Pilze p. 239, p. p. *Lecythea epitea* Lév. — Soris uredosporiferis minutis, rotundatis, sparsis, hypophyllis, flavo-rufis; uredosporis globosis, ellipticis vel ovoideis, 13-16 $\approx$ 11-13, episporio hyalino aculeato, plasmate aurantiaco; paraphysibus numerosis, immixtis et marginalibus, clavatis vel sursum capitato-incrassatis usque ad 40 μ . longis et usque ad 22 μ . latis; soris teleutosporis hypo-

phyllis, minutis, primo flavo-rufis, demum crustiformibus, atro-brunneis; teleutosporis 30-35 $\approx$ 12-14.

Hab. in foliis Salicis viminalis, amygdalinæ (hybrid.) albæ, daphnoidis, purpureæ, lanatæ, capræ (hybrid.), in Austria, Belgio, Germania, Britannia, Sibiria asiatica nec non Simla Indiæ orient.

Melampsora mixta (Schlecht.) Schroet. Pilz. Schles. p. 361, *Ceco-* 2109
ma mixtum Schlecht. Fl. Berol. II, p. 124, *Uredo mixta* Steud. in Duby Bot. Gall. II, p. 231, *Lecythea mixta* Lév. in Ann. Sc. Nat. 1847, pag. 374, *Erysibe mixta* Wallr. Fl. Crypt. Germ. II, n. 1638. — Soris uredosporiferis hypophyllis, crumpentibus, late aurantiacis; uredosporis globosis, ellipticis vel ovoideis, 15-22 $\approx$ 13-16, aurantiacis, aculeolatis; paraphysibus numerosis, usque ad 55 μ . longis, apice capitatis, 15-28 μ . latis; soris teleutosporiferis minutis, dein atris, crustiformibus, hypophyllis.

Hab. in foliis Salicis capensis, purpureæ, incanæ, repentis, silesiacæ, Lapponium, in Italia, Germania, Gallia, Britannia et pr. Somerset East Africæ australis (Mac OWAN).

Melampsora Vitellinæ (DC.) Thüm. in Hedwigia 1878, pag. 79, 2110
Schroet. Pilz. Schles. p. 361, *Uredo Vitellinæ* DC. Fl. Franc. II, pag. 231, *Melampsora Castagnei* Thüm. in Mitth. aus. e. forstl. Versuchsw. Oest. 45, p. II, *Cecoma Saliceti* Schlecht. Fl. Berol. II, p. 124, *Erysibe Vitellinæ* Wallr. Fl. Crypt. Ferm. II, n. 1639. — Soris uredosporiferis minutis, rutundatis, apertis, hypophyllis, sparsis, flavo-rufis; uredosporis oblongo-ellipticis vel ovatis, 24-35 $\approx$ 13-15, episporio hyalino, aculeato, plasmate aurantio-rufescente; paraphysibus numerosis, usque ad 60 μ . longis, apice capitato-inflatis, usque ad 22 μ .; soris teleutosporiferis hypophyllis, crustiformibus, minutis, demum atro-brunneis.

Hab. in foliis Salicis pentandræ, vitellinæ, albæ, fragilis et triandræ, in Gallia, Belgio, Germania, Italia, Sibiria asiatica.

Melampsora Tremulæ Tul. in Ann. Scienc. Nat. 1854, pag. 95, 2111
Schroet. Pilz. Schles. p. 362, *Melampsora populnea* Karst. Myc. Fenn. p. 53. — Soris uredosporiferis in ramulis sæpe late expansis, pulvinatis, aurantio-rufis, in foliis rotundatis, apertis, demum sæpe confluentibus, flavido-rufis; uredosporis ellipticis vel ovoideis, 15-21 $\approx$ 13-18, aculeatis, aurantiaco-rufis; paraphysibus numerosis, 33-50 μ . longis, sursum clavato-inflatis, 9-15 μ . crassis; soris teleutosporiferis hypophyllis, numerosissimis primo rufo-brun-

neis, demum brunneo-piceis, crustiformibus; teleutosporis 15-55 = 11-12.

Hab. in foliis ramulisque Populi tremulæ in Italia, Britannia, Gallia, Lusitania, Germania, Helvetia, Austria, Bohemia Fennia, Neerlandia, Arduennis.

8. **Melampsora æcidioides** (DC.) Schroet. Pilz. Schles. p. 362, *Uredo æcidioides* DC. Fl. Franc. II, p. 236, *Cwoma ægirinum* Schlecht. Fl. Berol. II, pag. 124, *Erysibe æcidiiformis* Wallr. Fl. Crypt. Germ. II, p. 1636, *Uredo Acheronis* Sprengel Syst.? *Uredo effusa* var. γ Strauss Wett. Ann. II, p. 91, — Soris uredosporiferis rotundatis, amphigenis, paraphysibus magnis dense congestis corona albidæ ad instar cinctis; uredosporis globosis, ellipticis vel ovalis 17-24 = 15-17, aculeatis, aurantiaco-rufis; paraphysibus claviformibus, curvatis, 40-60 = 15-22; soris teleutosporiferis minutis, crustiformibus, brunneis.

Hab. in foliis Populi albæ et canescentis, in Gallia et Germania.

9. **Melampsora populina** (Jacq.) Lév. in Ann. Scienc. Nat. 1847, p. 375 Winter Die Pilze p. 238, Schroet. Pilz. Schles. p. 362, *Lycoperdon populinum* Jacquin Collect. t. IX, f. 2-3, *Uredo longica psula* DC. Fl. Franc. II, pag. 233, *Uredo cylindrica* Strauss Wett. Ann. II, p. 92, *Uredo Populi* Mart. Fl. Mosq. p. 231, *Melampsora?* *Populi* Mont. in Cast. Suppl. Cat. pl. Marseille p. 80 *Sclerotium populinum* Pers. Observ. II, p. 25, *Melampsora Balsamiferæ* Thüm. Myc. Univ. n. 1832, *Nyloma populinum* Duby Botan. Gall. II, p. 875, *Cwoma allochroum* Link Sp. II, pag. 36 *Lecythea populina* Lév. in Ann. Scienc. Nat. 1847, p. 375, *Erysibe cylindrica* Wallr. Fl. Crypt. Germ. II, n. 1612, *Cwoma cylindricum* Schlecht. Fl. Berol. II, p. 119 nec Rul. — Soris uredosporiferis rotundatis, sæpe dein epidermide bullato-vesiculosi tectis, aurantio-rufis, demum sæpe confluentibus; uredosporis longe ellipticis vel ovoideis, 28-38 = 15-20, aculeatis, aurantiacis; paraphysibus plus minus numerosis, usque ad 50 μ . longis, apice globoso- vel ovato-incrassatis, 17-20 μ . latis; soris teleutosporiferis epiphyllis, explanatis, sæpe confluentibus, primo rufo-brunneis, demum atro-brunneis, ante germinationem crustas flavo-rufescentes efficientibus; teleutosporis 40-45 = 13; sporidiolis globosis, aurantiacis.

Hab. in foliis Populi nigrae, pyramidalis, laurifoliae, suaveolentis, balsamiferae, virginianæ, moniliferae, in

Italia, Gallia, Belgio, Arduennis, Neerlandia, Lusitania, Austria, Germania, Hungaria, Helvetia, Fennia, Bohemia, Britannia, America boreali et Sibiria asiatica. — **M. Melusæ* Thüm. in Bull. Torr. bot. Club. VI, p. 16: soris uredosporiferis gregariis, amphigenis, minutis, aurantiacis, liberis, pro maxima parte in foliorum pagina superiore; uredosporis ovoideis vel globoso-ovoides, basi angustato-obtusis, apice late obtusatis, episporio levi, tenui, protoplasmate granuloso, 20-22 μ 14-16; paraphysibus nullis; teleutosporis vix a *M. populinae* diversis. In *Populi angulatae* (P. Medusæ Benth) foliis vivis languidisve vel aridis, Aiken Carolinae australis (H. W. Ravenel). A typo differt uredosporis levibus, paraphysibus nullis.

1. *Melampsora Hypericorum* (DC.) Schroet. Brand. und Rostp. 2114 p. 25, Pilz. Schles. p. 363, Winter Die Pilze p. 241, *Uredo Hypericorum* DC. Rapp. I, p. 10, Fl. Franc. VI, p. 81, *Cicoma Hypericorum* Schlecht. Fl. Berol. II, p. 122, *Pucciniastrum? Hypericorum* Karst. F. Fenn. n. 199, *Uredo Androsæmi* DC. Encycl. VIII, *Erysibe Hypericorum* Wallr. Fl. Crypt. Germ. n. 1623. — Soris uredosporiferis hypophyllis, sparsis v. subgregariis, pseudopetridio lacero-dehiscente, flavis, expallentibus, exiguis; uredosporis subsphaeroideis, ellipticis vel ovatis, sæpe etiam angulatis, 14-21 μ 11-17, aculeolatis, aurantiaco-flavescentibus; soris teleutosporiferis fere inconspicuis, minutissimis, atro-brunneis, explanato-crustiformibus, irregularibus, solitariis vel gregariis; teleutosporis intercellularibus, oblongo-cuneatis, usque ad 26 μ . longis, 8-16 μ . latis, unilocularibus, flavo-brunneis.

Hab. in foliis Hyperici Ascyri, Androsæmi, æthiopici, attenuati, quadranguli, humifusi, montani, perforati, hirsuti, in Italia, Gallia, Belgio, Helvetia, Austria, Britannia, Germania, Fennia, pr. Minussinsk Sibiriae asiaticae, nec non Simla Indiae orientalis.

1. *Melampsora Cynanchi* Thüm. in Mycol. Univ. n. 1136. — So- 2115 ris uredosporiferis elevatis, hypophyllis, raro amphigenis, orbiculatis, liberis, aurantiacis, sparsis, disciformibus; uredosporis plus minusve globosis vel late ellipsoideis, episporio crasso, hyalino, levi, nucleo flavo, granuloso, 20-22 μ . diam; soris teleutosporiferis semper tectis, dense gregariis, hypophyllis, rotundis, sæpe confluentibus, badio-fuscis, induratis, parvis; teleutosporis late cylindraceis vel vix cuneatis, episporio levi, tenui, intus granulosus, 55 μ 12 μ . mm. flavo-fuscis.

Hab. ad folia viva *Cynanchi sibirici*, in subsalsis et locis arenosis pr. Minussinsk Sibiriae.

12. **Melampsora Liquidambaris** Cooke in Rav. Fung. Amer. bor. n. 47. — Epiphylla, castaneo-brunnea, maculiformis; teleutosporis subclavatis, lateraliter compressis, supra convexis, infra obtusis, rubro-brunneis, $40 \approx 12$.

Hab. in foliis *Liquidambaris*, Gainesville Florida Americae borealis.

13. **Melampsora vernalis** Niessl in Winter Die Pilze p. 237. — Soris teleutosporiferis minutis, irregularibus, flavo-brunneis, plerumque dense confertis; teleutosporis oblongis vel clavatis, unilocularibus, intercellularibus, usque ad 45μ longis, flavescenti-brunneis.

Hab. in *Saxifraga granulata*, socio semper *Aecidio Saxifragarum*, in Germania. — Species adhuc valde dubia.

B) Uredosporae pseudoperidio persistenti inclusae; sori pustuliformes.

14. **Melampsora betulina** (Pers.) Tul. in Ann. Scienc. Nat. 1854, p. 97, t. VII, t. 8-9, t. VIII, f. 11-12, Winter Die Pilze p. 238, Schroet. Pilz. Schles. pag. 363, *Uredo populina* var. *betulina* Pers. Syn. p. 219, *Uredo ovata* var. *Betulae* Strauss in Wett. Ann. II, p. 13, *Cecoma cylindricum* Link Sp. II, p. 39?, *Sclerotium betulinum* Fr. Syst. Myc. I, pag. 262, *Sclerotium Betulae* Lib. Crypt. IV, n. 336, Cfr. Sacc in Malpighia 1886, p. 217. — Soris uredosporiferis hypophyllis, rotundatis, gregariis, nitide flavis v. subaurantiis, pseudoperidio crasso, ostiolo angusto et quasi ciliato pervio; uredosporis cuneato-oblongatis basi truncatis, echinatis, brevissime pedicellatis, $22-40 \approx 10-19$, aurantiacis; paraphysibus apice obovoideis inferne attenuatis, levibus, hyalinis; soris teleutosporiferis hypophyllis, innatis, convexo-planis, initio plerisque lineis rectis (venulis matricis) limitatis per hiemem infuscatis vel fusco-nigrescentibus; teleutosporis cuneato-oblongatis, levibus, $30-50 \approx 13-16$, unilocularibus, sectione polygoniis, intercellularibus, ex hyalino dilute flavo-brunneis; sporidiolis sphaeroideis, flavis.

Hab. in foliis *Betulae albae*, putrescentis, verrucosae, humilis, nanae, in Italia, Gallia, Britannia, Belgio, Arduennis, Fennia, Lapponia, Hungaria, Neerlandia, Austria, Germania, Helvetia, Sibiria asiatica.

15. **Melampsora Ariae** (Schleich.?) Fuck. Symb. myc. p. 45, Schroet. Pilz. Schles. p. 363, Wint. Die Pilze p. 241, *Cecoma Sorbi* Oudem.

in Nederl. Kruidk. Archief II, 1, pag. 177, *Melampsora Sorbi* Wint. Die Pilze p. 241, *Melampsora pallida* Rostr. in Tidsskr. f. Skovbr. II, p. 153, *Uredo Ariæ* Schleich. Cat. pl. Helvet. 1821. — Soris uredosporiferis minutis, pustuliformibus, subalbidis vel dilute flavescentibus, rotundatis; pseudoperidiis explanatis, compressis; uredosporis globosis, ellipticis vel ovatis, 19-26 μ 11-21, aculeolatis, subhyalinis vel dilutissime flavis; paraphysibus leniter clavatis; soris teleutosporiferis hypophyllis, sparsis, gregariis confluentibusve, pallidis, explanato-pulvinatis, dein brunneolis, crustiformibus; teleutosporis oblongis vel clavatis, usque ad 52 μ longis, usque ad 16 μ latis, laxè congestis.

Hab. in foliis Sorbus Ariæ et Aucupariæ, in Germania, Neerlandia, Dania.

6. **Melampsora Carpini** (Nees) Fuck. F. R. n. 294, Symb. myc. p. 44, 2120 Winter Die Pilze p. 240, *Uredo Carpini* Desm. Crypt. ed. II, n. 131, *Civoma Carpini* Nees Syst. p. 16. — Soris uredosporiferis sparsis, minutis, rotundatis, pseudoperidio hemisphærico convexo, margine longe dentato tectis, uredosporis piriformibus, oblongis v. claviformibus, 14-33-8-14, raro ellipticis, subtiliter aculeolatis, aurantiaco-flavis; soris teleutosporiferis sparsis, minutis, margine rotundato v. irregulariter angulato, primo flavescentibus, demum flavo-brunneis; teleutosporis oblongis vel breviter clavatis, sectione polygoniis, unilocularibus, intercellularibus, dilute flavo-brunneolis, usque ad 35 μ longis et usque ad 14 μ latis.

Hab. in foliis Carpini Betuli, in Italia, Gallia, Germania, Helvetia, Austria, Hungaria.

17. **Melampsora sparsa** Winter Die Pilze p. 245. — Soris uredo 2121 sporiferis minutis, rotundatis, pallide flavis, in greges parvos sæpe confluentes congestis, pseudoperidio firmulo, apice pertuso tectis; uredosporis plerumque oblongo-clavatis, rarius ellipticis, 24-37 μ 12-17, subtiliter aculeatis, aurantiaco-flavis; soris teleutosporiferis minutis; teleutosporis rotundato-cuboideis vel oblongis, 17-20 μ diam., dilute brunneis.

Hab. in foliis Arctostaphylos alpinae prope S.^t Gallen Helvetiæ altit. circ. 2000 m.

C) Species minus notæ.

18. **Melampsora? puccinioides** Winter Exot. Pilze in Hedwigia 1885, 2122 p. 22. — Soris hypophyllis, minutis, rotundatis vel irregularibus, sparsis gregariisve, interdum confluentibus, atris, opacis, nudis, com-

pactis usque ad 750 μ . latis; teleutosporis (?) forma magnitudineque valde variis, plerumque breviter cylindraceis seu suboblongis, utrinque rotundatis seu subtruncatis, ad apicem incrassatis sæpeque subconice attenuatis, episporio parum crasso, helvolo v. ochraceo præditis, 19-35 $\approx$ 9,5-16.

Hab. in foliis vivis languidisve *Helic hrysi* e sect. *Lepiclinis*, Natali Africæ australis (Wood).

19. **Melampsora Lisianthi** Pat. in *Revue mycologique* 1886, p. 81. — Soris uredosporiferis sparsis, epidermide dein lacerata primotectis, brunneis; uredosporis sphaericis vel ovoideis, 24-27 $\approx$ 12-15, subtiliter echinulatis, brunneis vel flavescentibus, pedicello deciduo, hyalino fultis; paraphysibus numerosis, hyalinis, apice obtusis.

Hab. in foliis ramisque *Lisianthi elegantis*, in Brasiliæ australi (Sellow).

20. **Melampsora Nesodaphnes** Berk. et Broome *Fungi from Brisbane*: p. 67, n. 239, t. XV, f. 9. — Sporibus massam pulverulentam, villosam, ochraceam in superficie fructus formantibus, oblongis vel piriformibus, subtiliter granulatis, 12-38 μ . longis.

Hab. in fructibus *Nesodaphnes obtusifoliae*, Brisbane Queensland (F. M. Bailey).

21. **Melampsora phyllodiorum** Berk. et Br. *Fungi from Brisbane* p. 67, n. 238, t. XV, f. 6-8. — Soris in tuberculis amphigenis sitis; sporibus filamentis delicatis oriundis, subfusiformibus, 55-58 μ . longis, insigniter granulatis, aliis elongatis, uniseptatis, fusiformibus, levibus, 22 μ . longis immixtis.

Hab. in phyllodiis *Acaciae*, Brisbane Queensland (F. M. Bailey).

22. **Melampsora? Quercus** (Brond.) Schroet. sec. *Michelia* II, p. 308, *Uredo Quercus* Brond. in *Duby Botan. Gall.* II, p. 893, *Winter Die Pilze* pag. 254, *Cooke Handb.* n. 1573. — Soris hypophyllis, luteis, dein aurantiacis, minutis, ovatis vel orbicularibus, leniter prominulis, sparsis, solitariis vel gregariis, epidermide lacerata cinctis; uredosporis subglobosis, ellipticis vel ovoideis, pellucidis, haud cohererentibus, aurantiaco-flavis, aculeolatis, 14-24 $\approx$ 12-16.

Hab. in foliis *Quercus pedunculatae* et *Q. Ilicis* in Italia, Belgio, Gallia, Helvetia, Germania, Britannia.

23. **Melampsora? stratos** Cooke in *Grevillea* X, p. 128. — Hypophylla; soris compactis, convexis, sparsis; uredosporis piriformibus, infra truncatis, supra spinulosis, hyalinis, 35-40 $\approx$ 25; teleutosporibus cuneatis, utrinque truncatis, uni- vel bistratos, levibus, castaneo-fuscis, 45 $\approx$ 18-20.

Hab. in foliis *Crotonis silvatici*, Inanda Africae (Woon).

— «Forte idem ac *Pucciniastrum Crotonis* (Burr.) De-Toni».

21. **Melampsora Alni** Thüm. Pilzfl. Sibir. n. 235. — Soris uredospori-²¹²⁸
feris hypophyllis, sparsis, interdum confluentibus, dilute aurantia-
co-flavis, parvulis, planis, sine macula; uredosporis cylindrico-cla-
vatis vel cylindricis vel oblongis, utrinque rotundatis vel sæpe ob-
tuse-rotundatis, concatenatis, dilute lutescentibus vel achrois, epi-
sporio tenui, æquali, subverruculoso vel fere levi, $40 \approx 3$; catenulis
quatuor-sexsporis.

Hab. ad *Alni viridis* folia viva in silvulis subalpinis prope
montem «Borus» in alpibus Sajanensibus.

25. **Melampsora Bigelowii** Thüm. in Hedwigia 1878, p. 77. — Soris²¹²⁹
uredosporiferis hypophyllis, sparsis numquam orbiculatis, auran-
tiacis, demum expallescentibus, fere hemisphæricis, subfirmis, tan-
dem pulveraceis; uredosporis majoribus quam in *M. farinosa*, glo-
bosis, in sicco hyalinis, $19-24 \approx 22$, episporio granuloso-spinuloso,
 4μ . cr., hyalino, paraphysisibus non crebris, ovoideis vel fere glo-
bosis, cum stipite longissimo, curvulo, hyalinis, $30-40 \mu$. diam.,
cum pedicello $75-78 \mu$. longis, membrana $3,5-4,5 \mu$. crass., levi;
teleutosporis ignotis.

Hab. in foliis *Salicis Bigelowii*, in California Amer. bor.

26. **Melampsora arctica** Rostrup Fungi Groenlandiæ (1888), p. 535.²¹³⁰
— Soris uredosporiferis, gregariis, hypophyllis, flavis; uredosporis
sphæroideis vel ovoideis, $18-20 \mu$. diam., echinatis, paraphysisibus
clavatis; soris teleutosporiferis hypophyllis, sparsis, minutissimis,
atro-fuscis; teleutosporis prismaticis, rufo-fuscis.

Hab. in foliis *Salicis groenlandicæ*, glaucæ et herba-
cææ in Groenlandia.

27. **Melampsora? Pistaciæ** Cast. Suppl. p. 80. — Maculis atris, pa-²¹³¹
rum prominulis; teleutosporis abbreviatis, cylindræco-irregulari-
bus, fuscis, nec cohererentibus.

Hab. ad folia *Pistaciæ veræ*, prope Marseille Galliæ. — Per-
dubia species ex ipsius auctoris sententia.

28. **Melampsora Eucalypti** Rabenh. in Hedwigia 1881, p. 150, F. E.²¹³²
n. 3481 (nomen).

Hab. in foliis *Eucalypti Globuli*, in horto botanico Cal-
cutta Indiæ orient. (Kerz).

29. **Melampsora Leguminosarum** Rabenh. in Hedwigia 1871, pag. 21²¹³³
(nomen). — Uredosporis tantum inventis.

Hab. in *Astragalo lobophoro et racemuloso*, in Lusitania.

30. **Melampsora? Cerasi** Schulzer (Est. Bot. Zeitser. 1875, p. 322.

— Flavo-virescens; teleutosporis cylindraceis, in duos loculos inæqualiter constrictis, 37-48 μ . longis, rarius tri-pluri-septatis.

Hab. in foliis *Pruni Cerasi* et *P. Marascæ?* in Slavonia.

— Species male descripta, vix hujus generis.

MELAMPSORELLA Schroet. in *Hedwigia* 1874, pag. 85, Pilz. Schles. pag. 366 (Etym. a *Melampsora*). — Uredosporæ in pseudoperidio inclusæ, episporio aculeato donatæ; teleutosporæ uniloculares, intracellulares, in stratum planum, firmiusculum, pallidum vel rufescens arcte coalitæ; sporidiola globosa, hyalina; ceterum ut in *Melampsora*.

1. **Melampsorella Cerastii** (Pers.) Schroet. Krypt. Fl. Schles. p. 366, *Uredo pustulata* var. *Cerastii* Pers. Syn. Fung. pag. 219, *Uredo Caryophyllacearum* DC. Fl. Franç. II, pag. 85, *Uredo Stellarie* Fuck. Fung. Nass. pag. 81, *Melampsorella Caryophyllacearum* Schroet. in *Hedwigia* 1874, p. 85, *Melampsora Cerastii* Wint. Die Pilze p. 242, *Cecoma Stellarie* Link Observ. II, p. 28, *Cecoma Caryophyllacearum* Link in L. Sp. plant. VI, 2, p. 26. — Soris uredosporiferis pustuliformibus, sparsis vel gregariis, in pseudoperidio sphæroideo, parenchymati innato evolutis, demum epidermidem rumpentibus, 0,5-1 mm. latis, læte aureis vel subaurantiacis; uredosporis sphæroideo- vel ovoideo-ellipsoideis, sessilibus, aculeato-verrucosis, flavis, 20-35 = 12-18; soris teleutosporiferis maculiformibus, subinde superficiem foliorum hibernantium inferiorem totam occupantibus, rubentibus; teleutosporis intra cellulas epidermicas generatis, simplicibus rotundatis, mutua pressione angulatis, episporio hyalino, protoplasmate læte roseo, subhyalino, granuloso, levibus 13-15 μ . diam.; sporidiolis subglobosis, 7-9 μ . diam., hyalinis.

Hab. in foliis caulibusque *Stellarie palustris*, gramineæ, uliginosæ, nemorum, mediæ, *Holosteæ* et glaucæ, *Cerastii* trivialis et arvensis, in Italia, Gallia, Austria, Hungaria, Germania, Neerlandia, Fennia, Britannia et Amer. bor.

2. **Melampsorella? Ricini** (Biv.) De-Toni, *Melampsora Ricini* Pass. 21 in Erb. critt. ital. II, n. 684, *Cecoma Ricini* Schlecht. in *Linnaea* I, p. 612 (1826), *Uredo Ricini* Biv. Bernh. Manip. III, p. 10. — Hypophylla, raro epiphylla: maculis pallidis, irregularibus; soris

subrotundis, subhemisphæricis, regulariter aut irregulariter dispositis, confluentibus epidermide rupta vix cinctis, pulvere aurantiaco copioso longius persistente; sporis aliis obovatis maturis, aliis longe pelicellatis, inanibus.

Hab. in foliis Ricini communis et spectabilis, in Italia, Lusitania nec non ad Somerset East Africæ australis.

CRONARTIUM Fries Observ. Mycol. I, p. 220 (1815) (Etym. probabiliter a *chronnymis* contamino, conspurco, vel a *crossos* cirrus et *artios* integer, sed tunc *Crossartium* legendum). — Uredosporæ pseudoperidio inclusæ, brunneæ; teleutosporæ 1-loculares, in columellam cylindræco-elongatam e medio pseudoperidii uredosporiferi exurgentem ex omni parte arcissime coalitæ, in planta viva rite evolutæ. Sporidiola subglobosa, hyalinula.

1. **Cronartium asclepiadeum** (Willd.) Fr. Observ. myc. I, p. 220, Winter Die Pilze p. 235, Schroet. Pilz. Schles. p. 373, *Erineum asclepiadeum* Willd. in Funk Crypt. I, n. 145, *Uredo Vincetoxici* DC. Fl. Franc. VI, p. 85, *Cecoma Cronartites* Link Sp. II, pag. 65, *Cronartium gentianeum* Thüm. in Est. bot. Zeitschr. 1878, p. 193, *Phyllerium asclepiadeum* Opiz Sezuam. p. 635. — Soris uredosporiferis pustuliformibus, hypophyllis, sparsis, aggregatis v. obsolete circinantibus, pseudoperidio membranaceo, poro apicali pervio aut varie lacero singulatim instructis, brunneis; uredosporis ovoideis v. ellipsoideo-sphæroideis, echinatis, primitus pedicellatis, $16-32 \approx 12-18$, pallide aurantiacis; columella sori teleutosporiferi tereti, exili usque 2 mm. longa, levi, simplici aut rarissime bifurca, e media uredine assurgente; teleutosporis oblongatis, utrinque truncato-obtusis, sessilibus, levibus, flavescenti-hyalinis, usque ad 12 μ . latis; sporidiolis sphæroideis, levibus, dilute aureis.

Hab. in foliis Vincetoxici officinalis, purpurascens et Gentianæ asclepiadeæ, in Italia, Gallia, Helvetia, Austria, Germania, Fennia, Lusitania et America boreali. — Var. **Quercuum** Cooke in Grevillea: valde elongatum, curvum, sparsum. In foliis Quercus nigræ et tinctoriæ, in Carolina infer. et Pennsylvania Amer. bor. — Var. **Thesii** Berk. Cfr. Burrill. Parasitic Fungi of Illinois p. 211. *Cronartium Comandraræ* Peck in Botan. Gazette IV, p. 128: soris uredosporiferis minutis, sparsis v. in greges irregulares congestis, pseudoperidio instructis; uredosporis subglobosis aut ellipticis, $18-27 \approx 15$, echinulatis; soris teleutosporiferis sparsis, sæpe numerosis, columella elongata, subcylindræca, plerumque incurva, basi leniter inflata, flavida vel lateritio-auran-

tiaca; teleutosporis oblongis vel cylindræis, rarius subglobosis, 7-11 μ . diam., levibus, flavescenti-brunneis. In foliis caulibusque Comandrarum umbellatæ et pallidæ, Colorado Illinois New Jersey Americæ borealis. — Var. **Poggiolanum** (Roum.) *Cronartium Poggiolanum* Roum. Hypod. vill. Thuret in Revue Mycologique 1880, p. 202: pseudoperidio aurantiaco, uredosporis piriformibus vix v. non echinulatis, aurantiacis. In foliis Asclepiadis speciosæ, in Gallia australi.

2. **Cronartium Balsaminæ** Niessl Beitr. pag. 16, Winter Die Pilze p. 236. — Hypophyllum; uredosporis oblongis, flavis, plerumque 20 $\approx$ 15, episporio verruculoso; columellis conice linearibus, teretibus, varie curvatis seu flexuosis, rufis vel sordide aurantiis; teleutosporis subglobosis, sæpe irregularibus, episporio aspero, flavis, 8-10 μ . diam.

Hab. in foliis vivis Balsaminæ hortensis, pr. Innsbruck Austriae. — A *Cronartio asclepiadeo* vix distinctum.

3. **Cronartium flaccidum** (Alb. et Schwein.) Winter Die Pilze p. 236, Schroet, Pilz. Schles. p. 373, *Sphaeria flaccida* Alb. et Schwein. Consp. p. 31, t. VII, f. 4, *Æcidium Pæoniæ* Wallr. Fl. Crypt. Germ. II, p. 259, *Uredo Pæoniæ* Cast. Cat. pl. Mars. pag. 217, *Uredo Pæoniarum* Desmaz. in Ann. S. N. 1847, p. 11, *Cronartium Pæoniæ* Cast. l. c. p. 211. — Soris uredosporiferis pustuliformibus, ochraceis vel dilute brunneis, minutis, pseudoperidio perduranti, hemisphærico, plano-convexis; uredosporis rotundatis, ellipticis, ovatis vel piriformibus, 18-44 $\approx$ 12-20, aculeolatis, dilute aurantiacis; soris teleutosporiferis oblongo-cylindræis, sæpe tortis, dilute brunneis, 2 mm. altis, 100 μ . latis; teleutosporis oblongis vel cylindræis, utrinque obtusiusculis vel rotundatis, 8-12 μ . diam., brunneis.

Hab. in foliis Pæoniæ albifloræ, officinalis, arboreæ, tenuifoliæ, edulis, anomalæ, in Gallia, Italia, Lusitania, Britannia, Austria, Helvetia, Germania, Neerlandia, Hungaria et pr. Minussinsk Sibiriae asiaticæ.

4. **Cronartium ribicolum** Dietr. in Arch. Naturk. Liv. Esth. und Kurlands. II, 1, p. 287, Winter Die Pilze p. 236, Schroet, Pilz. Schles. p. 373. — Soris uredosporiferis pustuliformibus, læte aurantiaco-rufis, minutis, rotundatis, pseudoperidio hemisphærico, apice poriformi-pertuso instructis; uredosporis ellipticis vel ovoideis, 19-35 $\approx$ 14-22, episporio hyalino, aculeato, plasmate aurantiaco; teleutosporis a columella usque 2 mm. alta, arcuata, flavo-rufa,

dein brunneola exsurgentibus illis *C. flaccidi* similibus, sed subhyalinis (pallide flavescentibus), 8-12 μ . latis.

Hab. in foliis *Ribis rubri*, *aurei*, *nigri*, in Germania, Dania (ROSTRUP). Rossia (FISCHER v. WALDHEIM), in Sibiria asiatica (THÜMEN). — Sori hypophylli, sparsi vel in greges rotundatos aut irregulares, sæpe confluentes, dispositi.

5. **Cronartium Delawayi** Pat. in Revue mycol. 1886, p. 80. — Sori ²¹⁴¹ uredosporiferis hypophyllis, sparsis vel in greges irregulares dispositis; pseudoperidiis membranaceis, hemisphæricis, apice poro pertusis, ochraceis, 500 μ . diam.; uredosporis ovoideis vel sphæroides, 27-30 $\approx$ 15-18, echinulatis, flavescentibus; columella teleutosporarum rigida, recta vel leniter incurvata, brevi, 1 mm. alta, apice obtusa, rufescente, e pseudoperidiis uredineis exsurgente; teleutosporis elongatis, oblongis, apice truncatis; promycelio arcuato, 4-loculari, quoque loculo sporidiolum singulum, sphæricum, 5-6 μ . diam., hyalinum gerente.

Hab. in foliis calycibusque *Gentianæ pictæ* et *Yunnanensis* pr. Lankong (DELAWAY). — A *C. Asclepiadeo* distinctum videtur.

6. **Cronartium prælongum** Winter in Hedwigia 1887, pag. 24, F. E. ²¹⁴² n. 3419. — Columellis teleutosporarum dense gregariis et cæspitosis, in macula rotundata vel irregulari, indeterminata, luteola centro obscuriori hypophyllis, prælongis, filiformibus, valde flexuosis curvatisque, pallide luteolis, usque 10 mm. longis, 50 μ . crassis; teleutosporis ellipticis oblongisve, utrinque rotundatis vel plus minus truncatis, episporio tenuissimo, hyalino, levi præditis, 30-45 $\approx$ 14-18.

Hab. in foliis vivis *Compositæ* cujusdam, prope S. Francisco Prov. S. Catharina Brasiliæ (E. ULE).

7. **Cronartium Capparidis** Hobson in Grevillea XIV, p. 89. — Hy- ²¹⁴³ pophyllum; filamentis curvulis, intricatis, fuscis; teleutosporis ellipticis, utrinque subattenuatis, fuscis, 26-28 $\approx$ 14-17.

Hab. in foliis *Capparidis*, Belgæ, Bombay Indiæ (HOBSON).

Species perlubia.

8. **Cronartium? gramineum** Mont. in Ann. Scienc. Nat. 1857, p. 148. — ²¹⁴⁴ Pseudoperidiis elongatis, fulvis, aggregatis, incurvis, celluloso-membranaceis, axi fasciculo vasorum lineatorum percursis, extus fibrilloso-ramentaceis, fibrillis ramosis, septatis, apice incrassato corpuscula (sporas?), ovoideo-oblonga, hyalina fœventibus.

Hab. e nodis culmi Poæ nemoralis erumpens pr. Andegavum Gallie (GUEPIN). — Pseudoperidia gracillima, in glomerulum 1 cm. diam. æquantem coacervata, 1 cm. et ultra longa, 150 μ . circ. cr.; corpuscula aut cellulae solutæ oblongæ, 50 μ . longæ, ovoideæ vel piriformes, hyalinæ, quæ an ut sporæ habendæ sint dubium manet. Cum *Sarcorhopalo tubiformi* Rabenh. comparandum verisimiliterque formam teratologicam sistens.

SARCORHOPALUM Rabenh. in Botan. Zeitung 1851, p. 627 (Etym. *sarx* caro et *rhopalon*, clava). — Stroma carnosum, subcartilagineum, cylindricum v. clavariiforme, apice primitus rotundatum (clausum), demum truncatum, plus minus excavatum (quasi apertum), 4-6 mm. longum; sporæ (æcidioideæ) rotundæ v. sphaericæ, simplices, leves, paraphysibus immixtis, in massam grumosam conglobatæ.

1. **Sarcorhopalum tubiforme** Rabenh. in Botan. Zeitung 1851, p. 627. — Stromate cylindrico, sursum plus minus dilatato (tubiformi), interdum furcato-partito, fuscescente, luteo-pulverulento, pluribus caespitosim connatis.

Hab. in frondibus *Aspidii curvifolii* pr. Nilgherries Indiæ. — Suadente cl. Montagne in Ann. Scienc. Nat. 1857, p. 149 videtur *Cronartio?* *gramineo* Mont. simillimum et forte meram formam monstruosam sistit.

2. *Didymospora* Sacc. et DE-TOXI.

PUCCINIA Pers. Tent. disp. meth. pag. 38, nec Micheli (Etym. a T. Puccini prof. florentino). — *Æcidia*, spermogonia et uredosporæ ut in *Uromycele*; teleutosporæ (saltem pro maxima parte) transverse uniseptatæ (rarissime biseptatæ), quoque loculo porum unum germin. gerente, pedicellatæ, in soros explanatos vel pulvinatos, pulverulentos initio epidermide tectos laxè congestæ; sporidiola ovoidea vel reniformia, plerumque hyalina.

Sectio A. EU-PUCCINIA Schroet.: Spermogonia, æcidia, uredosporæ et teleutosporæ in matrice viva evoluta; teleutosporæ post quietis periodum (hand in matrice viva) germinantes.

1. **AUTO-EUPUCCINIA** De Bary: Spermogonia, æcidia, uredo- et teleutosporæ in eadem matrice evoluta.

*Teleutosporarum episporium leve vel vix punctulatum.

1. **Puccinia Galii** (Pers.) Schwein. Syn. Carol. p. 73, Winter Die Pilze 2

p. 210, Massal. Ured. Veron. p. 42, t. III, f. XVIII, 1-6, Schroet. Pilz. Schles. p. 314, *Puccinia Galiorum* Link Sp. II, p. 76, *Puccinia Asperulæ* Fuck. Symb. p. 56, *Puccinia difformis* Kunze Mycol. Heft. I, p. 71, *Puccinia punctata* Link Observ. II, p. 80, *Puccinia Valantiae* Alb. et Schwein. Consp. p. 131 non Persoon, *Æcidium Galii* Pers. Syn. Fung. p. 207, *Cecoma Galii* Schlecht. Flor. Ber. p. 115, *Cecoma galiatum* Link Sp. II, p. 52, *Cecoma Galii* Link l. c. p. 21, *Uredo Galii* (Cast.) Berk. Outlin. p. 332 (sub *Trichobasi*), *Æcidium Valantiae* West. in herb., *Uredo Vaillantiae* West. Bull. Ac. Roy. belg. t. 21, n. 8. — Spermogoniis in soros parvos congregatis, melleis, conoideo-prominulis; æcidiis orbicularibus, simplici vel multiplici serie in maculis circularibus dispositis; pseudoperidiis breviter cylindraceis, margine albo, lacerato; æcidiosporis globosis vel late ellipticis, aurantiaco-flavis, 16-23 μ . diam., levibus; uredosporis in soros minutos, rufo-brunneos vel castaneo-brunneos collectis, globosis, ellipsoideis vel ovato-attenuatis, 22-30 $\approx$ 17-23, aculeolatis, dilute brunneo-aurantiacis; teleutosporis in soros lineares vel suborbiculares congestis, clavatis, ellipticis vel oblongis basi in pedicellum longiusculum, crassum attenuatis, apicem versus dilatatis, 30-56 $\approx$ 14-24, levibus, brunneis, medio leniter constrictis; pedicello teleutosporam æquante vel longiore, brunneolo, persistente.

Hab. in foliis caulibusque Galii cruciati, G. veri, G. A. parines, G. uliginosi, G. palustris, G. borealis, G. silvatici, G. Molluginis, G. lucidi, G. silvestris, G. Schultesii, G. triflori, G. purpurei, *Asperulæ* odoratæ et *Asp. cynanchicæ*, *Rubiæ* petiolaris, in Italia, Gallia, Germania, Arduennis, Belgio, Britannia, Fennia, Austria, Helvetia, in America boreali et prope Minussinsk Sibiriae asiaticæ.

2. **Puccinia Asparagi** DC. Flor. Franç. II, p. 595, Winter Pic Pilze 2147 p. 201, Schroet. Pilz. Schles. p. 314, *Æcidium Asparagi* Lasch in Kl. Herb. myc. n. 1179, *Uredo Asparagi* Lasch in Bot. Zeit. 1848. p. 509. — Spermogoniis melleis, parce congregatis; æcidiis ad caules secus series longitudinales dispositis; pseudoperidiis globosis vel cylindraceo-explanatis, margine albido, lacerato; æcidiosporis rotundato-polygoniis, 15-28 μ . diam., subtiliter verruculosis, aurantiaco luteis, episporio hyalino; uredosporis in soros cinnamomeo-brunneos, epidermide diu tectos, plano-compressos collectis, globosis vel ellipticis, 20-30 $\approx$ 17-25, subtiliter echinulatis, pallide brunneis; teleutosporis in soros pulvinatos, ovoideos vel oblongos,

vel lineares, plus minus expansos, atro-brunneos, plerumque caulinos rarius epiphyllous congestis, ellipticis aut elongato-clavatis, basi rotundatis, medio leniter constrictis, apice dilatato-rotundatis, 35-52 $\approx$ 17-26, levibus, castaneo-brunneis, pedicello longiusculo, brunneolo vel hyalino, persistenti.

- Hab.* in caulibus, cladodiis foliisque *Asparagi officinalis* in Italia, Gallia, Vogesis, Germania, Britannia, Arduennis, Hungaria, Austria, Suecia nec non prope Keren Abyssiniæ (PASSERINI).
3. **Puccinia Thesii** (Desv.) Chaill. in Duby Bot. Gall. II, pag. 889, Winter Die Pilze p. 202, Schroet. Pilz. Schles. p. 315, Massal. Ured. Veron. p. 37, t. III, f. XVII, 1-7, *Æcidium Thesii* Desv. in Journ. bot. II, p. 311, *Uredo Thesii* Duby Bot. Gall. II, p. 889, *Cecoma Thesii* Schlecht. Fl. Berol. II, p. 116, *Sphærotheca albescentis* Desv. in Journ. bot. II, p. 113. — *Æcidialis* in parvos greges dispositis, melleis; *æcidialis* foliiculis v. cauliculis, confertis; pseudoperidiis cylindræis, usque ad 750 μ . altis, margine erecto, albo, lacinulato; *æcidiosporis* polygoniis, sublevibus, 17-26 $\approx$ 12-17, aurantiaco-rufulis; *uredosporis* in soros e rufo cinnamomeo-brunneos, orbiculares, diu epidermide tectos, irregulariter sparsos congestis, globosis vel rarius oblongis, 19-28 μ . diam., subtiliter confertimque granulosi, dilute brunneo-aurantiacis; *teleutosporis* in soros epivel hypophyllos vel epicaulinos, globosos vel lineares, sparsos, sæpe confluentes, epidermide lacerata cinctos, atro-brunneos congestis, ellipticis vel ovoideis, basi rotundatis, medio leniter constrictis, apice rotundatis, 28-50 $\approx$ 14-28, levibus, castaneo-brunneis, pedicello 30-80 μ . longo, persistenti, brunneolo.

Hab. in foliis caulibusque *Thesii linophylli*, T. intermedii, T. montani, T. humifusi, T. ramosi, T. pratensis, T. alpini, T. ebracteati, T. rostrati, in Italia, Gallia, Belgio, Britannia, Austria, Germania. — ***P. Passerinii** Schroet. Ber. Schles. Ges. 1876, p. 37: *teleutosporis* mox sejungentibus, pedicello brevi, episporio verrucis hemisphæricis instructo. In *Thesii* foliis in Italia.

4. **Puccinia Calthæ** Link Sp. II, p. 79, Winter Die Pilze pag. 216, Schroet. Pilz. Schles. p. 315, *Puccinia elongata* Schroet. in Cohn Beitr. III, p. 61, *Æcidium Calthæ* Grev. Fl. Edin. p. 446, Cooke Handbook n. 1614, *Cecoma Calthæ* Link Sp. II, p. 32, *Cecoma Ranunculacearum* Schlecht. Flor. Ber. II, p. 113, p. p. *Uredo Calthæ* Rabenh. Krypt. Fl. I, p. 5. — *Spermogoniis* in parvos greges dispositis, melleis; *æcidialis* maculas orbiculares (in petiolis caulibusque

ellipticas) efformantibus; pseudoperidiis cylindraceo-explanatis, margine albido, laciniato; aëdiosporis angulato-subsphaeroideis, 20-30 μ . diam, subtiliter verrucosis, aurantiacis; uredosporis in soros circulares, sparsos, minutos, fuscos, per epidermidem fissam erumpentes congestis, globosis vel ellipticis, spinulosis, 23-30 $\approx$ 17-25, castaneo-brunneis; teleutosporis in soros amphigenos, sparsos, erumpentes, orbiculares vel irregulariter rotundatos, convexos, minutos, obscure fuscos congestis, clavato-oblongis vel globoso-ellipsoideis, utrinque attenuatis, leniter medio constrictis, 30-50 $\approx$ 13-25, apice subverruculosis, ceterum levibus, castaneo-cinnamomeis, pedicello teleutosporam subaequante, persistenti, hyalinulo.

Hab. ad folia *Calthae palustris*, in Italia, Belgio, Arduennis, Britannia, Germania, Fennia, pr. Patroschislowo, nec non in America boreali (Рёск).

5. **Puccinia Helianthi** Schwein. Syn. Carol. pag. 73, Schroet. Pilz. 2150 Schles. pag. 315, *P. Helianthorum* Schwein. Syn. North Amer. Fungi p. 296. — Spermogoniis melleis, in parvos greges dispositis; aëdiis orbicularibus vel in maculas late expansas oblongas congregatis, confertis; pseudoperidiis cylindraceo-planis, margine albo, lacinulato; aëdiosporis aurantio-rufis; uredosporis in soros minutos, rotundatos, castaneo-brunneos congestis, globosis, breviter ellipticis vel ovatis, 22-26 $\approx$ 17-22, parce minuteque aculeolatis, episorio subhyalino; teleutosporis in soros subrotundos, prominentes, sparsos, subinde gregarios, atro-brunneos vel nigros congestis, oblongo-ellipsoideis vel ovatis, basi rotundatis, melio leniter constrictis, 38-50 $\approx$ 20-27, levibus, obscure castaneo-brunneis, pedicello hyalino, plus minus persistenti, aequali vel teleutospora longiore.

Hab. in foliis *Helianthi tuberosi*, heterophylli, divaricati, annui, californici, in Italia, Silesia, Suecia et America boreali. — Sec. cl. Winter hæc species cum *P. Tanacetii* DC. est conjungenda.

6. **Puccinia evadens** Harkn. New. Calif. Fungi p. 14, *Coleosporium* 2151 *Baccharidis* C. et H. in Grevillea IV, p. 7. — Spermogoniis minutis, ovatis, pallidis, aëcidia præcedentibus; pseudoperidiis epicaulinis elongato-erumpentibus 1 cm. diam. aurantiis, pulverulentis; aëdiosporis concatenatis, demum liberis, ellipticis, subgranulatis 50 $\approx$ 20, flavis, levibus; uredosporis teleutosporis immixtis, globosis, flavis, levibus soris teleutosporiferis hypophyllis, paucis, solitariis, 0,2-1 mm. diam; pallide brunneis; teleutosporis oblongis

vel ovatis, aureo-flavis, medio constrictis, levibus, episporio vertice crassiusculo, intus granulosis vel oleosis, 55-60 $\approx$ 15-20, pedicello hyalino, firmo, teleutosporam subæquante.

Hab. in foliis, caulibus ramulisque vivis Baccharidis pilularis, San Francisco Californiæ.

7. **Puccinia obtusa** Schroet. in Abhand. Schles. Gesellsch. 1869, p. 13, Pilz. Schles. p. 316, Winter Die Pilze p. 203. — Spermogoniis melleis, in greges plus minus late expansos dispositis; æcidiis in maculas orbiculares, (in nervis foliorum et petiolis elongatas) confertim dispositis; pseudoperidiis cylindraceo-explanatis, margine albo, laciniato; æcidiosporis irregularibus, subtiliter punctulatis, 17-26 μ . diam., aurantio-flavis; uredosporis in soros minutos, rotundatos, obscure brunneos, mox denudatos, plerumque solitarios congestis, globosis vel piriformibus, 19-28 μ . diam., aculeolatis, dilute brunneis; teleutosporis in soros rotundatos sæpius confluentes, atro-brunneos stipatis, ellipticis vel ovoideis, inferne apiceque rotundatis, medio leniter constrictis, 33-52 $\approx$ 18-30, levibus, cinuamomeo-brunneis, apice plerumque incrassatis, pedicello hyalino, deciduo, teleutosporam æquante vel longiore.

Hab. in foliis præcipue ad inferiorem paginam Salviæ verticillatæ, in Horto Patavino Italiæ, in Germania, Austria nec non in America boreali.

8. **Puccinia Gentianæ** (Strauss) Link Sp. II, p. 73, Winter Die Pilze p. 205, Schroet. Pilz. Schles. pag. 316, *Uredo Gentianæ* Strauss Wetter. Annal. II, p. 102 (1811). — Spermogoniis melleis, in parvos greges dispositis; æcidiis orbicularibus vel in maculas oblongas distributis; pseudoperidiis explanato-cyathiformibus, margine albido, obtuse laciniato; æcidiosporis 16-23 $\approx$ 14-17, polygoniis, subtiliter verrucosis, aurantiacis; uredosporis in soros sparsos vel orbiculatim dispositos, minutos, primo epidermide vesiculosa tectos, dilute castaneo-brunneos congestis, ellipsoideis vel ovatis, 20-30 $\approx$ 17-24, aculeolatis, brunneolis; teleutosporis in soros parvos, atro-brunneos, epidermide primo bullata tectos, confertis, ellipticis v. ovoideis, utrinque late rotundatis, medio parum vel non constrictis, 28-38 $\approx$ 20-26, levibus, castaneo-brunneis, pedicello hyalino, molli, mox deciduo.

Hab. in foliis calycibusque Gentianæ acaulis, G. cruciatæ, G. asclepiadæ, G. Pneumonanthes, G. Andrewsii, G. puberulæ, G. ciliatæ, G. firmæ, G. utriculosæ, G. ad-

scendentis, in Italia, Gallia, Helvetia, Germania, in America boreali et pr. Minussinsk Sibiriae asiaticæ (Thümen).

1. **Puccinia Silenes** Schroet. in Thümen Myc. Univ. n. 635 (sub nomine *P. Behenîs*), Pilz. Schles. p. 317, Winter Die Pilze p. 215, Massal. Ured. Veron. p. 44. t. III, f. XIX, 1-4, *Puccinia Lychnidearum* Fuck. Symb. p. 50, p. p., *Æcidium Behenîs* DC. Flor. Franç. VI, p. 94, *Uredo Behenîs* DC. l. c. p. 63, *Cavoma Behenîs* Link Sp. II, p. 27. — Spermogoniis in parvos greges dispositis, melleis; æcidiiis plerumque in greges (aut maculas viridulas flavasve) parvos, orbiculares, congestos distributis; pseudoperidiis minutissimis, breviter cylindræcis, margine albo, laciniato; æcidiosporis polygoniis, subtiliter granulatis, 17-26 $\approx$ 14-20, a urantiaco-flavis; uredosporis in soros minutos, sparsos vel orbiculatim distributos, cinnamomeo-brunneos, sæpe confluentes congestis, ellipticis v. ovoideis, 19-26 $\approx$ 17-22, aculeolatis, dilute brunneis; teleutosporis in soros maculiformes, parvos, sæpius confluentes, obscure brunneos congestis, ellipticis vel ovatis, utrinque rotundatis, medio vix constrictis, 25-40 $\approx$ 16-25, levibus, castaneo-brunneis, pedicello brevi, hyalino.

Hab. in foliis caulibusque vivis languidisve *Silenes inflatæ*, nutantis et repentis et *Melandryi albi*, in Italia, Gallia, Belgio, Germania, Britannia et Helvetia nec non prope lacum Kyskul Sibiriae asiaticæ.

0. **Puccinia Porri** (Sow.) Wint. Die Pilze pag. 200, Schroet. Pilze Schles. p. 317, *Puccinia mixta* Fuck. Symb. pag. 58, *Puccinia Graminis* var. *Junci* Alb. et Schwein. Consp. p. 133, p. p. *Uredo Porri* Sow. Engl. Fungi t. 411, *Uredo ambigua* DC. Fl. Franç. VI, p. 64, *Uredo Alliorum* DC l. c. p. 82, p. p. *Uredo areolata* Rabenh. Krypt. Fl. I, p. 9, *Cavoma Scorodizon* Schlecht. Fl. Berol. II, p. 118, *Erysibe areolata* Wallr. — Æcidiiis plerumque uniseriatis, orbiculatim in maculis circularibus v. oblongis dispositis, pseudoperidiis subcylathiformibus, margine albo, lacerato; æcidiosporis polygoniis, 19-28 μ . diam., subtiliter verrucosis, aurantiaco-flavis, episporio hyalino; uredosporis in soros minutos, rufescentes, sparsos v. plus minus regulariter secus series ellipticas v. lanceolatas distributos epidermideque bullato-rupta primo tectos congestis, globosis vel ellipsoideo-sphæroideis, subtilissime aculeolatis, 20-33 $\approx$ 18-27, dilute aurantiacis, episporio hyalino; teleutosporis in soros explanatos, dilutius epidermide tectos, fuscis maxima ex parte solitarios congestis, dimorphis, aliis eseptatis, obovatis, 25-36 $\approx$ 15-23, subsessilibus, fuscis, aliis uniseptatis, clavatis, 28-45 $\approx$ 20-26,

pedicellatis, castaneo-brunneolis, levibus, pedicello elongato, gracili, mox deciduo.

Hab. in foliis Allii Porri, A. fistulosi, A. Cepæ, A. Schœnoprasi, A. sibirici, A. palustris, A. acutanguli, A. sativi, A. Ophioscorodoni, A. rotundi, A. sphaerocephali, A. Scorodoprasi, A. carinati, A. flavi, A. Stelleriani, in Italia, Germania, Fennia, Gallia et Britannia.

11. **Puccinia Cirsii-lanceolati** Schroet. Krypt. Fl. Schles., Pilze p. 317.

— Æcidiiis in parvos greges congestis; pseudoperidiis laxè connexis, late poculiformibus; æcidiosporis ellipticis, dilute aurantiaco-rufis, episporio subtiliter verrucoso hyalinoque prælitis; urelosporiorum in soros minutos, rotundatos, castaneo-brunneos congestis, globosis, ellipticis vel ovatis, 24-30 $\approx$ 20-25, aculeolatis, brunneis, latere poris 3 germinationis instructis; teleutosporis in soros uredosporiarum v. in soros proprios atro-brunneos congestis, ellipticis, deorsum rotundatis vel parum attenuatis, medio vix vel non contractis, 33-42 $\approx$ 22-26, episporio sordide castaneo-brunneo instructis, levibus.

Hab. in Cirsio lanceolato in Silesia Germaniæ. — Adest etiam *Puccinia* in Cirsio lanceolato et arvensi ex America boreali sub nomine *P. Cirsii* Lasch exhibitâ.

12. **Puccinia Prenanthis** (Pers.) Fuck. Symb. p. 45, Winter Die Pilze

p. 208, Schroet. Pilz. Schles. p. 318, *Puccinia Hieracii* var. b. Mart. Fl. Mosq. p. 226 p. p., *Puccinia Chondrillæ* Corda Icon. IV, p. 15, *Æcidium Prenanthis* Pers. Syn. Fung. p. 208, *Uredo flosculosorum* Alb. et Schwein. Consp. p. 128, p. p. *Uredo maculosa* Strauss Wett. Annal. II, p. 101, *Ceoma formosum* Schlecht. Fl. Berol. II, p. 127, *Ceoma Compositarum* Link in Linn. Sp. plant. VI, 2, p. 50, p. p. *Uredo Prenanthis* Schum. Saell. p. 232, *Æcidium Lactuce* Opiz Sezmæ p. 111, *Puccinia Cichorii* Bell. in Kickx Fl. Fland. II, p. 65, *Æcidium Taraxaci* K. et S. Myk. Heft. I, p. 85, *Uredo Cichorearum* DC. Fl. Fr. II, p. 229. — Spermogoniis in parvos greges dispositis, melleis, æcidiiis in maculis orbicularibus vel lineari-elongatis, pseudoperidiis nullis; æcidiosporis irregulariter globosis vel polygoniis, rarius oblongis, pallide aurantiaco-flavis, verrucosis, 15-26 $\approx$ 12-20; uredosporis in soros sparsos vel irregulariter aut orbiculatim distributos, minutos, plerumque rotundatos, dilute brunneolos, diu epidermide tectos congestis, globosis, 17-22 μ . diam., ochraceis, subtiliter aculeolatis, ad poros incrassatis; teleutosporis in soros parvos, rotundatos, ellipti-

eos vel lineares, diu epidermide tectos, demum nudos, atro-brunneos congestis, ellipticis vel ovoideo-oblongis, utrinque rotundatis vel sursum explanatis, medio leniter vel non constrictis, 26-44 $\approx$ 17-26, subtiliter muriculatis, brunneis, pedicello brevi, hyalino, gracillimo, deciduo.

Hab. in foliis *Prenanthis purpureæ*, *P. muralis*, *Lactuæ virosæ*, *L. Scariolæ*, *L. vimineæ*, *L. muralis*, *L. strictæ*, *L. sagittatæ*, *L. perennis*, *Mulgedii alpini*, *Chondrillæ junceæ*, *Hypochæridis glabræ*, *maculatæ*, *Cichorii Intybi*, *Taraxaci officinalis*, in Italia, Germania, Belgio, Austria, Helvetia, Bohemia, in Australia et Sibiria asiatica.

13. **Puccinia Lampsanæ** (Schultz.) Fuck. Symb. p. 53, Schroet. Pilz. 2158

Schles. p. 318, *Æcidium Lampsanæ* Schultz. Fl. Starg. p. 54. — Spermogoniis in greges parvos rotundatos v. lineares, elongatos confertis, melleis; æcidiiis in maculis purpureis, orbicularibus v. linearibus, sæpe late expansis subconfertim distributis; pseudoperidiis explanatis, margine albo, plurilaciniato, reflexo; æcidiosporis ovatis, 17-20 $\approx$ 17, sublevibus, e rufo aurantiaco-flavis; uredosporis in sorulos rotundatos, castaneo-brunneos, sæpius confluentes congestis, plerumque globosis vel ellipticis vel ovatis, 17-22 $\approx$ 15-17, subtiliter aculeolatis, dilute brunneis; teleutosporis in soros minutos, sparsos, obscure brunneos congregatis, breviter ellipticis aut ovatis, utrinque rotundatis, medio non vel vix constrictis, 22-30 $\approx$ 17-22, subtilissime punctatis, castaneo-fusculis, pedicello hyalino, gracili.

Hab. in foliis *Lapsanæ communis* et *Crepidis paludosæ*, in Germania, Gallia, Belgio.

14. **Puccinia Crepidis** Schroet. Krypt. Fl. Schles. Pilze pag. 319. — 2159

Spermogoniis insimul confertis, per totam foliorum superficiem inter æcidia sparsis; æcidiiis confertis, æque per totam paginam inferiorem (plerumque omnium foliorum plantæ matricis) expansis; pseudoperidiis explanatis, margine albo, sublevi; æcidiosporis globosis, 15-17 μ . diam., aurantiacis; uredosporis in soros rotundatos, minutos, cinnamomeo-brunneos congestis, globosis, ellipticis v. ovatis, 20-25 $\approx$ 16-20, aculeolatis, dilute brunneis; teleutosporis in soros parvos, diu epidermide tectos congestis, ellipsoideis vel ovoideis, utrinque rotundatis, medio parum vel non constrictis, 20-30 $\approx$ 17-22, subtilissime punctatis, castaneo-fusculis, pedicello hyalino, valde gracili.

Hab. in foliis *Crepidis virentis* et *Crepidis tectorum*

in Silesia Germaniæ. — Huc pertinere videtur *Puccinia Crepidis* Rostrup Svampe fra Finnmarken p. 230 ex Finnmarkia.

15. **Puccinia Crepidis-pygmææ** Gaillard in Bull. Soc. Myc. Fr. tom. III, p. 183. — Pseudoperidiis epiphyllis, rarius hypophyllis, cupuliformibus, margine dentatis, albis, in greges circulares, 4-5 mm. latos congestis; maculis hypophyllis, decoloratis; æcidiosporis globulosis vel angulatis, 16-18 μ . diam., striatis, hyalinis vel vix flavescenscentibus, guttulatis; soris uredosporiferis epiphyllis, sparsis, minutis, atro-brunneis, primo subepidermicis; uredosporis globosis, 19-21 μ . diam., brunneis, subtiliter echinulatis; soris teleutosporiferis epiphyllis, minutis, 1-2 mm. diam., atro-brunneis; teleutosporis obtusis vel mucronulatis, ovoideis, brunneis, ad septum constrictis, levibus, episporio ubique æquicrasso, 24-27 $\approx$ 18; pedicello brevissimo, hyalino.

Hab. in foliis *Crepidis pygmææ*, in M. Pyrenæis Galliæ. — «An satis a præcedente diversa?»

16. **Puccinia Œdipus** Cooke in Grevillea X, p. 126, *Æcidium Senecionis* Desm. forma *capensis* Cooke l. c. — *Æcidiiis* iis *P. conglomeratæ* similibus; soris uredosporiferis fuscis; uredosporis globosis, 38 μ . diam., læte brunneis, spinulosis; soris teleutosporiferis hypophyllis, sparsis, minimis, atris; teleutosporis ellipticis, castaneo-brunneis, sublevibus, ad medio constrictis, 50 $\approx$ 35, pedicello hyalino, subcrasso, 70 μ . longo fultis.

Hab. in foliis *Senecionis pandurifolii*, Inanda Nataliæ (Wood).

17. **Puccinia Epilobii** DC. Flor. Franc. VI, p. 61, Winter Die Pilze p. 214 (*P. Epilobii-tetragoni*), Schroet. Pilz. Schles. p. 319, *Puccinia pulverulenta* Grev. Fl. Edinb. p. 432 *Trichobasis Epilobii* Berk. Outl. p. 333 p. p., *Æcidium Epilobii* DC. Fl. Franc. II, p. 238. — *Spermogoniis* inter *æcidia* sparsis, melleis; *æcidiiis* per totam foliorum superficiem æque sparsis confertisque; pseudoperidiis explanatis, margine albo, obtusiusculo; *æcidiosporis* polygoniis, subtilissime verrucosis, 16-26 μ . diam., aurantiaco-flavis; uredosporis in soros rotundatos sæpius orbiculatim dispositos, castaneo-brunneos congestis, ellipticis vel ovoideis, 19-28 $\approx$ 14-24, aculeatis, dilute castaneis; teleutosporis in soros obscure brunneos, sæpius annulato-maculiformes congestis, uredosporis conformibus, utrinque rotundatis, medio leniter constrictis, 24-35 $\approx$ 16-20, levibus, brunneo-fusculis; pedicello gracili, hyalino, deciduo.

Hab. in foliis *Epilobii tetragoni*, alpini, montani,

hirsuti, angustifolii, glandulosi, rosci, palustris, parviflori, adnati, virgati, Fleischerei, origanifolii etc. nec non Cœnotheræ biennis, Isnardiæ alternifoliæ et Ludwigiae speciei, in Italia, Gallia, Britannia, Germania, Belgio, Austria, Helvetia, Arduennis, Nova Semlia, Scandinavia, America boreali et Sibiria asiatica.

8. **Puccinia Violæ** (Schum.) DC. Fl. Franç. VI, p. 92, Winter Die Pilze pag. 215, Schroet. Pilz. Schles. pag. 319, *Æcidium Violæ* Schum. Fl. Saell. II, p. 224, *Uredo Violarum* DC. l. c. p. 73, *Puccinia Violarum* Link Sp. II, p. 80, *Trichobasis Violarum* Lév., *Æcidium argentatum* Schultz. Fl. Starg. p. 454 p. p., *Cœoma rivosum* Link Observ. II, p. 27, *Æcidium Violarum* Desm. — Spermogoniis in parvos vel magnos greges dispositis, confer-tis, flavo-melleis; æcidiis in omnibus partibus viridibus plantæ nutriticis, plagulas (in caulibus) usque ad 7 cm. longas, maculas (in foliis) flavescentes vesiculosas efformantibus; pseudoperidiis expla-natis, margine albo, revoluti, lacinulato; æcidiosporis verruculo-sis, subaurantiacis, 16-24 $\approx$ 10-18; uredosporis in soros hypophyl-los, sparsos vel orbiculatim distributos, cinnamomeos aut fuscus, minutos, epidermide fissa cinctos congestis, subsphæroideis vel el-lipticis, 21-26 $\approx$ 17-23, aculeolatis, fuscidulis; teleutosporis in so-ros hypophyllos, maculæ flavescenti gregatim insidentes, epidermi-de diu tectos, minutos, sordide fuscus, congestis, ellipticis vel ob-longo-ovoideis, utrinque rotundatis, medio vix vel non constrictis, 20-35 $\approx$ 15-20, levibus, vertice apiculo verruciformi, hyalino orna-tis, brunneis, pedicello plus minus evoluti, deciduo.

Hab. in caulibus, ramis, petiolis, foliis etc., *Violæ* tricoloris, caninæ, silvaticæ, Patrini, arenariæ, odoratæ, pubescentis, pinnatæ, silvestris, hirtæ, collinæ, scia-philæ, albæ, magellanicæ, stagninæ, strictæ, mirabi-lis, calcaratæ, sepincolæ, Rivinianæ et cornutæ, in Italia, Germania, Austria, Helvetia, Belgio, Gallia, Britannia, Fen-nia, in America boreali in Patagonia et in Sibiria asiatica. — Cl. Karsten teleutosporas 32-42 $\approx$ 15-17 indicat.

19. **Puccinia Ferulæ** Rud. in Linnæa IV, p. 513, Winter Die Pilze 2164 p. 211, *Cœoma* (*Æcidium*) *cylindricum* Rud. l. c. p. 512, *Æcidium albidum* Bonord. forma *Ferulaginis-galbaniiferæ* Speg. Dec. myc. n. 35, *Ceratitium crenulatum* Rabenh. in Bot. Zeitung. 1851, p. 452. *Æcidium Ferulæ* Rouss. et Dur. Fl. d'Algérie I, p. 306? — Pseudo-peridiis confertis, longe seriatis, cylindræis, usque ad 1,5 mm. lon-

gis, albis, margine dentato aut crenulato, erecto; æcidiosporis rotundatis vel angulatis, 16-28 $\approx$ 10-20, pallide aurantio-flavis; soris utriusque formæ sparsis, oblongis aut ellipticis, epidermide vesiculosa, dein lacerata tectis; uredosporis plerumque piriformibus, rarius irregulariter rotundatis vel oblongis, 20-35 $\approx$ 14-23, levibus, flavis; teleutosporis ellipsoideis aut oblongatis, apice sive rotundatis et tum haud incrassatis, sive papilla lata, compressa præditis, medio vix vel haud constrictis, 28-45 $\approx$ 17-28, levibus, brunneis, pedicello longiusculo, crasso fultis.

Hab. in foliis petiolisque Ferularum imprimis Ferulaginis galbaniferæ, in Italia et Germania nec non in Algeria (TRABUT).

20. **Puccinia Bupleuri** (Opiz?) Rud. in Linnæa IV, p. 514, *Æcidium Bupleuri* Opiz Sezm. p. 111? sec. Fuckel, *Puccinia Bupleuri-falcati* Wint. Die Pilze p. 212 *Æcidium Falcarie* var. *Bupleuri-falcati* DC. Flor. Franç. VI, p. 91. — Epiphylla vel caulicola; æcidiiis æqualiter per totam foliorum superficiem sparsis; pseudoperidiis cupulatis, margine albo, revoluti, lacinulato; æcidiosporis polygoniis, 14-21 μ . diam., sublevibus, flavis; soris utriusque formæ sparsis vel orbiculariter dispositis, minutis, rotundatis aut irregularibus; uredosporis papillosis, irregulariter globosis, 17-23 μ . d., flavo-brunneis; teleutosporis late ellipticis aut oblongis, apice non vel paullulum incrassatis, plerumque utrinque rotundatis, medio levissime constrictis, 26-42 $\approx$ 17-30, levibus, brunneis, pedicello longo, deciduo instructis.

Hab. in foliis Bupleuri aristati, tenuissimi, Gerardi, falcati, stellati, longifolii et protracti, in Italia, Austria, Germania, Bohemia et Gallia nec non in America boreali (ad Osmorrhizam?), et Yunnan in regione sinensi (PATOILLARD). — «Forte specimina ad Osmorrhizam potius ad *P. Pimpinella* referenda videntur atque errore ut *P. Bupleuri* determinata».

21. **Puccinia Convolvuli** (Pers.) Cast. Obs. I, p. 16, Cat. pag. 202, Winter Die Pilze p. 204, *Uredo Betae* var. *Convolvuli* Pers. Syn. p. 221, *Æcidium Calystegiae* Desm. in Ann. Scienc. nat. 1847, p. 14, *Æcidium dubium* Clint. in Peck 27 Rep. p. 104, *Uredo Convolvuli* Str. in Ann. Wett. II, p. 96, *Æcid. Convolvulacearum* Ces. in Klotzsch Herb. n. 1492, *Æcidium Convolvuli* Sacc. Mich. I, p. 12. — Spermogoniis minutis, innatis, paucis, subhyalinis; æcidiiis plus minus orbiculariter dispositis, hypophyllis, maculis parvis, distinctis vel confluentibus, brunneis vel purpurascentibus; pseu-

doperidiis cupulatis, minutis, confertis, margine albo, pluries laciniato, lato; æcidiosporis subglobosis vel angulatis, 16-26 μ . d., tuberculatis, pallide flavescentibus; soris uredosporiferis irregulariter aut secus orbem dispositis, sæpe confluentibus, mox nudis, brunneolis; uredosporis plerumque globosis, subinde ellipticis vel ovoideis, 21-30 $\approx$ 18-26, aculeatis, dilute brunneis; soris teleutosporiferis conformibus at diu epidermide grisea tectis sæpeque confluentibus; teleutosporis oblongis, oblongo-clavatis vel ellipsoideis, apice obtusis vel rotundatis et incrassatulis vel plus minus angustatis valdeque incrassatis, medio leniter constrictis, basi rotundatis vel in pedicellum attenuatis, 38-66 $\approx$ 20-30, levibus, obscure brunneis; mesosporis intermixtis, ut plurimum ovoideis, 26-35 $\approx$ 21-26, brunneis.

Hab. in foliis *Convolvuli arvensis* et *sepium*, in Italia, Gallia, Austria, Germania, Lusitania et America boreali. — Huc forte pertinet *Uromyces Calystegiae* (De Bary) Fuck. Symb. p. 63.

2. **Puccinia tuyutensis** Speg. Fungi Argentini pug. IV, n. 67, *Æcidium tuyutense* Speg. F. Arg. pug. IV, n. 99, *Uredo tuyutensis* Speg. l. c. — Caulibus et foliis infectis ex toto incrassato-carnosis, flavescentibus; pseudoperidiis hypophyllis v. cauliculis totum folium occupantibus, laxe gregariis primo tectis hemisphærico-prominulis, dein erumpentibus, margine libero, revoluti, fimbriatulo, albescente, (0,2-0,3 cm. diam.), contextu cellulis sphærico-angulosis, tunica crassa, peripherice dense et grosse radiatim striolata, hyalinis composito; æcidiosporis sphæroideis e mutua pressione obtuse angulosis, episporio hyalino, tenui, levi, protoplasmate granuloso, oleoso, aurantiaco fœtis, 22-25 μ . diam; soris uredosporiferis illis status teleutosporici commixtis atque simillimis; uredosporis globosis v. ovoideis (22-24 μ .), episporio tenui vix sursum incrassato, levissimo, protoplasmate granuloso faretis, non v. 1-guttulatis, intense fuligineis; soris teleutosporiferis amphigenis vel cauliculis semper tectis, matrice immersis, applanatis, aterrimis (excrementa muscarum simulantibus) orbicularibus, minutis, 2-3 mm. diam., gregariis et sæpe confluentibus; teleutosporis ellipticis vel obovatis, sursum obtuse rotundatis, medio 1-septato-constrictis, episporio levissimo, ubique tenui, protoplasmate granuloso-faretis, 32-38 $\approx$ 22-28, intense fuligineis, pedicello parvulo, 15-20 $\approx$ 5, hyalino fultis.

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Hab. ad folia caulesque viva *Evolvuli falcati*, ad ripas Lagunæ salsæ «Gran laguna de Luro» dictæ, Tuyu Americæ australis.

23. **Puccinia Adoxæ** Hedw. in DC. Flor. Franç. II, p. 220, Winter Die Pilze p. 211, Schroet. Pilze Schles. p. 320, *Æcidium albescens* Grev. Flor. Edinb. p. 444, *Puccinia Saxifragarum* Link in Linn. Sp. plant. VI, 2, p. 81, p. p., *Uredo Adoxæ* Auersw. in Klotzsch Herb. myc. n. 1187. — Spermogoniis inter *Æcidia* sparsis, melleo-flavis; æcidiis per totam plantam æque sparsis expansisque, confertis; pseudoperidiis breviter cylindraceo-explanatis, albidis, margine pauci-lateque dentato; æcidiosporis polygoniis, granulosis, 15-22 μ . diam., aurantiaco-hyalinulis; uredosporis in soros parvos, sparsos, rotundatos, cinnamomeos, diu epidermide tectos congestis, difformibus, 20-32 $\approx$ 16-20, aculeolatis, dilute brunneis; teleutosporis soros minutos, rotundatos vel ellipticos, in foliis orbiculatim ordinatos, in caulibus seriatos efformantibus, ellipticis, ovatis vel subfusoides, 30-45 $\approx$ 14-23, apice papillula elongata, pallidiori instructis, castaneo-brunneis, levibus.

Hab. in foliis, caulibus etc. *Adoxæ Moschatellinæ*, in Germania, Austria, Helvetia, Belgio et Britannia, nec non in America boreali.

24. **Puccinia Lagenophoræ** Cooke in Grevillea XIII, p. 6. — *Æcidiis* epiphyllis, maculis nullis; pseudoperidiis sparsis, semiimmersis, lacerato-marginatis, albis; æcidiosporis globosis, 12 μ . diam.; soris uredosporiferis sparsis, minimis, pulverulentis, fuscis vel sequentibus immixtis; uredosporis globosis, 20 μ . diam., fuscis, episporio asperulo; soris teleutosporiferis epiphyllis, sparsis, atro-fuscis, subpulverulentis, teleutosporis clavatis, medio constrictis, fuscis, loculo supero obscuriore, obtuso, subgloboso, episporio incrassato, levi, loculo infero in pedicellum brevem attenuato, 40-45 $\approx$ 20.

Hab. in foliis vivis *Lagenophoræ Billardieri*, pr. Omeo Australiæ.

25. **Puccinia Primulæ** (DC.) Duby Bot. Gall. II, p. 89, Winter Die Pilze p. 203, *Uredo Primulæ* DC. Fl. Franç. VI, p. 68, *Æcidium Primulæ* DC. l. c. VI, p. 90, *Cecoma Primularum* Link Sp. II, p. 12. — Pseudoperidiis hypophyllis, solitariis, sparsis vel aggregatis, urceolatis, albidis; æcidiosporis angulatis, 17-23 $\approx$ 12-18, verruculosi, flavescentibus; soris uredosporiferis tandem per epidermidem erumpentibus, aggregatis, suborbicularibus v. ellipsoideis, fuscis; uredosporis ovoideo-rotundatis, 19-22 μ . diam., aculeatis, pallide brunneis; soris teleutosporiferis hypophyllis, epidermide cinerescenti diu tectis, ut plurimum suborbicularibus, planis, solitariis, sparsis vel gregariis, subinde confluentibus, minutis, atro-fuscis; teleutosporis

ovoideo-ellipsoideis, ad septum plus minus constrictis, flavis, subsessilibus 22-30 $\approx$ 15-18 levibus, brunneis, apice late incrassatis.

Hab. in foliis petiolisque Primularum, in *Primula sibirica*, acauli, elatiore, officinali, grandiflora, in Gallia, Belgio, Britannia, Helvetia, Germania et Fennia.

3. **Puccinia Cephalandræ** Thüm. in Flora 1876, p. 425, *Uredo do-* 2171
lichospora Kalchbr. mscr., *Uredo Cephalandræ* Thüm. l. c., *Æcidium Cephalandræ* Cooke in Grevillea XIII, pag. 6. — *Æcidii* hypophyllis; maculis orbicularibus, 1-3 mm. diam. fuscis; pseudo-peridiis (4-6 vix ultra), albidis, semiimmersis, leniter fimbriatis, æcidiosporis flavidis; soris mesosporiferis hypophyllis, sparsis, liberis, parvis, orbiculatis, detergibilibus, ferrugineis, epidermide cinctis; uredosporis piriformibus vel ellipsoideis, utrinque subacutatis angustatisve vel raro vertice rotundatis, simplicibus, 36-42 $\approx$ 18-26, episporio levi subcrasso, dilute griseo-fuscidis; soris teleutosporiferis hypophyllis, sparsis, applanatis, orbiculatis, umbrinis, liberis; teleutosporis ovatis vel ellipsoideis, medio obsolete constrictis, vertice non incrassato sed apiculato, apiculo pallide fuscescente, 8 μ . longo, episporio tenui, levi, in constrictionibus crassiore, granuloso, pedicellatis, pedicello tenui, curvato v. recto, hyalino, longitudine teleutosporam æquante v. longiore, usque ad 52 μ . longo, impellucidis, fuscis, 42-45 (sine apice pedicelloque) $\approx$ 36; paraphysibus nullis; uredosporis ovato-oblongis in iisdem soris, 45 $\approx$ 20, levibus.

Hab. in foliis vivis fructibusque *Cephalandræ* quinquelobæ et palmatæ, ad latera montis «Boschberg» et pr. Somerset East Africæ australis (MAC OWAN) et ad Natal (WOOD).

7. **Puccinia Swertiæ** Winter Die Pilze pag. 205, *Æcidium Swer-* 2172
tiæ Opiz Seznam, pag. 111. — *Æcidii* irregulariter aggregatis, in macula flavescente insidentibus, urceolatis, margine erecto, leniter dentato; æcidiosporis angulatis, 19-28 μ . diam., verrucosis, flavis; soris utriusque formæ in maculis flavo-pallidis insidentibus, rotundatis vel irregularibus, sparsis vel orbiculariter dispositis, simul confluentibus, diu tectis, atro-brunneis; uredosporis rotundatis, 19-26 μ . diam., subtiliter punctatis, dilute brunneis; teleutosporis ellipsoideis, raro oblongis, utrinque rotundatis, apice haud incrassatis, 30-48 $\approx$ 20-30, levibus, castaneo-brunneis, pedicello longiusculo deciduo.

Hab. in foliis *Swertiæ* perennis, in Germania et Bohemia

Dubium manet, suadente cl. Winter, an huc revera *Æcidium* prædictum pertineat.

28. **Puccinia Aristolochiæ** (DC.) Wint. Die Pilze p. 201, *Uredo Aristolochiæ* DC. Flor. Franç. VI, p. 67, *Puccinia Aristolochiarum* Corda Icon. Fungi IV, p. 16, t. 4, f. 56, *Æcidium Aristolochia* Rabenh. DC. Fl. n. 146, *Cæoma Aristolochiæ* Schlecht. in Linnaea I, pag. 610, *Cæoma Aristolochiatum* Link Sp. II, pag. 43 — *Æcidii*s plerumque æque diffusis, rarius ad nervos folii congestis; pseudoperidiis hemisphæricis, albidis, apice osculo minuto rotundato apertis; æcidiosporis polygoniis, subrotundatis, 30 $\approx$ 17-23, verrucosis, flavis; soris uredosporiferis minutis, rotundatis vel oblongis, sparsis, mox nudis; uredosporis irregulariter globosis 24-26 μ . diam., levibus, flavescentibus; soris teleutosporiferis similibus, sparsis vel orbiculatim dispositis, diu tectis; teleutosporis plerumque breviter ellipticis, raro oblongis, utrinque rotundatis vel ad pedicellum attenuatis, medio vix constrictis, apice non vel paululum incrassatis, 30-44 $\approx$ 19-28, castaneo-brunneis, levibus, pedicello brevi, deciduo suffultis.

Hab. in foliis caulibusque Aristolochiæ rotundæ, Clematidis et pallidæ, in Italia, Gallia et Germania.

29. **Puccinia ægra** Grove in Journal of Botany 1883, p. 274. *Æcidium depauperans* Vize in Gard. Chron. 1876, pag. 175 et 361, f. 72, On *Æcid. depauperans* p. 437 cum tabula. — Maculis nullis; pseudoperidiis sparsis, primo rotundatis, demum oblongis (in caulibus parallelis), margine revolutis, albo; æcidiosporis globosis vel oblongis, angulatis, 17-21 $\approx$ 14-16, levibus, aurantio-flavis; soris uredosporiferis numerosis, punctiformibus, amphigenis, macula flavâ, majuscula, sparsis vel gregariis, rotundatis, convexulis, epidermide argenteo-nitente, persistenti tectis; uredosporis ellipticis vel obovatis, 28-30 μ . circ. longis, subtiliter echinulatis, brunneis; soris teleutosporiferis conformibus; teleutosporis ellipticis, oblongis vel rotundatis, valde irregularibus, basi apiceque rotundatis vel angustatis, subinde truncatis, haud constrictis, 22-30 $\approx$ 18-24, levibus, obscure brunneis.

Hab. in foliis caulibusque Violarum imprimis *V. cornutæ*, in Britannia.

30. **Puccinia Myrsiphylli** (Thüm.) Wint. in Flora 1884, n. 14, *Uredo Myrsiphylli* Thüm. in Flora 1877, p. 410, *Æcidium Myrsiphylli* Kalchbr. mser. — Pseudoperidiis hypophyllis, maculae flavæ insidentibus, circinatim congestis, semiimmersis, urceolatis, margine subin-

tegro; soris uredosporiferis hypophyllis, sparsis, pro maxima parte solitariis, mediis, tectis, concavis, dilute flavidis, in macula magna, indeterminata, exarida straminea; uredosporis magnis, ellipsoideis, episporio subcrasso, granuloso, inæquali, $34-40 \approx 26-30$, pallidissime luteis; paraphysibus nullis; soris teleutosporiferis cauliculis, tectis, demum epidermidem longitudinaliter rumpentibus at semper ab ea velatis, strias longas, confluentes, atro-cinereas efformantibus; teleutosporis oblongis vel oblongo-cuneatis, apice plus minusve incrassatis, rotundatis, acuminatis truncatisve, levibus, $43-70 \approx 17-28$, fuscis, pedicello brevi, fragili, hyalino vel pallide fusciscenti suffultis; paraphysibus numerosis, cylindraceis, fuscis, arcte cohærentibus et stroma quasi formantibus.

Hab. in foliis caulibusque vivis *Myrsiphylli* falciformis et medioloidis, prope Somerset East et Port Natal Africæ.

31. **Puccinia Cookei** De-Toni, *Puccinia Tabernæmontanæ* Cooke in 2176
Grevillea X, p. 125, vix Berk. et Broome. — *Æcidiis* hypophyllis, orbicularibus; pseudoperidiis circinatis, arcte apertis (vix maturis); uredosporis magnis, ellipticis ovatisve, pallidis, $40-42 \approx 30$, episporio asperulo donatis; soris teleutosporiferis pallidis; teleutosporis ellipticis, medio valde constrictis, sublevibus, $45-48 \approx 30$, breviter pedicellatis.

Hab. in foliis *Tabernæmontanæ* ventricosæ, Inanda Africæ (Wood).

32. **Puccinia Thunbergiæ** Cooke in Grevillea X, pag. 125, *Æcidium* 2177
Thunbergiæ Cooke l. c. — *Æcidiis* hypophyllis, in maculis orbicularibus congestis; pseudoperidiis semiimmersis, fimbriatis; uredosporis subglobosis, fuscis, $18-20 \mu$. diam., episporio sublevi; soris teleutosporiferis compactis, convexis, rugosis, purpureo-fuscis; teleutosporis elongato-ellipticis, $42 \approx 18$, supra apiculatis, pallide-flavidis, episporio levi, tenui, ad apicem incrassato.

Hab. in foliis *Thunbergiæ* natalensis, ad Inanda Africæ (Wood).

33. **Puccinia Stobææ** Mac Owan in Grevillea XI, p. 23, *Æcidium* 2178
Stobææ Kalkbr. et Cooke in Grevillea — Pseudoperidiis elongatis (3-5) in greges congestis, albis, margine fimbriato-laceratis; acidiosporis hyalinis, subglobosis, $28-30 \mu$. diam.; soris hypophyllis, sub tomento araneoso folii latentibus, demum etiam amphigenis sparsis v. in acervos irregulares confluentibus, atro-fuscis; uredosporis globosis, $15-18 \mu$. diam., echinulatis; teleutosporis el-

lipsoideis, medio leviter constrictis, fuscis, pedicello teleutosporæ æquilongo.

Hab. in foliis Stobææ membranifoliæ et *S. speciosæ*, ad P. Natal et Somerset East Africae. — *Pucciniæ Hieracii* Mart. affinis. Pseudoperidia *Ræsteliæ laceratæ* similia, nivea.

** Teleutosporarum episporium verrucosum v. distincte punctatum v. subreticulatum.

34. **Puccinia Pimpinellæ** (Strauss) Link Sp. II, p. 77, Winter Die Pilze p. 212, Schroet. Pilz. Schles. p. 321, *Æcidium Pimpinellæ* Kirchn. in Lotos 1856, p. 180, *Uredo Pimpinellæ* Strauss Wett. Ann. II, p. 102. *Cxoma Umbelliferarum* Schlecht. Fl. Berol. II, p. 115 (sec. Winter), *Puccinia reticulata* De Bary in Rabenh. Fungi Europæi, *Puccinia Chærophylli* Purt. Brit. Plantz III, n. 1553, *Puccinia Myrrhis* Schwein. Syn. North Amer. Fungi p. 296, *Puccinia Sileris* Voss in Verhandl. Gesellsch. Wien 1876, p. 120, *Puccinia Heraclei* Grev. Scott. Crypt. Fl. t. 42, *Trichobasis Heraclei* Lév. in Berk. Engl. Fl. V, pag. 380, *Æcidium* et *Uredo Chærophylli* Kirchn. l. c. p. 180, *Puccinia Osmorrhizæ* C. et P. in XXIX Rep. St. Mus. pag. 73. — Spermogoniis in parvos greges dispositis, melleis; æcidiis in foliis in maculis orbicularibus, in caulibus in maculis oblongis dispositis, distantibus; pseudoperidiis irregulariter rotundatis vel oblongis, usque ad 750 μ . longis, bulato-inflatulis, margine albo, lacerato, non vel vix revolutis; æcidiosporis polygoniis, subtiliter verrucosis, flavescentibus, 18-35 $\approx$ 16-23; uredosporis in soros sparsos, erumpentes, convexos, minutos, cinnamomeo-fuscos congestis, sphæroideo-ovoideis, 23-32 $\approx$ 18-24, aculeatis, brevissime pedicellatis, dilute brunneis; teleutosporis in soros hypophyllos vel caulicolas, sparsos, erumpentes, subcirculares, maculiformes, convexos, minutos, atro-fuscos congestis, ellipsoideis vel ovatis, medio vix constrictis, utrinque rotundatis, 26-35 $\approx$ 17-26, episporio reticulato, brunneolis, pedicello longiusculo, gracili, deciduo, hyalinulo.

Hab. in foliis caulibusque Pimpinellæ magnæ, Saxifragæ, nigræ, Triniæ vulgaris, Athamanthæ cretensis, Osterici palustris, Angelicæ silvestris (?), Tommasiniæ verticillaris, Heraclei Spondylii, Sileris trilobi, Anthrisci silvestri, Chærophylli bulbosi, aromatici, temuli, aurei, silvestris, Myrrhis odoratæ, Osmorrhizæ longistylis et brevistylis, in Italia, Germania, Austria,

Belgio, Britannia, Fennia, in America boreali. — Forma **Eryngii** DC. Encycl. VIII, p. 249 (*Puccinia*) Winter Pilze p. 213: teleutosporis sæpius oblongis, longissime pedicellatis, usque ad $50 \approx 28$. In Eryngio campestri in Germania et Belgio.

35. **Puccinia Menthæ** Pers. Syn. Fung. p. 227, Winter Die Pilze p. 204, 2180 Schroet. Pilz. Schles. p. 321, *Æcidium Menthæ* DC. Flor. Franc. IV, p. 95, *Uredo Calaminthæ* Str. Wett. Ann. II, p. 95, *Uredo Labiatarum* DC. Fl. Franc. VI, p. 72, *Uredo Clinopodii* Rab. Handb. p. 10, *Uredo Menthæ* Pers. Syn. p. 220, *Puccinia Clinopodii* DC. loc. cit. pag. 57, *Trichobasis Labiatarum* Lév. in D' Orb. Dict. Clem. V, 12, p. 785, *Puccinia Calaminthæ* Fuck. Symb. Myc. I, p. 56. — Spermogoniis vel in parvos greges dispositis vel sparsis, mel-leis; æcidiiis in caulibus foliisque subiculo incrassato insidentibus maculasque purpureo-rufas efformantibus, bullato-inflatis, sparsis vel aggregatis; pseudoperidiis magnis, planis, laxe adhærentibus; æcidiosporis laxis, angulato-ellipsoideis, verruculosi, dilute flavis, usque ad 40 μ . longis, 17-26 μ . diam.; uredosporis in soros spar-sos, epidermide rupta cinctos, orbiculares vel subrotundatos, pla-niusculos, flavido-fuscos congestis, ellipticis vel ovoideis, utrinque rotundatis, aculeatis, 17-28 $\approx$ 14-19, dilute brunneis, episporio ochra-ceo; teleutosporis soros hypophyllos, rarius caulicolas, sparsos aut aggregatos, subinde confluentes, orbiculares, minutos, atro-fuscos efformantibus, ellipsoideis vel breviter cylindraceis, utrinque ro-tundatis, medio vix constrictis, vertice leniter incrassatis, 26-35 $\approx$ 19-23, verruculosi, apice papilla lata, pallidiori vel achroa in-structis, obscure brunneis, pedicello sporâ longiori, hyalino, gracili.

Hab. in foliis caulibusque Labiatarum, imprimis Menthæ rotundifoliæ, silvestris, piperitæ, aquaticæ, acutifo-liæ, arvensis, austriacæ, nepetoidis, sativæ, lanceola-tæ, viridis, Thymi vulgaris, Saturejæ hortensis, Ca-laminthæ Acini et C. Clinopodii, C. officinalis, alpi-næ, glandifloræ, Nepetæ cyaneæ, Cunilæ marianæ, Mo-nardæ fistulosæ, Hedeomatis pulegioidis, in Italia, Ger-maniam, Helvetia, Austria, Belgio, Britannia, Gallia, Lusitania, Fen-nia, America boreali, prope Minussinsk Sibiricæ asiaticæ et prope Somerset East Africæ australis. — Forma **americana** Burrill. Pa-rasitic Fungi of Illinois pag. 191: teleutosporis echinulatis 21-27 μ . diam. In foliis Menthæ canadensis, Cunilæ marianæ, Pycnanthemipilosi, P. lanceolati, P. linifolii, Monar-dæ fistulosæ, M. punctatæ, M. Bradburianæ, Blephi-

liæ hirsutæ, Hedeomatis pulegioidis et ejusdam Rueliæ in America boreali.

36. **Puccinia Soldanellæ** (DC.) Fack. Symb. myc. III, App. 14, Wint. Pilze p. 202, *Cæoma Soldanellatum* Link Sp. II, p. 46, *Æcidium Soldanellæ* Hornsch. in Rabenh. DC. Fl. p. 18, *Uredo Soldanellæ* DC. Fl. Franç. VI, p. 85, *Æcidium Soldanellæ* Sacc. Mich. I, p. 158. — Spermogoniis punctiformibus, gregariis; sporulis oblongis, truncatis, $4 \approx 3$; æcidiis æqualiter sparsis; pseudoperidiis breviter cylindraceis, urceolatis vel conoideis, margine paullulum laciniato, revolutis; æcidiosporis polygoniis, $20-26 \approx 17-20$, granulatis, aurantiaco-flavis; soris communibus epiphyllis, minutis, gregariis, fuscis, epidermide lacerata cinctis; uredosporis rotundato-ovoideis vel ellipticis, $20-32 \approx 19-30$, aculeatis, brunneis; teleutosporis ovatis, utrinque attenuatis vel antice obtusioribus vel irregulariter in latere apiculatis, breviter pedicellatis, medio parum constrictis, subtilissime reticulatis, fuscis.

Hab. in foliis Soldanellæ alpinæ, montanæ, pusillæ et minimæ, in Italia, Gallia, Britannia, Helvetia et Germania.

37. **Puccinia Saniculæ** Grev. Fl. Edinb. p. 431, Winter Die Pilze p. 213, *Æcidium Saniculæ* Carm. Cooke Handb. n. 1625. — Æcidiis in maculis purpureo-rufis, convexis insidentibus, in greges rotundatos vel elongatos dispositis, lineari- vel orbiculariter ordinatis; pseudoperidiis poculiformibus, margine albo, lacerato, revolutis; æcidiosporis angulatis, $19-27 \mu$. diam., subtiliter verruculosus, hyalinis; soris uredosporiferis sparsis, minutis, punctiformibus, hemisphæricis, demum dehiscentibus, pallide-fuscis; uredosporis obovatis globosisque, spinulosis fuscis, $23-44 \approx 17-26$; soris teleutosporiferis conformibus sed obscurioribus, nitidis, demum dehiscentibus; teleutosporis ovatis, breviter pedicellatis, medio plus minusve constrictis, subtilissime reticulatis, fuscis, $26-45 \approx 17-26$.

Hab. in foliis (amphigena) petiolisque Saniculæ europææ. in Britannia, Germania et America boreali.

38. **Puccinia Thuemeniana** Voss in Œsterr. bot. Zeitschr. 1877, p. 404, Winter Die Pilze p. 214, *Æcidium involvens* Voss l. c. 1876, p. 362. — Æcidiis gregariis, rarissime solitariis, in maculis inflatis, rufo-tinctis insidentibus; pseudoperidiis hemisphæricis, margine albo, lacerato; æcidiosporis angulatis, $23-35 \approx 14-20$, aurantiaco-flavis; soris uredosporiferis hypophyllis, minutis, rotundatis vel ellipsoideis, dilute brunneis, solitariis; uredosporis globosis, episporio sublevi, luteo-fusco, $21-32 \mu$. diam.; soris amphigenis, in

folio minutis, in ramis usque ad 1 cm. latis, nudis, atris; teleutosporis globoso-ellipticis, medio parum constrictis, 29-36 $\approx$ 24-29, cellulis inferioribus brevioribus, sursum sensim applanatis, vertice non incrassatis, spadiceis, verruculosis, pedicello hyalino, 58-73 μ . longo, basi parum incrassato.

Hab. in foliis ramulisque vivis Myricariæ germanicæ, in Tyrolia.

39. **Puccinia montana** Fuck. Symb. Myc. II, p. 14, Winter Die Pilze 2184 p. 207. — *Æcidii* in maculis discoloribus, hypophyllis dense aggregatis; pseudoperidiis majusculis, margine crassiusculo, multilacerato, sordido; *æcidiosporis* ochraceis, subglobosis, 17-22 μ . diam., levibus; soris uredosporiferis hypophyllis, elongatis, sæpe confluentibus, amœne ferrugineis; uredosporis globosis vel ovato-globosis, levibus vel subtilissime aculeolatis, uni-magni-guttulatis, brevissime pedicellatis, 26-37 $\approx$ 19-28, aurantiaco-flavis; soris teleutosporiferis ellipticis, sparsis, atro-fuscis; teleutosporis ovatis, medio parum vel non constrictis, antice minute apiculatis vel raro obtusis, pedicello brevi, oblique inserto, 35-50 $\approx$ 21-30, verruculosis, castaneo-brunneis.

Hab. in foliis *Centaureæ montanæ* et *phrygiæ*, in Helvetia, Tyrolia, Italia, Jura et Belgio.

40. **Puccinia Popowii** Cooke in Grevillea X, p. 126. — Pseudoperidiis in maculis orbicularibus aggregatis, reliquis exoletis; uredosporis subglobosis, fuscis, levibus, 20 $\approx$ 18, cum teleutosporis imixtis; soris teleutosporiferis hypophyllis, minutissimis, mox confluentibus, purpureo-brunneis, pulverulentis, in maculis orbicularibus congestis; teleutosporis ellipticis, arcute constrictis, utrinque rotundatis, fuscis, 20-28 $\approx$ 16-18, episporio verruculoso.

Hab. in foliis *Popowii* caffræ, ad Inanda Africae (Woon).

41. **Puccinia opulenta** Speg. Fungi argentini pugillus I, p. 170, n. 36, 2186 *Æcidium Ipomeæ* Speg. Fungi Argentini pugillus I, pag. 173, n. 52. — *Æcidii* hypophyllis, gregariis, maculæ discolori pallescenti immarginatæ insidentibus; pseudoperidiis 4-15 compactiuscule confertis, primo tectis, globulosis, dein erumpenti-poculiformibus, 300-600 μ . lat., contextu e cellulis poly(5-6-)goniis e centro radiatim striatulis composito, margine recto, albido-hyalino, integro vel vix crenulato, parum exserto; epithecio luteo-aurantiaco; *æcidiosporis* subsphæroideis vel elongatis, mutua pressione obtuse angulatis, 21-24 μ . diam., levibus, hyalinis, protoplasmate flavo-aurantiaco repletis; soris epiphyllis, *æcidii*s semper contraposi-

tis, suborbicularibus, atris, subpulverulentis, primo tectis, dein epidermide fissa cinctis, 1-3 mm. d.; uredosporis teleutosporis immixtis, ovoideis vel subpiriformibus, crassiuscule tunicatis, 20-22 $\approx$ 15-18, muriculato-asperulis, præcipue in parte superiore, fulvo-flavescens; teleutosporis ellipticis, medio uniseptatis, vix constrictis, episporio robusto apice crasso et in mucronem obtusum pellucidum producto, subopace atro-fuligineis, loculis subæqualibus, granuloso-farctis, 55-60 $\approx$ 25-28, hyalino-asperulis (?), pedicello hyalino, apice infusato, basi incrassato, 120-130 $\approx$ 5-10 suffultis.

Hab. in foliis vivis Ipomeæ purpureæ et megapotiæ pr. la Roca el Riachuelo et Cordoba in Republica Argentina nec non Jacquemontia ejusdam ad Kenbry (SPEGAZZINI), Americæ australis. — Exemplaria e Cordoba præbent teleutosporas episporio pulchre ac laxè rugoso-verrucoso. Adest forma æcidiospora ex regione Guaranitica ita descripta ab auctore Speg. Fungi Guaranitici I, n. 155: maculis nullis vel vix manifestis, expallentibus, indeterminatis; pseudoperidiis hinc inde compactiusculis 4-15 aggregatis, hypophyllis, membranaceis contextu parenchymatico-loricato e cellulis ex elliptico obtusissime hexagonis, 15-20 $\approx$ 13-15, crasse tunicatis, grosse radiatimque rugosis hyalinis composito; æcidiosporis ellipticis sæpe e mutua pressione angulosis, 18-20 $\approx$ 13-16, crassiuscule tunicatis episporio dense at minutissime papuloso-asperulo, subhyalinis. In foliis vivis Ipomeæ ejusdam in dumetis prope Guarapí.

42. **Puccinia mirabilissima** Peck in Botan. Gazette 1881, pag. 226, Tracy et Gall. in Botan. Gazette 1888, p. 126. — Maculis læte purpureis 3-4 mm. diam., leniter incrassatulis, pseudoperidiis hypogæis, longis, pallide flavis, margine grosse laceratis; æcidiosporis subglobosis, 15-20 μ . diam., tuberculatis; maculis parvis, punctiformibus vel majusculis subrotundisque, superne atris vel atro-brunneis; soris hypophyllis, paucis, minutis, pallide rufescenti-brunneis; uredosporis subglobosis, obovatis vel piriformibus, obtusis, minutissime rugulosis, 22-33 $\approx$ 20-23, pedicello hyalino, dein deciduo; teleutosporis immixtis, ellipticis, obtusis, ad septum constrictis, subtiliter rugosis, 30-32 $\approx$ 22-25, pedicello longissimo hyalino fultis.

Hab. in foliis vivis languidisve Berberidis repentis, Utah Americæ borealis (JONES). — Pedicelli teleutosporæ 2-3-plo longiores; sori in maculis usque ad 6 insidentes.

43. **Puccinia afra** Winter in Hedwigia 1887, p. 36. — Pseudoperi-

ridiis ad sepala pedunculosque incrassatos et valde curvatos seu tortuosos dense gregariis, subcylindræis, late apertis margine valde prominulo profundeque inciso, laciniis plus minusve recurvis seu suberectis, pallide aurantiacis; æcidiosporis rotundatis seu ellipsoideis, angulatis et irregularibus, 29-34 μ . diam. vel usque ad 48 μ . longis, 21-24 μ . latis, minutissime verrucosis, intense aurantiacis; soris amphigenis rarius sepala incolentibus, sparsis v. gregariis, minutis, rotundatis ellipticisve, sæpe parum angulato-irregularibus, interdum confluentibus, erumpentibus et valde prominulis, at ab epidermidis fissæ fragmentis cinctis, pulverulentis, circ. 0,5 mm. latis; uredosporis oblongis, deorsum plerumque parum attenuatis, utrinque rotundatis, fusco-luteis, episporio subcrasso, aculeis minutis dense præcipue verticem versus obsito, ad basim plerumque levi præditis, pedicello sublongo, crasso, hyalino fultis, 52-66 $\approx$ 20-28; teleutosporis ellipsoidis, apice cuspidatis, plerumque apiculo conoideo coronatis, basi rotundatis, 40-55 $\approx$ 24-27, episporio crasso, amœne badio, dense grossequ verrucoso donatis, pedicello longo, crasso, supra medium vesiculoso inflato et hic eros-crenato, ceterum æqualiter cylindrico, hyalino fultis.

Hab. in foliis sepalisque *Lycii Afri*, in Africa australiori (Mac OWAN). — « Ab aliis *Pucciniis* in *Lycii* speciebus vigentibus, uti sunt *Puccinia Lycii* Kalchbr., *Puccinia tumidipes* Peck et *Puccinia globosipes* Peck, caute dignoscenda ».

44. **Puccinia? Rhynchosia** Kalchbr. et Cooke in Grevillea XI. p. 24, 2189
Uromyces? Rhynchosia Cooke in Grevillea XI, p. 24, *Æcidium Rhynchosia* Cooke l. c. *Uredo Rhynchosia* Kalchbr. l. c. — *Æcidii* hypophyllis; pseudoperidiis sparsis, immersis, margine libero, albo; æcidiosporis luteis; soris uredosporiferis hypophyllis, segetis regularis instar folii paginam inferiorem occupantibus, punctiformibus, rufis; uredosporis globosis, 22 $\approx$ 20, fuscidulis; teleutosporis non visis.

Hab. in foliis *Rhynchosia* sp., *Eryosematis saligni* et *Flemingia* sp., ad P. Natal Africae. — « Vix hujus sectionis ».

45. **Puccinia Zopffii** Wint. in Hedwigia 1880, p. 39, Die Pilze p. 216, 2190
Puccinia calthæcola Schroet. in Cohn Beitr. III, p. 61. — *Æcidii* et uredosoris ut in *P. Calthæ*; teleutosporis ellipticis vel oblongis, medio leniter constrictis, basi rotundatis vel paullum attenuatis, apice incrassatis, 35-60 $\approx$ 20-35, subtiliter verrucosis, castaneo-brunneis, pedicello longiusculo, crasso suffultis.

Hab. in foliis *Calthæ palustris*, in Helvetia, Austria et Germania.

- II. HETERO-PUCCINIA Schroet. Germinatio sporidiolorum haud in planta teleutosporarum nutrice sed in matrice diversa in qua æcidiola et æcidia evolvuntur.

*Sori uredosporiferi rufo-ferruginei.

1. Paraphyses nullæ.

46. **Puccinia graminis** Pers. Disp. Fung. p. 39, t. 3. f. 3, Winter Die Pilze p. 217, Schroet. Pilz. Schles. p. 322, *Lycoperdon poculiforme* Jacq. Coll. I, pag. 122, *Æcidium Berberidis* Gmel. in L. Syst. Nat. II, p. 1473, *Cevoma berberidatum* Link Sp. II, p. 57, *Uredo linearis a. frumenti* Lamb. in Act. Soc. Linn. 4, p. 193, *Uredo culmorum* Schum. Pl. Saell. II, p. 233?, *Uredo frumenti* Sow. Engl. Fungi t. 140, *Æcidium lineare* Gmel. l. c. *Lycoperdon lineare* Schrank Fl. Bavar. II, pag. 669, *Puccinia linearis* Roehl Fl. germ. III, p. 132, *P. cerealis* Mart. Flor. Mosq. p. 227, *Erysibe linearis* Wallr. Fl. Crypt. Germ. II, p. 194, *Puccinia poculiformis* (Jacq.) Wettst. in Verhand. K. K. Zool. bot. Gesellsch. in Wien 1888. — Spermogoniis in parvos greges dispositis, mel-leis; æcidiis subiculo incrassato, fusco, insidentibus maculasque oblongas vel orbiculares, 2-5 mm. latas efformantibus, confertis, epidermide bullato-vesiculosa cinctis; pseudoperidiis cylindræis, demum elabentibus, margine albo, erecto, patulo, tenuissime crenulato aut denticulato; æcidiosporis polygono-sphæroideis, 14-26 μ . diam., levibus, subaurantiacis; uredosporis in soros ellipsoideos, elongatos vel lineares, erumpentes, flavo-fuscos aut ferrugineos, sæpe confluentes congestis, ut plurimum ellipsoideis, rarius clavatis, 24-45 $\approx$ 14-21, pedicellatis, aculeatis, flavescentibus; teleutosporis soros elongatos v. lineares, liberos, subatratos, longiusculos, crustaceos, sæpius confluentes, mox nudos efformantibus, clavatis vel oblongo-fusoideis, apice rotundatis vel acuminatis, obtusis, basi in pedicellum angustatis, 34-60 $\approx$ 12-22, levibus, ad septum constrictis, dilute fusco-flavis, episporio basi usque ad 10 μ . crasso, pedicello persistenti, elongato, usque ad 60 μ . longo, flavo-brunneo.

Hab. æcidiola et æcidia in foliis, pedunculis, fructibus *Berberidis vulgaris*, *Nenbertii carolinæ*, *canadensis*, *aristatæ*, *altaicæ* etc. nec non *Mahoniæ Aquifolii*, uredosporæ et teleutosporæ in foliis, culmis, vaginis etc. Graminacea-

rum in primis Secales, Tritici, Lolii, Anthoxanthi, Alopecuri, Airæ, Brizæ, Arrhenatheri, Poæ, Dactylidis, Bromi, Elymi, Andropogi, Phragmitis, Hordei, Dulichii, Bryzopyri, Phlei, Avenæ, Festuæ, Agropyri, Agrostidis, in Italia, Austria, Germania, Suecia, Helvetia, Britannia, Fennia, Belgio, in America boreali, in Sibiria asiatica, Plata, et in Queenslandia atque Nova Zelandia.

47. **Puccinia coronata** Corda Icon. Fung. I, p. 6, t. II, f. 96, Winter 2192 Die Pilze p. 218, Schroet. Pilz. Schles. p. 323, *Æcidium Rhamni* Gmel. in L. Syst. Nat. II, p. 1462, *Æcidium crassum* Pers. Syn. Fung. p. 208, *Æcidium elongatum* Link Sp. II, p. 63, *Æcidium Frangulæ* Schum. Fl. Saell. II, pag. 225, *Æcidium Cathartici* Schum. l. c. *Æcidium poculiforme* Wallr. Fl. Crypt. Germ. p. 257, non alior. *Æcidium irregulare* DC. Fl. Franç. II, p. 245, *Puccinia sertata* Preuss Hoyersw. n. 11 et in Sturm. DC. Fl. t. 3, *Solenodonta Flotowii* Rabenh. in Herb. mycol. I, n. 1395, *Puccinia Rhamni* (Gmel.) Wettst. in Verhand. Wien 1888. — Spermogoniis melleis, in parvos greges dispositis; æcidiiis secus maculas flavo-fuscas subeffusas, 2-10 et ultra cm. longas efformantibus; pseudoperidiis primo conoideis, dein cylindræis, margine patulo, erecto, tenuissime crenulato vel denticulato, albo; æcidiosporis polygoniis, 17-26 $\approx$ 13-21, verruculosi, aurantiaci; uredosporis in soros lanceolatos vel lineares, sæpius confluentes, ferrugineos, sparsos vel seriatos congestis, irregulariter globosis, ellipticis vel ovatis, 19-28 $\approx$ 16-21, aculeolatis, aurantiaco-flavis, 3-4 poros gerentibus, paraphysibus nullis; teleutosporis soros oblongos aut lineares, sæpius confluentes, diu tectos, atro-fuscos, sparsos vel in series aut lineas orbiculares dispositos efformantibus, clavatis, apice applanatis dentibusque acutis, obscurioribus, stellato-radiatis coronatis, ad septum vix vel leniter constrictis, 35-60 $\approx$ 12-21, levibus, dilute brunneis, pedicello brevi, crassiusculo.

Hab. æcidiole et æcidia in foliis pedunculis, petiolis, calycibus fructibusque immaturis *Rhamni cathartici*, *Frangulæ*, alpinae, saxatilis, prinoidis, uredosporæ et teleutosporæ in foliis graminacearum plurimarum in primis generis *Alopecuri*, *Calamagrostidis*, *Phalaridis*, *Avenæ*, *Bromi*, *Festuæ*, *Airæ*, *Agrostidis*, *Lolii*, *Holci*, *Hordei*, *Arrhenatheri*, *Arundinis*, *Agropyri*, in Italia, Gallia, Britannia, Helvetia, Austria, Germania, Belgio, Lusitania, Fennia, in America boreali et New Mexico nec non pr. Somerset East Africae australis.

— Relationem inter formam æcidiosporam et teleutosporam detexit cl. De Bary.

48. **Puccinia sessilis** Schneid. in Schroet. Brand. und Rostpilze Schlesiens p. 19, Winter Die Pilze p. 222, Schroet. Pilz. Schles. p. 324, *Æcidium Allii-ursini* Pers. Syn. Fung. p. 210, *Cecoma alliatum* Link in L. Sp. plant. VI, 2, pag. 43. — Spermogoniis in parvos greges dispositis, melleis; sporulis minutis; æcidiis ut plurimum dispositis secus simplicem aut duplicem seriem maculasque flavescentes efformantibus; pseudoperidiis explanatis, margine albo, denticulato; æcidiosporis polygoniis, 17-26 $\approx$ 13-19, levibus, aurantia-co-flavis; uredosporis in soros minutos, oblongos, sparsos, flavescentes congestis, globosis vel ellipsoideis, aculeatis, 20-28 $\approx$ 20-23, dilute flavis, paraphysibus nullis; teleutosporis soros elongato-lineares, confluentes, epidermide tectos, atro-fuscos efformantibus, clavato-truncatis vel oblongis, apice leniter incrassatis, obtusis, basi attenuatis, 28-42 $\approx$ 16-12, levibus, pallidissime flavis, apice obscurioribus, medio non vel paullulum constrictis, pedicello brevissimo, subnullo.

Hab. æcidiola et æcidia in foliis Allii ursini, ured. et teleutosporæ in foliis Phalaridis arundinacæ, in Italia, Belgio, Britannia, Austria, Germania. — Relationem inter formas æcid. et teleut. detexit et comprobavit cl. Winter. Huc forte pertinet *Puccinia linearis* Rob. in Ann. Sciec. nat. IV, t. 4, p. 126. Winter hanc speciem ad *P. Baryi* ducit.

2. Paraphyses præsentis.

49. **Puccinia Rubigo-vera** (DC.) Wint. Die Pilze pag. 217, Schroet. Pilz. Schles. p. 325, *Æcidium Asperifolii* Pers. Syn. Fung. p. 208, *Uredo Rubigo-vera* DC. Flor. Franc. VI, p. 83, *Cecoma Asperifolii* Schlecht. *Cecoma Boragineatum* Link in L. Sp. plant. VI, 2, p. 83, *Æcidium Lycopsidis* Desv. Observ. I, p. 97, *Æcidium Symphyti* Thüm. in Oest. bot. Zeits. 1876, p. 15, *Æcidium Lithospermi* Thüm. l. c. 1879, n. 11, *Cecoma Rubigo* Link Sp. II. p. 4, *Puccinia straminis* Fuck. Enum. p. 2, Symb. pag. 59, *Puccinia striiformis* Westend. 4 Not. pag. 10, *Æcidium Pulmonarie* Thüm. l. c. *Trichobasis Rubigo-vera* Lév., *Puccinia Asperifolii* (Pers.) Wettst. in Verhand. Zool. bot. Ges. in Wien 1885, n. 158. — Spermogoniis in greges parvos vel magnos, remotos dispositis, melleo-flavis; æcidiis heteroicis, distantibus, maculas orbiculares v. oblongas, 1 cm. et ultra longas efformantibus; pseudoperidiis urceo-

lato-explanatis, latis, margine revoluta dentato, albedo; æcidiosporis polygoniis, verrucosis, aurantiacis, 18-28 μ . diam.; uredosporis in soros ellipticos, oblongos vel lineares, confluentes lateque expansos, erumpentes, liberos, ferrugineos congestis, globosis vel ellipsoideis vel ovatis, 20-32 $\approx$ 17-24, aculeatis, pedicellatis, aurantiaco-rufis, paraphysibus nullis intermixtis; teleutosporis in soros exiguos, ellipticos vel lineares, sæpius confluentes, atros, diu epidermide tectos congestis, oblongatis vel clavatis, medio vix constrictis, apice deplanatis vel ut plurimum lateraliter apiculatis, basi attenuatis, 26-80 $\approx$ 16-24, levibus, castaneo-brunneis, pedicello brevissimo, subnullo, persistenti; paraphysibus brunneolis.

Hab. æcidiola et æcidia in foliis Borraginacearum nonnullarum e. g. *Anchusæ officinalis* et *arvensis*, *Pulmonariæ officinalis* et *mollis*, *Symphyti officinalis* et *tuberosi*, *Borraginis officinalis*, *Cynoglossi officinalis*, *Lycopsidis arvensis*, *Nonnæ pullæ*, *Cerinthæ minoris* et *alpinae*, *Echii vulgaris*, *Lithospermi arvensis*; uredosp. et teleutosp. in foliis culmisque graminacearum nonnullarum imprimis *Alopecuri*, *Agrostidis*, *Polypogonis*, *Calamagrostidis*, *Tritici*, *Secales*, *Holci*, *Avenæ*, *Bromi*, *Milii*, *Koeleria*, *Triseti*, *Scleria*, *Festucæ*, *Elymi*, *Laguri*, in Italia, Belgio, Gallia, Bohemia, Moravia, Austria, Germania, Britannia, Fennia, Arduennis, in America boreali et australi, in insula Ceylon et Sibiria asiatica. — Var. **simplex** Körn. in Land. u. Forstw. Zeitung 1865, n. 50, *Puccinia Hordei* Fuck. Symb. Nachtr. II, pag. 16, *Puccinia anomala* Rostr. in Thüm. Myc. Univ. n. 831: soris teleutosporas eseptatas tantum v. uniseptatis immixtas gerentibus; uredosporis ovoideo-globosis 22-28 $\approx$ 20-23, levibus, aurantiacis; teleutosporis oblongis clavatisve, eseptatis 32-36 $\approx$ 18-28, septatis 40-50 $\approx$ 20, levibus, fuscis. In foliis, culmis vaginisque *Hordei murini*, distichi, vulgaris, *Zoocritonis*, *tetracanthi*, in Germania et ad Skärup in Fionia Daniæ.

50 **Puccinia Poarum** Nielsen in Botanisk Tidsskrift III. Reihe, Bd. 2195 2, p. 26, et seq. *Lycoperdon epiphyllum* L. Sp. plant. II, p. 1655, *Æcidium Tussilaginis* Gmel. in L. Syst. Nat. II, p. 1473, *Æcidium Compositarum* Mart. Erl. pag. 314 et auct. p. p. *Cavoma Compositarum* Link in L. Sp. plant. VI, 2, p. 50, p. p. *Æcidium Tussilaginis* Sacc. Myc. Ven. n. 993 (sub *Myxosporio*), *Puccinia epiphylla* (L.) Wettst. in Verhand. Wien 1885. — Sper-

mogoniis maculæ epiphyllæ, initio aurantiacæ, tandem nigricanti insidentibus; spermogoniis immerso-prominulis, initio croceis; sporulis ovoideis, 9-10 $\approx$ 8, granulosis, hyalinis, in basidiis filiformibus fasciculatis catenulatim impositis; æcidiis heteroicis plerumque in maculis orbicularibus, 1-2 cm. latis, rufis vel flavidulis, remotis insidentibus; pseudoperidiis cylindraceo-explanatis, margine albo, revoluti, dentato; æcidiosporis polygoniis, verruculosis, 18-24 $\approx$ 15-18, aurantiaco-flavis; uredosporis in soros rotundatos, ellipticos vel lineares, sparsos vel aggregatos, ferrugineos vel aurantiaco-fulvos congestis, sphaericis vel ellipsoideis, verrucosis, 20-30 μ . diam., aurantiaco-rufis, paraphysibus capitatis, numerosis, intricatis intermixtis; teleutosporis soros exiguos vel majusculos, sparsos v. orbiculatim dispositos, epidermide tectos, atro-fuscos efformantibus, ellipticis vel subclavatis, apice incrassatis obscurioribusque, 35-50 $\approx$ 15-24, obscure brunneis, levibus, pedicello brevissimo, persistenti, plerumque brunneo.

Hab. æcidiola et æcidia in foliis Tussilaginis Farfaræ Adenostylis bifrontis et Petasitidis vulgaris, P. officinalis, P. albæ; uredosporæ et teleutosporæ in foliis culmisque Poæ Chaixi, P. nemoralis, P. annuæ, P. pratensis, P. trivialis, in Britannia, Italia, Germania, Austria, Helvetia, Belgio, Fennia, Lapponia nec non in Sibiria asiatica. — Sec. cl. Schroeter æcidia et formæ perfectæ simul in Petasitide alba vivere possunt. Relationem inter *Æcidium Tussilaginis* et *Pucciniam Poarum* detexit Nielsen.

** Sori uredosporiferi brunnei.

51. **Puccinia Caricis** (Schum.) Rebert. Fl. Neom. pag. 356, Winter Die Pilze p. 222, Schroet. Pilz. Schles. p. 327, *Æcidium Urticæ* Schum. Fl. Saell. II, p. 223, *Uredo Caricis* Schum. l. c. II, p. 231, *Uredo pseudo-cyperii* Rab. Krypt. Fl. I, p. 13, *Cvoma pseudo-cyperii* Link Sp. II, p. 6, *Puccinia Striola* Link. l. c. p. 68, p. p. *Puccinia caricina* DC. Flor. Franç. VI, p. 60, *Puccinia Punctum* Fuck. Fungi Rhen. 324, 325 non Link, *Trichobasis caricina* Berk. — Spermogoniis in parvos vel magnos greges dispositis, mel-leis; sporulis ellipsoideis, 4-5 $\approx$ 2, flavescentibus; æcidiis secus simplicem v. duplicem serim suborbiculatim dispositis maculasque flavidas, rufescentes v. rufo-purpureas efformantibus, hypophyllis v. cauliculis; pseudoperidiis cupuliformibus, explanatis, latis, margine al-bido, lacero-denticulato, reflexo; æcidiosporis polygoniis, minutissime

verrucosis, 16-26 $\approx$ 12-20, aurantiacis; uredosporis in soros orbiculares et ellipsoideos vel oblongos, epidermide fissa cinctos, brunneos, sæpe confluentes congestis, ellipsoideis vel ovoideis, 17-35 $\approx$ 17-26, aculeatis, flavo-brunneis, breviter pedicellatis, paraphysibus nullis; teleutosporis in soros hypophyllos vel culmicolas, vulgo elongatos, erumpentes, epidermide fissa cinctos, atro-fuscos vel nigricantes congestis, clavato-oblongis, apice valde incrassatis, obtusis vel rotundatis vel explanatis, medio constrictulis, basi in pedicellum angustatis, 30-45, rarius 70 $\approx$ 42-20, levibus, brunneis, pedicello 20 $\approx$ 6-12, rigido, flavescente, persistenti.

Hab. æcidia et æcidiola in foliis Urticæ dioicæ, *U. cannabinæ*, *U. piluliferæ*, *U. urentis*; ured. et teleutosp. in pagina superiori foliorum culmisque Caricis pseudocyperis, strictæ, hirtæ, ripariæ, acutiformis, paniculatæ, acutæ, vesicariæ, crinitæ, filiformis, paludosæ, pilosæ nec non Marisci cylindrici et Dulichii spathacei, in Italia, Gallia, Belgio, Fennia, Lapponia, Britannia, Arduennis, in America boreali et in Sibiria asiatica. — Cl. Magnus relationes inter status hujus speciei experimentis detexit.

52. **Puccinia Schœleriana** Plowr. et Magn. in Hedwigia 1886, p. 39. 2197

Æcidium Jacobææ Grev. Fl. Edinb. p. 445. — Spermogoniis in maculis flavis, epiphyllis, æcidiis contrappositis; æcidiis secus orbem dispositis, plerumque hypophyllis; pseudoperidiis margine reflexo, crenato, albidis; æcidiosporis rotundatis, polygoniis, subtiliter echinulatis, 15-20 μ . diam., flavis; soris uredosporiferis elongatis vel rotundatis, plerumque hypophyllis, mox nudis, in maculis flavis discoloribus; uredosporis subglobosis vel ovoideis, 25-30 $\approx$ 14-20, episorio ruguloso, flavescenti-brunneis; soris teleutosporiferis erumpentibus, oblongis aut elongatis, magnis, subatris, hypophyllis, epidermide rupta cinctis; teleutosporis medio leniter constrictis, loculo superiori subgloboso, ovato vel superne attenuato, vertice valde incrassato, rotundato vel acuminato, loculo inferiori subcuneato, sæpe pallidiore, levibus, 60-80 $\approx$ 15-20, brunneis.

Hab. spermogonia et æcidia in foliis Senecionis Jacobææ; uredosporæ et teleutosporæ in foliis Caricis arenariæ, in Britannia. — Mihi videtur *P. silvaticæ* Schroet peraffinis.

53. **Puccinia silvatica** Schroet. in Cohn Beitr. III, p. 68, Pilz. Schles. 2198

p. 328, Winter Die Pilze p. 223, *Æcidium Taraxaci* Schm. et Kunze Myk. Heft I, p. 85 sec Winter, *Cicoma Compositarum* Link Sp. II, p. 50, p. p. — Spermogoniis in parvos greges dispositis, flavo-mel-

leis; æcidiis plerumque in maculis rotundatis, flavis vel violascentibus vel oblongis, pluriseriatis, latiusculis, epidermide bullata tectis; pseudoperidiis breviter poculiformibus, margine albo, revoluti, lacinulato; æcidiosporis polygoniis 14-21 μ . diam., levibus, aurantiacis; uredosporis in soros exiguos, ellipticos aut lineares, sordide brunneos, sparsos congestis, globosis, ellipticis vel ovoideis, 22-26 $\approx$ 15-22, aculeatis, dilute brunneis; teleutosporis soros acervuliformes, atro-fuscos, exiguos, rotundatos efformantibus, clavatis, apice valde incrassatis, medio constrictulis, basi in pedicellum angustatis, 30-55 $\approx$ 12-20, levibus, castaneis, pedicello 4-7 μ . crasso, persistenti, teleutosporam æquante vel eâ brevior.

Hab. æcidiola et æcidia in foliis Taraxaci officinalis et Senecionis nemorensis; ured. et teleutosporæ in foliis vivis languidisque plurimarum specierum Caricis, in Italia, Austria, Germania, et pr. Minussinsk Sibiriae asiaticæ.

51. **Puccinia tenuistipes** Rostr. in Hedwigia 1887, p. 180, Schroet. Pilz. Schles. pag. 329 nec Opiz. — Spermogoniis in parvos greges dispositis, amœne melleis; æcidiis plerumque maculas orbiculares vel oblongas, remotiusculas efformantibus; pseudoperidiis brevibus, margine albo, lacerato; æcidiosporis aurantiacis; uredosporis in soros exiguos, sordide brunneos congestis, ellipticis vel ovoideis, 20-26 $\approx$ 15-22, aculeatis, episporio brunneo, subhyalinis; teleutosporis in soros parvos, rotundatos, pulvinatos congestis, clavatis, plerumque 40-48 $\approx$ 11-15, loculo inferiori angustiori, medio subconstrictis, apice rotundatis aut acuminatis, levibus, pedicello, teleutosporam subæquante, pallidiori.

Hab. æcidiola et æcidia ad Centauream Jaceam, uredosp. et teleutosporæ ad Caricem muricatam, in Silesia Germaniæ. — *Pucciniæ silvaticæ* Schroet. valde proxima et forte ab ea non satis distincta.

55. **Puccinia Limosæ** Magnus in Tagebl. Nat. Vers. zu Münch. 1887, p. 199, Winter Pilze p. 223, Schroet. Pilz. Schles. p. 329, *Cwoma Lysimachicæ* Schlecht. Fl. Ber. II, p. 113, *Æcidium Lysimachicæ* Wallr. Beitr. I, p. 252. — Spermogoniis maculiformibus, aurantiorufis; æcidiis plerumque orbiculatim dispositis, rarius irregulariter sparsis; pseudoperidiis explanatis, margine albo, revoluti, pluridentato; æcidiosporis angulatis, 16-23 μ . diam., aurantiaco-flavis; uredosporis in soros sparsos v. seriatis, ellipticos v. lineares, exiguos, sæpius confluentes, pallide brunneos congestis, globosis aut ellipsoideis, 17-24 μ . diam., aculeatis, concoloribus; teleutosporis in

soros pulvinatos, minutissimos, rotundatos, ellipticos vel lineares atro-brunneos coalitis, clavatis, 30-45 $\approx$ 12-20, apice valde incrassatis, obtusis, rotundatis vel acuminato-conoideis, basi angustatis, medio constrictulis, levibus, brunneis, pedicello longiusculo, persistenti.

Hab. æcidia et æcidola in *Lysimachia vulgaris* et *L. thyrsoflora*; ured. et teleutosporæ in *Carice limosa*, in Germania. — Relationem inter *Æcidium* et *Pucciniam* experimentis detexit cl. P. Magnus.

56. **Puccinia Dioicæ** Magnus in Tagebl. der Naturf. Vers. zu München 2201 1877, p. 200, Winter Die Pilz. p. 182, Schroet. Pilz. Schles. p. 329, *Æcidium Cirsii* DC. Flor. Franç. VI, p. 94. — Spermogoniis melles, in parvos greges dispositis; æcidiis juxta circulos simplices vel concentricos distributis, remotiusculis, in maculis usque ad 5 mm. latis insidentibus; pseudoperidiis brevibus, explanatis, margine albo, crenulato; æcidiosporis usque ad 25 μ . latis, aurantiacis; uredosporis ut in *Puccinia Caricis* globosis, ellipticis v. ovoideis, usque ad 25 μ . longis, aculeatis, episporio dilute brunneo, hyalinulis; teleutosporis in soros latos, rotundatos, atros, pulvinatos, compactos congestis, clavatis, 35-54, rarius 70 $\approx$ 12-20, levibus, dilute flavo-brunneis, medio plus minus constrictis, apice rotundatis vel acuminatis, pedicello persistenti usque ad 40 μ . longo.

Hab. æcidola et æcidia in foliis *Cirsii oleracei*, cani, palustris, tatarici, *Saussureæ serratæ* et *Serratulæ coronatæ*; uredosp. et teleutosporæ in foliis culmisque *Caricum* in primis *Caricis dioicæ*, et *Davallianæ*, in Germania et pr. Minussinsk Sibiriae Asiaticæ. — Relationem inter *Æcidium Cirsii* et *Pucciniam dioicæ* detexit et comprobavit cl. Rostrup.

57. **Puccinia obscura** Schroet. in Passer. Funghi parm. p. 256, n. 640, 2202 Pilz. Schles. p. 330, Winter Die Pilze p. 183, *Æcidium Bellidis* Thüm. Fung. austr. n. 635. — Spermogoniis maculiformibus; æcidiis poculiformibus, in annulos 0,5-1,5 mm. latos dispositis, subinde per totam superficiem foliorum sparsis; pseudoperidiis confertis, pallide flavis, margine levi, albido; æcidiosporis globosis vel rotundato-ovoides, ex aurantiaco hyalinulis; uredosporis in soros ellipticos v. lineares, diu tectos, sparsos vel nullo ordine congregatos, flavo-brunneolos congestis, globosis aut ellipticis, 19-26 $\approx$ 17-20, aculeatis, episporio brunneo, contentu hyalinulo; teleutosporis soros ellipsoideos v. oblongos, pulvinatos, mox nudos, atrofuscos efformantibus, obovato-clavatis, partim unicellularibus, par-

tim (numerosioribus) 30-45 $\approx$ 14-20, apice incrassatis obtuseque papillatis, medio constrictulis, levibus, brunneis; pedicello tereti, 18 $\approx$ 5, hyalino.

Hab. æcidiosa et æcidia in foliis petiolisque vivis *Bellidis* perennis; ured. et teleutosporæ in foliis calamisque *Luzulæ campestris*, multifloræ, pallescentis, silvaticæ, pilosæ, maximæ, in Italia, Bohemia, Austria et Germania. — Huc forte spectat *Æcidium Compositarum* var. *Bellidis* Westend. Herb. Crypt. belg. n. 836. Relationem inter *Æcidium* et *Pucciniam* comprobavit cl. Plowright.

58. **Puccinia Vulpinæ** Schroet. in Rabenh. Fungi Europ. n. 1886, Pilz. Schles. p. 330, Winter Die Pilze p. 182. — Spermogoniis in parvos greges dispositis, aurantiaco-rufis; æcidiis orbiculatim dispositis; pseudoperidiis breviter cylindræis, margine albo, denticulato; æcidiosporis aurantiacis; uredosporis in soros ellipticos v. lineares, exiguos, dilute flavidos, sparsos congestis, globosis, ellipticis aut ovoideis, 22-28 $\approx$ 16-22, aculeatis, pallide brunneis, guttulis oleosis, rufescentibus fartis; teleutosporis soros ellipticos vel lineares, diutius tectos, parvos efficientibus, clavatis vel subfusoides, 40-70 $\approx$ 12-17, apice rotundatis vel acuminatis, medio parum constrictis, dilute flavo-brunneis, pedicello brevi suffultis.

Hab. æcidiosa et æcidia in *Chrysanthemo Tanacetio*; ured. et teleutosporæ in *Carice vulpina*, in Silesia Germaniæ.

59. **Puccinia Phragmitis** (Schum.) Körn. in Hedw. 1876, pag. 179, Winter Die Pilze p. 179, Schroet. Pilz. Schles. p. 331, *Uredo Phragmitis* Schum. Fl. Saell. II, p. 231, *Puccinia arundinacea* Hedw. in DC. Fl. Franç. V, p. 59, *Puccinia Striola* Schlecht. Fl. Berol. II, p. 131 non Link, *Uredo Striola* Strauss in Wett. Ann. II, p. 105, *Puccinia Arundinariæ* Schwein. Syn. Carol. n. 487, *Æcidium rubellum* Gmel. Syst. II, p. 1473, *Æcidium Rumicis* Schlecht. Fl. Berol. II, p. 114, *Uredo arundinacea* Houel in Act. Lill. 1828, p. 36 c. icone. — Spermogoniis numerosis, in greges rotundatos dispositis, albis; æcidiis ut plurimum in maculis rufo-marginatis orbicularibus insidentibus, remotis; pseudoperidiis explanatis margine denticulatis; æcidiosporis 16-26 μ . latis, hyalinulis; uredosporis in soros oblongos, fuscis, sæpius confluentes congestis, ellipticis vel late ovatis, 26-35 $\approx$ 15-22, verrucosis, episporio brunneo, contentu achroo, paraphysibus nullis intermixtis; teleutosporis in soros amphigenos, erumpentes, apertos, valde elevatos, pulvinatos, oblongos vel lineares, plerumque magnos confluentesque,

atro-fuscos congestis, ellipticis vel oblongo-subfusoides, 40-75 $\approx$ 16-26, medio constrictis, apice incrassato-conoideis, levibus, obscure flavo-brunneis; pedicello longissimo, 100-200 μ . gracili, hyalino, sursum flavescente, sæpe flexuoso, persistente.

Hab. æcidia et æcidia in foliis vivis Rumicis obtusifolii, crispi, Hydrolapathi, alpini, Acetosæ, cordifolii et Eckloniani nec non Rhei Rhapontici; ured. et teleutospore in foliis culmisque, rarius in vaginis Phragmitis communis, Arundinis Donacis, Spartinae cynosuroidis, Andropogi furcati et scoparii, in Italia, Gallia, Helvetia, Germania, Britannia, Belgio, in America boreali, in Sibiria asiatica, in Africa australi. — Relationes metageneticas primum indicavit Winter; at nexum *Æcidii rubelli* cum *P. Phragmit.* experimentis comprobavit cl. Plowright.

60. **Puccinia Magnusiana** Körn. in Hedwigia 1876, pag. 179, Winter 2205
Die Pilze p. 221, Schroet. Pilz. Schles. p. 332, *Puccinia Phragmitis* Tul. in Ann. Scienc. Nat. IV, ser. 2, p. 184 nec Körn. *Lezythea Phragmit.* Oudem. in Ned. Kruidk. Archief XXV, 1, p. 260. — Spermogoniis æcidisque haud bene cognitis, *Uromyctis Dactylidis* similibus; uredosporis in soros exiguos, ellipticos, flavescentes congestis, ellipsoideis, v. ovoideis, 21-35 $\approx$ 12-20, aculeolatis, aurantiaco-flavis, paraphysibus clavatis intermixtis; teleutosporis in soros parvos, punctiformes vel striiformes, sæpe confluentes, atro-fusculos, pulvinulatos congestis, clavato-oblongis, apice valde incrassatis, rotundatis aut truncatis, 30-55 $\approx$ 15-26, medio vix vel non constrictis, castaneo-brunneis, pedicello brevi, rarius teleutosporam æquante.

Hab. ured. et teleutospore in foliis vaginisque Phragmitis communis, in Italia, Gallia, Austria, Helvetia, Germania et Britannia. — Statum æcidiosporum nonnulli auctores *Æcidium Ranunculi-repentis* suspicantur. «Cfr. *Pucciniam perplexantem* Plowr. ».

61. **Puccinia Moliniæ** Tul. in Ann. Scienc. Nat. 1854, p. 141, Winter 2206
Die Pilze p. 219, Schroet. Pilz. Schles. p. 332, *Cwoma (Æcidium) amicum* Rud. in Linnæa IV, pag. 511, *Æcidium Orchidearum* Desmaz. Cat. plant. omis. p. 26. — Spermogoniis in parvos greges congregatis, melleis; æcidiiis hypophyllis, plerumque orbiculatim dispositis; pseudoperidiis explanato-poculiformibus, margine albido, revoluta, lacinulata; æcidiosporis polygoniis, verruculosi, 17-26 $\approx$ 15-21, aurantiaco-flavis; uredosporis in soros lanceolatos vel li-

neares, sæpe confluentes, subtectos, sordide castaneos congestis, globosis vel breviter ellipticis, 20-28 $\approx$ 20-22, aculeatis, brunneolis; teleutosporis in soros pulvinatos, crassos, latos, ut plurimum late expansos, atro-brunneos confertis, ellipsoideis, non vel vix medio constrictis, utrinque regulariter rotundatis, 30-56 $\approx$ 20-26, obscure castaneo-brunneis, levibus, pedicello persistenti, usque ad 100 μ . longo, flavido.

Hab. æcidia et æcidia in foliis Orchidearum e. g. Orchidis latifoliæ et militaris, Platantheræ bifoliæ, Listeræ ovatæ; ured. et teleutosporæ in foliis, culmis paniculisque Moliniæ cæruleæ, in Italia, Gallia, Belgio, Britannia et Germania. — Relationes metageneticas detexit experimento cl. Rostrup.

62. **Puccinia perplexans** Plowr. on the Live Hist. of cert. Brit. heterocians Ured. p. 164. et in Hedwigia 1886, p. 38, *Æcidium Ranunculi-acris* auct. — *Æcidiosporis* globosis, 20-25 μ . diam., obscure brunneis; soris uredosporiferis ellipticis elongatis v. linearibus, amphigenis, præcipue epiphyllis, subinde confluentibus, mox nudis; uredosporis subglobosis, ovoideis v. subovatis, 30-35 $\approx$ 20-25, subtiliter echinulatis, flavo-aureis, paraphysibus subinde capitatis immixtis; soris teleutosporiferis minutis, punctiformibus at plerumque elongato-linearibus v. elongato-ovatis, epidermide tectis, atris, sæpe gregariis subindeque confluentibus; teleutosporis forma et magnitudine variis, loculo superiori rotundato, truncato vel attenuato, sæpe obliquo, loculo inferiori plerumque subcuneato brunneis, levibus, medio non vel vix constrictis, 40-60 $\approx$ 10-12, episporio sæpe conspicue granulato.

Hab. æcidia in Ranunculo acris; sori in foliis Alopecuri pratensis, Avenæ elatioris et Poæ cujusdam pr. King's Lynn Britannicæ. — «Cfr. *Pucc. Magnusianam* Körn.».

63. **Puccinia Seslerie** Reich. in Verhandl. Zool. bot. Gesellsch. in Wien 1877, p. 842, Winter Die Pilze p. 221. — *Æcidia* in maculis rotundatis vel elongatis, brunneolis, more flavidis insidentibus, irregulariter gregariis aut orbiculariter dispositis; pseudoperidiis cylindræis, usque ad 1 mm. longis, albis, margine parum lacinulato; æcidiosporis angulatis, 30 $\approx$ 15-20, subtiliter verrucosis, aurantiaco-flavis; uredosporis globosis, 15-18 μ . diam., episporio crasso aculeato tectis, flavis; soris teleutosporiferis linearibus; teleutosporis clavatis, apice rotundatis, medio subconstrictis, 25-30 $\approx$ 18-21,

subtiliter granulatis, obscure brunneis, pedicello longo, persistenti suffultis.

Hab. æcidia in foliis Rhamni saxatilis; uredosporæ et teleutosporæ in foliis Sesleriaæ cæruleæ in Austria.

Sectio B. BRACHYPUCCINIA Schroet. Spermogonia, uredo- et teleutosporæ in eadem matrice evoluta; æcidia laud evoluta.

14. **Puccinia suaveolens** (Pers.) Rostr. in Forhandl. skand. naturf. II, 2209 möde i Kjoben. 1874, Winter Die Pilze p. 189, Schroet. Pilz. Schles. p. 333, *Uredo suaveolens* Pers. Observ. II, p. 24, *Uredo Serratulæ* Schum. Pl. Saell. II, p. 231, *Uredo Cyani* DC. Syn. plant. p. 47, *Uredo punctiformis* Strauss in Wett. Ann. II, p. 103, *Cwoma obtegens* Link Observ. II, p. 27, *Sphaeronema Cirsii* Lasch in Kl. Herb. myc. n. 1069, *Æcidium Cirsii* Sacc. in Michelia, *Trichobasis Suaveolens* Lévy. Cfr. Cooke M. F. tab. VII, f. 151, 153, De Bary Brandpilze t. III, f. 1-4. — Spermogoniis confertis, totam foliorum superficiem obtegentibus, grati odoris, intense melleis; uredosporis in soros hypophyllos, suborbiculares, fere planos, sparsos, demum confluentes, interdum paginam inferiorem totam occupantes, epidermide lacerata cinctos, fuscus vel in soros exiguos, solitarios vel aggregatos, atro-brunneos congestis, sphaeroideis, 21-28 $\approx$ 20-23, aculeatis, dilute brunneis, guttulis oleosis rufescentibus fartis; teleutosporis in soros conformes congestis, ellipticis vel ovoideis, apice hemisphaerice rotundatis, medio vix constrictis, basi elliptico-attenuatis, 26-42 $\approx$ 17-24, punctulatis, amœne brunneis; pedicello mox deciduo, 4-5 μ . longo, gracili, hyalino.

Hab. in foliis Cirsii arvensis, in Italia, Gallia, Belgio, Austria, Helvetia, Germania, Fennia nec non in silvis mont. pr. flumen Irba Sibiriaæ. — Forma **Cyani** Wint. l. c. p. 190: a typo differt uredosporis majoribus subtilissime verrucosis et teleutosporis plerumque late ellipticis, obscure castaneo-brunneis, usque ad 32 μ . latis. In foliis Centaureæ Cyani, in Germania et Gallia.

15. **Puccinia Hieracii** (Schum.) Mart. Fl. Mosq. p. 226, Schroet. Pilz. 2210 Schles. p. 333, *Æcidium Compositarum* Mart. Erlang. p. 314, p. p. *Æcidium Centaureæ* DC. Fl. Franç. II, p. 241, *Æcidium Rostrupii* Thüm. in Bot. Tidsskr. III, 2, 1877. *Uredo Hieracii* Schum. Fl. Saell. II, p. 232, *Uredo flosculosorum* Alb. et Schwein. Consp. Nisk. n. 362, *Cwoma ephialtes* Schlecht. Flor. Berol. II, p. 126, *Uredo Cichoracearum* DC. l. c. p. 229, *Puccinia Centaureæ* Mart. et

P. Cnici Mart. Fl. Mosq. p. 226, *Puccinia variabilis* Grev. Scott. Crypt. t. 75, *Puccinia Compositarum* Schlecht. Fl. Be rol II, p. 133, ex parte *Puccinia Bardanæ* Corda Icon. IV, p. 15, t. 5, f. 63, *Puccinia Hypochæridis* Oudem. in Nederl. Kruidk. Arch. II, ser. 1, p. 175, *Puccinia vulgaris* Bonord. Coniom. pag. 50, *Puccinia flosculosorum* Roehl Fl. germ. III, pag. 131, Winter Die Pilz p. 206, *P. Echinopsis* DC. l. c. VI, p. 59, *Puccinia Calcitrapæ* DC. Fl. Franç. II, p. 221, *P. hysterioides* Corda Icon. I, p. 6, t. II, f. 94, *Puccinia Cyani* Pass. *Pucc. Lappæ* Cast. Cat. p. 201. — Spermogoniis in parvos greges dispositis, flavo-melleis; æcidiis nullo ordine v. orbiculatim distributis, maculis purpurascens; pseudoperidiis minutis, flavescentibus, poculiformi-explanatis, margine albo, lato, denticulato; æcidiosporis angulato-sphæroideis, 30 ≈ 16-23, dilute aurantiaco-flavis, levibus vel subtiliter verrucosis; uredosporis soros amphigenos, rotundatos, sparsos vel aggregatos, minutos, fuscos efficientibus, globosis vel breviter ellipticis, 17-32 ≈ 16-26, aculeatis, 2-3 poros gerentibus, castaneo-brunneis; teleutosporis in soros conformes congestis, ellipticis vel ovoideis, apice hemisphæricæ rotundatis, deorsum plerumque attenuatis, medio non constrictis, punctis subtilibus ornatis, 24-45 ≈ 17-28, brunneis; pedicello gracili, mox deciduo, hyalino, longiusculo.

Hab. in foliis caulibusque Compositarum imprimis Carolinæ, Cirsii, Taraxaci, Centaureæ, Chrysanthemi, Conoclinii, Crepidis, Lappæ, Leontodontis, Hieracii, Lenzeæ, Cardui, Serratulæ, Cichorii, Picridis, Scorzonæræ, Hypochæridis, Achyrophori, in Italia, Belgio, Lusitania, Britannia, Helvetia, Austria, Germania, Fennia, Gallia, in Americæ fœderatæ et Sibiariæ asiaticæ regionibus variis. — Iluc pertinent verisimiliter, suadente quoque cl. Winter, *Puccinia Syngenesiarum* Link Sp. II, p. 74 et *Puccinia Cirsii* Lasch in Rabenh. F. E. n. 89.

66. ***Puccinia bullata*** (Pers.) Schroet. Pilz. Schles. p. 335 nec Schwein., Winter Die Pilze p. 191, *Uredo bullata* Pers. Observ. I, p. 98, *Bullaria Umbelliferarum* DC. Fl. Franç. II, p. 226, *Uredo Athamantæ* DC. l. c. p. 228, *Uredo Cynapii* DC. Encycl. VIII, p. 226, *Uredo Conii* et *nitida* Strauss in Wett. Ann. II, p. 96, *Uredo muricella* Rabenh. Krypt. Fl. I, p. 6 p. p. *Puccinia Ethusæ* Mart. Fl. Mosq. p. 225, *P. bullaria* Link in L. Sp. plant. VI, 2, p. 78, *P. Apii* Corda Icon. VI, p. 30, *P. Anethi* et *P. Silai* Fuck. Symb. p. 51 et 53, *P. rubiginosa* Schroet. Brand. u. Rostpilze p. 19,

Æcidium Æthusæ Kirchn. in Lotos 1856, p. 180?, *P. Umbelliferarum* DC. l. c. VI, p. 58, *Pucc. Physospermi* Pass.? — Spermogoniis melleis, in parvos greges rotundatos dispositis; soris utriusque formæ sine maculis vel in maculis pallidis, flavidis aut brunneolis insidentibus, plerumque minutis, irregulariter rotundatis, in petiolis caulibusque majoribus, ellipticis vel oblongis, rarius linearibus, sæpe confluentibus, ut plurimum sparsis, subinde orbiculatim dispositis; uredosporis irregulariter rotundatis aut ellipticis, apice incrassatis, 23-33 $\approx$ 20-26, aculeatis, ochraceo-brunneis, latere 2 poros gerentibus breviter pedicellatis; teleutosporis difformibus, ad septum leniter constrictis, utrinque rotundatis v. pedicellum versus, rarius apicem versus angustatis, apice incrassatis, 30-56 $\approx$ 17-28, levibus, brunneis; pedicello deciduo, gracili, longiusculo.

Hab. in foliis, petiolis caulibusque Umbelliferarum variarum gen. Conii, Apii, Petroselini, Æthusæ, Cnidii, Silai, Selini, Peucedani, Archangelicæ, Imperatoriæ, Anethi, Seselis, Libanotidis, Thysselini, Laserpitii Physospermi et Ferulaginis, in Italia, Belgio, Gallia, Britannia, Bohemia, Germania et Fennia, in America boreali, Australia. — «An, suadente cl. Karsten, hujus speciei status æcidiosporus *Æcidium Æthusæ* Kirchn. in Lotos 1856, p. 180 sistit?» Pseudoperidia folia petiolosque incolentia, subiculo incrassato flavescenti insidentia, congesta, subrotunda vel compressa, margine subintegro prominulo, alba, exigua; æcidiosporæ albidæ. In Bohemia et in Cerefolio silvestri in Fennia.

37. **Puccinia Oreoselini** (Strauss) Körn. in Hedwigia 1877, p. 2, Winter 2212 Die Pilze p. 191, Schroet. Pilz. Schles. pag. 335, *Uredo Oreoselini* Strauss in Wett. Ann. II, p. 87, *Puccinia Peucedani* Körn. in Hedwigia 1877, p. 17, *Uredo muricella* Rabenh. Krypt. Fl. I, p. 6 p. p. — Spermogoniis in bullis lividis numerosis, melleis; soris ured. et teleut. formæ duplicis sive ut spermogoniis in bullis insidentibus, late expansis, primo cinnamomeis, dein obscurioribus, demum atris, sive exiguis, sparsis; uredosporis ovato-oblongis, 23-40 $\approx$ 19-24, aculeatis, flavo-brunneis; teleutosporis ellipticis vel clavulatis, medio subconstrictis, apice rotundatis, basi angustatis, verrucosis, 30-45 $\approx$ 17-23, castaneo-brunneis; pedicello gracili, non deciduo.

Hab. in foliis petiolisque Peucedani Oreoselini, Cervariæ, alsatici et Seselis colorati, in Italia, pr. Arnes Galliæ (GANDOGER). Austria et Germania.

Sectio C. HEMIPUCCINIA Schroet. Uredo- et teleutosporæ in eadem matrice evolutæ; spermogonia et æcidia ignota.

1. In Dicotyledoneis parasiticæ.

a) Teleutosporæ episporio levi vel vix superne punctulato præditæ v. quoad episporium dubiæ.

68. **Puccinia Polygoni** Pers. Syn. p. 227 (sub nom. *P. Polygoni-amphibii*) Schroet. Pilz. Schles. p. 336, *Puccinia Polygoni-Convulvuli* DC. Flor. Franç. VI, p. 61, *Puccinia Polygonorum* Schlecht. Fl. Berol. II, p. 132, *Puccinia Amphibii* Fuck. Symb. II Nachtr. p. 15, *Puccinia Polygoni-pensylvanici* Schwein. Syn. Fung. Carol. p. 72, n. 488, *Uredo Betae* var. *Convulvuli* Alb. et Schwein. Consp. p. 132, *Puccinia Amphibii* Fuck. Symb. II, p. 15, *Trichobasis Polygonorum* Lév. in Rav. F. A. n. 43. — Uredosporis in soros parvos, primo ochraceos, dein castaneo-fuscidulos, rotundatos, sæpe orbiculatim dispositos, maculiformes congestis, globosis, ellipticis vel ovoideis, 20-30 $\approx$ 15-23, ochraceis, spinulosis; teleutosporis in soros atro-fuscos, diu epidermide tectos, convexos, confertos congestis, clavatis, apice rotundatis v. obtusis, medio paululum constrictis, 30-55 $\approx$ 15-22, loculo superiori plerumque latiore, levibus, castaneo-brunneis, pedicello persistenti, crassiusculo, teleutosporam æquante vel breviusculo.

Hab. in foliis, caulibus vaginisque *Polygoni amphibii*, *lappathifolii*, *Convulvuli*, *dumetorum*, *virginiani*, *acris*, *alpini* et *pensylvanici*, in Italia, Gallia, Lusitania, Belgio, Austria, Bohemia, Helvetia, Germania. Neerlandia, Fennia, Britannia, in America boreali et prope Minussinsk Sibiricæ asiaticæ. — ***P. Lysimachicæ** Karst. Myc. Fenn. p. 27; soris uredosporiferis hypophyllis, plerumque suborbicularibus, sparsis vel subconfertis, fuscis; uredosporis sphæroideis, 20-26 μ . diam.; soris teleutosporiferis hypophyllis, confertis, confluentibus, suborbicularibus, atro-fuscis; teleutosporis clavato-ellipsoideis, ad septum vix constrictis, flavis, pedicello brevi, flavo instructis. In foliis *Lysimachicæ* in Fennia.

69. **Puccinia Rumicis-scutati** (DC.) Wint. Die Pilze p. 187, Massal. Ured. Veron. t. III, f. XVI, 1-4, *Uredo Rumicis-scutati* DC. Encycl. VIII, p. 223, *Puccinia Rumicis* (Belynyk) Westend. III Notice n. 96, *Puccinia pedunculata* Schroet. in 42. Jahresb. Schles. Gesellsch. 1875, p. 117. — Soris utriusque formæ sparsis v. secus

orbem dispositis, irregulariter rotundatis vel (in petiolis caulibusque) elongatis, epidermide lacerata cinetis, fuscis; uredosporis plerumque ellipsoideis aut ovoideis, rarius globosis vel oblongis, 26-40 $\approx$ 20-28, aculeatis, flavo-brunneis; teleutosporis oblongis vel clavatis, medio paullo vel non constrictis, apice incrassatis, rotundatis aut subattenuatis, basi in pedicellum angustatis, 38-56 $\approx$ 16-28, fuscidulis, pedicello longo, persistenti, brunneo,

Hab. in foliis, petiolis caulibusque Rumicis scutati, in Italia, Austria, Helvetia, Belgio, Gallia et Germania.

70. **Puccinia Tanacetii** DC. Fl. Franc. II, p. 222, Winter Die Pilze 2215 p. 209, Schroet. Pilz. Schles. p. 336, *Puccinia Absinthii* DC. Encycl. VIII, p. 245, *Cecoma Artemisiæ* Link in L. Sp. plant. VI, 2, pag. 49, *Puccinia Discoidearum* Link l. c. p. 72 p. p., *Cecoma phæum* Bonord. Coniom. p. 9, *Puccinia Pyrethri* Rabenh. in Kl. H. M. n. 1990, *P. Artemisiæ* Fuck. F. Rhen. n. 350, *Uredo Artemisiæ* Rabenh. Handb. pag. 111, *Puccinia Artemisiarum* Duby Bot. Gall. II, pag. 888, *Uredo minuta* Dietr. in Blicke Ostreepr. p. 21 sec. Karsten., *P. Dracunculi* Auersw. in Kl. Herb. myc. n. 1488. — Uredosporis in soros hypophyllos, sparsos, erumpentes, orbiculares, planos, exiguos, fuscidulos congestis, ellipticis vel ovatis, 19-35 $\approx$ 16-25, muricato-aculeolatis, ochraceis; teleutosporis in soros amphigenos, subatros, pulvinatos, erumpentes, orbiculares, sparsos confluentesve congestis, ellipticis vel clavatis, apice valde incrassatis, loculis subæqualibus, ad septum constrictis, 32-60 $\approx$ 17-28, levibus vel apice punctulatis, castaneo-brunneis, pedicello hyalino, usque ad 100 μ . longo præditis.

Hab. in foliis, petiolis caulibusque Tanacetii vulgaris, Carlinæ vulgaris, Chrysanthemi corymbosi, Artemisiæ maritimæ, Absinthii, vulgaris, Dracunculi, Abrotani, borealis, macranthæ, glaucæ, monogynæ et frigidæ, in Italia, Gallia, Britannia, Belgio, Austria, Germania et Fennia nec non prope Minussinsk Sibiariæ asiaticæ.

1. **Puccinia Stachydis** DC. Flor. Franc. II, p. 595, Winter Die Pilze 2216 pag. 188. — Soris utriusque formæ minutis, rotundato-pulvinatis, in maculis expansis, violaceis vel sordide brunneis insidentibus; uredosporis globosis vel breviter ellipticis, 21-26 $\approx$ 19-26, aculeatis, brunneis; teleutosporis oblongis vel ellipsoideis, medio haud vel paullulum constrictis, deorsum subangustatis, rarius rotundatis, apice valde incrassatis, rotundatis aut plus minus conoideis, 35-52 $\approx$ 16-28, levibus, castaneo-brunneis, pedicello longo suffultis.

Hab. in foliis, caulibus calycibusque *Stachydis rectæ*, pr. Vittorio alibique in Italia boreali, in Gallia et Germania.

72. **Puccinia Sonchi** Rob. et Desmaz. in Ann. Scienc. Nat. 1849, III, sér., 11, p. 274, Winter Die Pilze p. 189. — Soris uredosporiferis primo epidermide bullato-vesiculosa obtectis, dein ab ea cupulariformi-cinctis, rotundato-pulvinatis, sparsis vel nullo ordine aggregatis, brunneis; uredosporis globosis, ovatis, ellipticis aut oblongis, $25-35 \approx 16-21$, verrucosis, episporio crasso, hyalino, contenu flavo-oleagineo; soris teleutosporiferis magis compactis, rotundato-pulvinatis, in caule elongatis, sæpe confluentibus, sparsis v. secus orbem dispositis aut irregulariter aggregatis, atris, paraphysibus apice clavatis, $40-60 \approx 25$, brunneis; teleutosporis ellipsoideis vel oblongis, medio constrictulis, basi rotundatis vel in pedicellum angustatis, apice paullulum incrassatis rotundatisque, $30-60 \approx 19-30$, levibus, pallide brunneis, pedicello breviusculo, $8-10 \approx 8$, persistenti fultis; mesosporis (unilocularibus) numerosis, conformibus, usque ad 50μ . longis.

Hab. in foliis *Sonchorum* e. g. *Sonchi arvensis*, in Italia, Gallia et Germania.

73. **Puccinia Acetosæ** (Schum.) Körn. in Hedwigia 1876, pag. 184. Winter Die Pilze p. 187, Schroet. Pilz. Schles. p. 339, *Uredo Acetosæ* Schum. Saell. II, p. 231, *Puccinia Rumicis* Lasch in Rabenh. Fungi Europ. n. 496. — Soris utriusque formæ sparsis, in foliis minutis, irregulariter rotundatis, in caulibus petiolisque oblongis, mox denudatis; uredosporis globosis, ellipticis vel piriformibus, $24-30 \approx 20-25$, aculeatis, brunneolis; teleutosporis oblongis vel subclavatis, medio constrictis, apice rotundato-marginatis, $30-45 \approx 20-25$, subverruculosis, castaneo-brunneis, pedicello hyalino. longiusculo, gracili, deciduo.

Hab. in foliis *Rumicis Acetosæ*, arifolii, *Acetosellæ* in Helvetia, Italia et Germania.

74. **Puccinia Bistortæ** (Strauss) DC. Flor. Franç. VI, p. 61, Winter Die Pilze p. 186, Schroet. Pilz. Schles. p. 339, Massal. Ured. Veron. pag. 31, t. III, f. XV, 1-2, *Uredo (Polygoni var.) Bistortæ* Strauss in Wett. Ann. II, p. 103 p. max. p., *Uredo Bistortarum* DC. l. c. p. 67, *Puccinia Polygoni-vivipari* Karst. Enum. Fung. Lapp. p. 221, *Puccinia papillosa* Schroet. in Johans. Bot. Sect. Nat. Stud. Upsala pag. 3959. — Uredosporis in soros sparsos minutos, rotundatos, ochraceos congestis, globosis vel breviter ellipsoideis, $20-25 \approx 18-20$, aculeolatis, episporio flavo, contenu hya

linulo; teleutosporis in soros minutissimos, sparsos. sæpe confluentes, rotundatos, planos, primo tectos, dein epidermide lacerata tinctos, fuscis congestis, ellipticis vel ovatis, medio parum vel non constrictis, 24-38 $\approx$ 15-24, apice non incrassatis, levibus, brunneis, pedicello gracili, hyalino, brevi.

Hab. in foliis Polygoni Bistortæ et Pol. vivipari, in Italia, Austria, Helvetia, Germania, Fennia, Lapponia, Gallia, Britannia nec non prope Montem Borus.

75. **Puccinia mammillata** Schroet. Krypt. Fl. Schles. Pilze pag. 340. 2220

— Uredosporis in soros minutos, ochraceos, rotundatos congestis, ellipticis vel globosis, 22-26 $\approx$ 20-22, flavescentibus, aculeatis; teleutosporis in maculis parvis, atro-brunneis congestis, ovatis vel clavatis, apice rotundatis vel subacuminatis, apiculo verruciformi, obtuso, hyalino auctis, medio parum vel haud constrictis, basi plerumque paullulum angustatis, 28-38 $\approx$ 16-21, amœne castaneo-brunneis, pedicello gracili, hyalino.

Hab. in foliis Polygoni Bistortæ, in Silesia Germaniæ. — Teleutosporarum loculum inferius lateraliter apiculos verruciformes præbet.

76. **Puccinia argentata** (Schultz) Winter Die Pilze p. 194, Schroet. 2221

Pilz. Schles. pag. 340, *Ecidium argentatum* Schultz. Prodr. Fl. Stargdard. p. 454, *Cecoma Impatientis* Link Handb. III, p. 439, *Puccinia Nolitantere* Corda Icones IV, p. 16, t. V, f. 57, *Puccinia papillata* Bonord. in Rabenh. F. E. n. 297, *Uredo Impatientis* Rabenh. Handb. n. 35. — Uredosporis in soros ochraceos vel dilute cinnamomeos, parvos congestis, globulosis vel ellipsoideis, 16-20 $\approx$ 14-16, asperulis dilutissime flavis, longiuscule pedicellatis; teleutosporis soros castaneo-brunneos, maculiformes, sæpius confluentes efformantibus, ellipticis, ovatis vel subclavatis, medio subconstrictis, apice rotundatis vel attenuatis, apiculis hyalinis vertice lateribusque ornatis, 25-35 $\approx$ 12-20, brunneis, granulosis, levibus, pedicello brevi, gracillimo, hyalino.

Hab. in foliis Impatientis, Nolitantere et fulvæ, in Italia, Britannia, Belgio, Arduennis, Austria, Bohemia, Germania et in America boreali. — Sec. cl. Saccardo teleutosporæ subinde germinant filamentaque varie ramulosa sporidiolophora tota hyalina proferunt.

77. **Puccinia helvetica** Schroet. in Rabenh. Fungi Europæi n. 1766, 2222

Winter Die Pilze p. 190, *Puccinia Rubiæ* Fuck. Symb. Nachtr. II, p. 14 (matrice errata). — Soris uredosporiferis sparsis v. secus

orbem dispositis, plerumque amphigenis, mox denudatis; uredosporis irregulariter globosis vel ellipticis, 20-30 $\approx$ 20-24, aculeatis, dilute brunneis; soris teleutosporiferis similibus at diu epidermide grisea tectis, sordide brunneis; teleutosporis ellipsoideis vel oblongis, medio vix vel haud constrictis, apice incrassatis, 26-40 $\approx$ 17-26, levibus, brunneis.

Hab. in foliis *Asperulæ taurinæ*, prope M. Generoso Italiae (M. PENZIG) et in Germania.

78. **Puccinia granularis** Kalchbr. et Cooke in Grevillea XI, pag. 22.

Uredo Pelargonii Thüm. in Myc. univ. n. 955. — Soris hypophyllis, gregariis, concentrice dispositis, mediis, planis, primo epidermide tectis, rufo-fuscis, in macula indeterminata, vix expallescenti; uredosporis aut solitariis aut concatenatis, catenulis quadri-sex-sporis, rectis, globosis vel ellipticis, sæpe basi verticeque apicibus minimis impositis, episorio tenui, levi vel granulato, 12-25 $\approx$ 9-15, fuscidulis; teleutosporis immixtis ellipticis, utrinque attenuatis, supra subpapillatis, læte brunneis, medio leviter constrictis, levibus, 40 $\approx$ 20, pedicello brevioribus.

Hab. in foliis viris *Pelargonii alchemilloidis*, in dumetis ad pedem montis « Boschberg » prope Somerset-East, Promont. Bonæ Spei nec non ad P. Natal Africae.

79. **Puccinia Cerasi** (Bèrèng.) Cast. Obs. I, pag. 13, Cat. pl. Mars.

pag. 199, Winter Die Pilze pag. 193, *Mycogone Cerasi* Bèrèng. in Atti Congr. Milano 1844, p. 475. — Soris utriusque formæ irregulariter rotundatis aut ellipticis, sæpius confluentibus in maculis diversi coloris insidentibus, diu epidermide circumcinctis; uredosporis globosis, oblongis vel ellipsoideis, rarius etiam piriformibus, 17-30 $\approx$ 15-20, flavidis; teleutosporis oblongis, longiuscule pedicellatis, medio constrictulis, apice non vel vix incrassatis, plerumque rotundatis, rarius angustatis, 30-45 $\approx$ 15-20, levibus, fere hyalinis.

Hab. in foliis *Pruni Cerasi* et *Amygdali Persicæ*, in Italia, Austria, Gallia et Germania. — Iluc forte pertinet *Uredo Castagnei* Rav.

80. **Puccinia Gundeliæ** Cooke in Grevillea IX, pag. 14. — Amphigena;

soris orbicularibus, sparsis, brunneis; uredosporis globosis, fuscis, granulatis, 28-30 μ diam.; teleutosporis immixtis late ellipsoideis vel difformibus, 32-35 $\approx$ 20, levibus, pedicellis brevissimis.

Hab. in foliis *Gundeliæ Tournefortii*, Kurdistan Asiae.

81. **Puccinia Kuhnii** Schwein. N. Amer. Fungi p. 296, Burrill Fungi

of Illinois pag. 181. — Amphigena; soris non prominentibus nec compactis, superficie rugosa inæquali; uredosporis immixtis, subglobosis aut oblongis, $27-30 \approx 16-27$, echinulatis, flavo-brunneis; teleutosporis uniformibus, apice rotundatis, latis, apiculo brevissimo, hyalino auctis, deorsum subinde latere loculi inferioris papillula simili instructis, $44 \approx 30$, levibus, fuscis, pedicello usque ad 90 μ . longo.

Hab. in foliis Kuhniae eupatorioidis, in Pensylvania et Illinois Americæ borealis.

2. **Puccinia Hydrocotyles** (Mont.) Cooke in Grevillea IX, pag. 14, 2226
Cavoma Hydrocotyles Link Sp. II, pag. 22, *Uredo Hydrocotyles* Mont. Prodr. J. Fern. n. 59 et Fl. Chil. VIII, p. 50, Winter Dio Pilze p. 255. — Soris hypophyllis, subrotundis, sparsis confluentibusque fusco-brunneis, epidermide rupta cinctis; uredosporis globosis, $24-35 \approx 19-26$, tandem brunneis, asperis, granuloso-faretis; teleutosporis ellipticis, leniter constrictis, brunneis, $30-40 \approx 20-25$, episporio levi, pedicellis elongatis.

Hab. in foliis Hydrocotyles vulgaris, modestæ et forte bonariensis in Chili (BERTERO), ad Fontainebleau Galliæ (ROUSSEL et MONTAGNE), Epping Forest Britanniae, in Germania, in Santos America boreali, Brasilia et Republica Argentina.

3. **Puccinia caulicola** Tracy et Gall. in Journ. of Mycology 1888, 2227
 p. 20, non *Puccinia caulicola* Niessl, nec Spreng. nec Schneid. — Soris uredosporiferis hypophyllis, minutissimis, folli superficiem totam obtegentibus; uredosporis subglobosis, $20-22 \approx 15-17$, rugulosis, episporio crasso, læte brunneis, plerumque vacuolis 1-2, plus minus prominulis instructis; soris teleutosporiferis cauliculis, sparsis, plerumque elongatis, atris; teleutosporis ovatis, non constrictis, $35-40 \approx 25-27$, vertice valde incrassatis, subhyalinis, levibus, pedicello fere hyalino, longissimo fultis.

Hab. in foliis caulibusque Salviæ lanceolatae, Colorado Americæ borealis (TRACY et EVANS).

4. **Puccinia nuda** Ell. et Everh. in Journal of Mycology 1887, p. 57, 2228
 — Soris amphigenis, sparsis gregariisve, rotundatis, atris, circ. 1 mm. diam., folio circa soros pallide flavescente; teleutosporis oblongo-ellipticis vel oblongo-clavatis, leniter ad septum constrictis, vertice incrassatis, papilla obliqua, subhyalina, distincta auctis, $35-45 \approx 19-22$, levibus, primo pallidis demum fuscis, pedicello 90-115 μ . longo; uredosporis paucis, globosis, $25-30 \mu$. diam., levibus vel sublevibus, epedicellatis immixtis.

Hab. in foliis *Arnicae foliosæ*, Washington Terr. Americae borealis (SUKSDORF). — Adsunt etiam mesosporæ vel teleutosporæ septo destitutæ obovatæ, $25 \approx 22$, longe pedicellatæ. A *P. arnicæ* Peck toto cælo diversa.

85. **Puccinia Oxyriæ** Fuck. Symb. myc. pag. 14, Winter Die Pilze pag. 186. — Soris uredosporiferis hypo-epiphyllisque, greges formantibus, minutis, plerumque oblongis, erumpentibus, in macula læte purpurea, fuscis; uredosporis perfecte globosis vel piriformibus, $23-30 \approx 20-26$, subtiliter spinulosis; soris teleutosporiferis demum in iisdem foliis petiolisque natis, plerumque elongatis, gregariis, in macula purpurea, per epidermidem longitudinaliter fissam erumpentibus, atro-fuscis; teleutosporis oblongo-ovatis, utriusque plus minusve rotundatis, vertice quandoque parum apiculatis, breviter pedicellatis, medio constrictis, $30-46 \approx 17-25$, levibus, fuscis.

Hab. in foliis, petiolis rachidibusque *Oxyriæ digynæ*, prope S. Moritz in Engadina et in Germania.

86. **Puccinia Heterophyllæ** Cooke in Grevillea IX, pag. 14. — Hypophylla vel amphigena; soris applanatis, suborbicularibus, brunneis, pulverulentis, dense gregariis; uredosporis globosis, levibus, pallide fuscis, $20-22 \mu$ diam.; teleutosporis in soris immixtis, obscurioribus, ellipticis, vix constrictis, brunneis, $30-32 \approx 20$, levibus pedicello brevissimo fultis.

Hab. in foliis *Serratulæ heterophyllæ*, Kurdistan Asiae.

87. **Puccinia Proserpinaceæ** Farlow in Proc. Amer. Acad. Arts and Scienc. vol. XVIII, p. 80, Burrill Paras. Fungi of Illinois p. 179. — Amphigena at plerumque tantum hypophylla; soris utriusque formæ rotundatis, sparsis vel irregulariter aggregatis, subinde confluentibus, raro nudis, castaneo-brunneis, uredosporiferis epidermidis ruptæ fragmentis tectis, teleutosporiferis demum griseis; uredosporis obovatis, $24-30 \approx 15-21$, echinulatis, dilute cinnamomeis; teleutosporis oblongis, subinde angustatis, sensim plerumque ad septum constrictis, apice incrassatis et rotundatis vel echinatis, $35-52 \approx 15-31$, levibus, pallide brunneis; pedicello subhyalino, dimidiam teleutosporam subæquante.

Hab. in foliis *Proserpinaceæ palustris*, in America boreali.

88. **Puccinia deformans** Winter in Flora 1884, n. 14. — Soris uredosporiferis magnis, dense gregariis, ramulos juniores sæpeque foliorum superficiem longe lateque obtegentibus et plus minus deformantibus, epidermide mox fissa diu velatis, aureo-fulvis, primo

ellipticis, demum sæpe confluentibus elongatisque, 0,5-3 mm. longis; uredosporis ellipticis, elliptico-oblongis vel piriformibus, 26-40 $\approx$ 19-24, echinulatis, aureis; soris teleutosporiferis similibus immixtis; teleutosporis oblongis vel oblongo-subclavatis, medio parum constrictis, episporio toto æquali vel ad apicem perparum incrassato, vertice interdum paullulum apiculatis, basim versus rotundatis vel subattenuatis, 35-56 $\approx$ 19-28, levibus, amene badiis, pedicello longo crassoque, hyalino, in aqua diffuente, usque 20 μ . incrassato suffultis.

Hab. in foliis caulibusque vivis Montiniæ acris, prope Caput Bonæ Spei Africae australis (MAC OWAN). — Spermogonia cum soris uredosporiferis immixta, numerosissima, præcipue foliicola, punctiformia.

9. **Puccinia Psidii** Winter in Hedwigia 1884, p. 171. — Soris uredosporiferis plerumque in maculis rotundatis seu irregularibus fuscis, nigro-cinctis, circ. 3-5 mm. latis, sæpe confluentibus, amphigenis gregariis, rarius supra foliorum totam paginam sparsis minutis, erumpentibus, demum denudatis et ab epidermide fissa cinctis, pallidis; uredosporis subglobosis ovatisve, episporio tenui, densissime tenuissimeque echinulato, hyalinis, 19 μ . diam. vel 23 $\approx$ 16, aurantiacis; soris teleutosporiferis cum uredosporiferis mixtis, minutissimis, punctiformibus, gregariis; teleutosporis ovato-oblongis, medio parum constrictis, vertice non incrassatis, episporio tenui, levi, pallidissime luteolo instructis, 31-33 $\approx$ 18, pedicello haud persistenti, hyalino fultis.

Hab. in foliis vivis Psidii pomiferi, prope S. Francisco in Brasilia Americae australis (E. ULE).

10. **Puccinia Castagnei** Thüm. Quelq. esp. champ. Fr. n. 1, *Puccinia* 2234 *Aprii-graveolentis* Cast. Observ. I, pag. 14, Cat. plant. Mars. I, pag. 200. — Soris amphigenis, magnis, bullatis, primo epidermide cinereo-vesiculoso-tectis, demum liberis, obscure spadiceis; teleutosporis irregulariter clavatis, sæpe incurvis, medio constrictis, apice rotundatis, basi non vel paullo in pedicellum angustatis, episporio densissime punctulato, tenui, 36-46 $\approx$ 18-24, fuscis; pedicello brevi, cito caduco vel evanido; uredosporis immixtis, globosis vel irregulariter ovoideis, episporio subcrasso, punctulato et minute echinulato, 28-34 μ . diam., fuscidulis.

Hab. in foliis vivis Aprii graveolentis, prope Marseille (CASTAGNE) et prope Lyon Galliae (J. THERRY). — A *Puccinia Aprii* Corda Icon. Fung. VI, p. 3, t. 1, f. 11, valde differt teleutosporis

punctulatis, majoribus, irregularibus, curvatis, pedicello tenui et caduco; uredosporis majoribus et echinulatis.

91. **Puccinia Harknessi** Vize in Grevillea VII, pag. 11, Ellis North Amer. Fungi n. 1446. — Soris parvis, oblongis, fuscis, demum erumpentibus epidermide cinctis, stipite parvo fultis; teleutosporis oblongis, brunneis, in medio pæne æqualiter septatis, $50 \approx 25$, sub levibus.

Hab. in ramulis *Lygodesmiæ* in altitudine Sierræ Nevada Californiæ (HARKNESS). — «In eodem soro, in specimine in herbario Saccardiano asservato, adsunt uredosporæ sphaeroideæ, $25-30 \mu$. diam., flavescentes, subtiliter echinulatæ».

92. **Puccinia persica** Wettst. in Hedwigia 1887, pag. 115. — Soris magnis, convexis, orbicularibus, atro-fuscis, pulveraceis, gregariis vel solitariis, sæpe confluentibus; uredosporis subglobosis vel ovatis, $25 \approx 20$, pallide fuscis, episporio aspero, plerumque apice valde incrassato; teleutosporis ovatis v. obovato-clavatis, $35-45 \approx 21-31$, fuscis, apice rotundatis, medio parum vel haud constrictis, episporio tenuissime aspero, apice nonnumquam incrassato donatis, a pedicello tenui, hyalino mox solutis.

Hab. in foliis vivis *Centaureæ carduiformis*, in Persia.

93. **Puccinia Schileana** Speg. Fung. Argentinæ II, p. 12, n. 31, *Uredo Schileana* Speg. l. c. p. 15, n. 43. — Hypophylla, rarissime epiphylla, maculis nullis; soris uredosporiferis pallide ochraceis; uredosporis subglobosis, $20-22 \mu$. diam., fulvo-fulgineis, levibus; soris teleutosporiferis sparsis, aterrimis, orbicularibus v. elongatis, compactiusculis, $0,5-2$ mm. diam.; teleutosporis ellipticis vel ovoideis, crassis, utrinque obtusissime rotundatis, medio uniseptatis non vel vix constrictis, $30-35 \approx 24-26$, episporio levi, crassiusculo, apice pallidiore atque incrassato, loculis uniguttulatis, interne fulgineis, pedicello cylindraceo, $30-35 \approx 5-8$, hyalino.

Hab. in foliis vivis *Ximenesiæ micropterae*, prope Buenos Ayres in Republica Argentina Amer. australis (M. SCHILEO).

94. **Puccinia Spegazziniana** De-Toni, *Puccinia Verbesinæ* Speg. Fungi Arg. II, p. 12 non Schwein., *Uredo Verbesinæ* Speg. Fungi Arg. II, n. 41 et verisimiliter etiam *Uredo affinis* Speg. l. c. pag. 15, n. 47. — Hypophylla; maculis nullis vel epiphyllis, pallescentibus, indeterminatis; soris hinc inde densiuscule sparsis, minutis, $500-750 \mu$. diam.; teleutosporis elongato-clavatis, levibus, medio septato-constrictis, $60-80 \approx 25-30$, saturate fulgineis, episporio apice crassissimo, loculis non v. uniguttulatis, pedicello hyalino, $60 \approx 10$,

cylindraceo; uredosporis in soros pallide fuligineos congestis, globosis, 30-35 μ . diam., ochraceo-fuligineis, pedicello cylindraceo, 50-60 $\approx$ 5-8, donatis.

Hab. in foliis vivis Verbesinæ montevidensis, prope la Boca del Riachuelo in Republica Argentina (Dott. O. SCHNYDER).

5. **Puccinia Pentanisiæ** Cooke in Grevillea X, pag. 125. — Soris 2239 uredosporiferis sparsis, pulverulentis, fuscis; uredosporis ovalibus fuscis, leniter asperulis, 30 $\approx$ 25; soris teleutosporiferis hypophyllis, atris, mox confluentibus, pulverulentis; teleutosporis ellipticis, medio constrictis, castaneis, sublevibus, 35 $\approx$ 25, pedicello abbreviato, lateraliter producto.

Hab. in foliis Pentanisiæ variabilis, ad Natal Africae (Wood). — A *Puccinia lateripede* B. et C., cui similis, valde distincta.

6. **Puccinia Kalchbrenneri** De-Toni, *Puccinia Helichrysi* Kalchbr. 2240 et Cooke in Grevillea IX, p. 21, nec Rabenh., *Uredo Lepisclinis* Thüm. — Soris uredosporiferis amphigenis, sparsis vel subgregariis, mediis, primo tectis, convexis, firmis, postremo liberis, disciformibus, concavis, ochraceis; uredosporis difformi-rotundis v. irregulariter globosis, vertice plerumque minute obtuso-acutato, intus granulosus, episporio subcrasso, heterogeneo, 20-24 μ . diam., dilute fusco-cinereiscentibus; teleutosporis lanceolatis, uniseptatis, constrictis, atro-fuscis, 40-55 $\approx$ 15-18, episporio levi, pedicello evanido.

Hab. in foliis vivis Helichrysi nudifolii et petiolati, prope Somerset-East, Promont. Bonæ Spei (P. Mac OWAN) et ad Natal Africae (Wood).

b) Teleutosporæ episporio verrucoso, foveolato, papillato v. punctato! præitæ.

7. **Puccinia Berkeleyi** Pass. in Hedwigia 1873, p. 143, *Puccinia* 2241 *Vincæ* Berk. Engl. Fl. V. p. 364 non Castagne, *Uredo Vincæ* DC. Flor. Franç. VI, p. 70, *Trichobasis Vincæ* Cooke M. F. t. 6, t. 130-131. — Soris uredosporiferis hypophyllis quandoque spermogoniis intermixtis et tum valde irregularibus, sæpe confluentibus, nudis, sæpe vero in maculis rotundatis, atro-fuscis sparsim insidentibus, diu tectis, pallide brunneis; uredosporis globosis, ellipticis vel ovoideis, 20-40 $\approx$ 17-26, aculeatis, pallide brunneis; soris teleutosporiferis minutis, irregularibus, epidermide cinctis, obscure brunneis, sparsis aut circinatis, hypophyllis, maculis sæpe griseis, atro-marginatis; teleutosporis ellipticis vel oblongis, vix vel haud

constrictis, basi rotundatis vel angustatis, apice obtuse papillatis, 35-54 $\approx$ 19-26, ochraceis, verrucosis, pedicello deciduo, brevi instructis.

Hab. in foliis Vincæ majoris, minoris, mediæ et herbaceæ, in Italia, Gallia, Britannia, Lusitania et Germania.

98. **Puccinia tinctoria** Speg. Fungi Guaranitici I, n. 119, *Uredo tinctoria* Speg. Fungi Guaranitici I, n. 150. — Maculis sorisque uredosporiferis teleutosporiferis similibus; uredosporis globoso-obovatis, 25-30 $\approx$ 22-24, episporio pro ratione crassiusculo, præcipue ad verticem, ubique minutissimo (vix perspicue) granuloso-asperulo, protoplasmate guttulato, nubiloso faretis, pallide fulvis; maculis nullis vel vix manifestis, amphigenis, indeterminatis, majusculis et pallescentibus; soris teleutosporiferis hypo-rarius epiphyllis, minutis, 200-500 μ . diam., plus minusvè laxè sparsis vel gregariis, primo tectis, dein erumpentibus, cinnamomeis; teleutosporis ellipticis vel elliptico-subobovatis, 40 $\approx$ 25-28, utrinque eximie rotundatis, medio 1-septatis at vix constrictis, episporio ubique subæquicrasso, minute laxèque verruculoso-asperulo, primo fulvidis, loculis grosse 1-guttulatis, dein subopace fuligineo-cinnamomeis, pedicello mediocri, 50 $\approx$ 5, hyalino vel vix apice fuscescente.

Hab. in foliis vivis Eupatorii tinctorii, in montuosis Cordillere de Peribebuy Amer. austr.

99. **Puccinia tuberculata** Speg. Fungi Argentini pug. II, n. 28 non Körn., *Uredo tuberculata* Speg. F. Arg. pug. I, n. 44. — Soris uredosporiferis amphigenis, sine macula, hinc inde sparsis, cinnamomeis, pulverulentis; uredosporis subsphæroideis ubique episporio tenui spinuloso-tuberculatis, 17-30 μ . diam., fulvo-fuligineis; soris teleutosporiferis amphigenis, macula nulla, hinc inde sparsis orbicularibus, $\frac{1}{2}$ -1 mill. d., atro-cinnamomeis, pulverulentis; teleutosporis ellipticis vel ovatis, loculo infero minore, utrinque rotundatis, 55-60 $\approx$ 25-30, medio septatis, vix constrictis, ubique tuberculato-muricatis, loculis uniguttulatis, saturate fuligineis, episporio ubique æquali, pedicello longiusculo, hyalino, 60-65 $\approx$ 8-10.

Hab. ad folia viva Lantanae Camarae, prope la Recoleta in Republica Argentina Americae australis.

100. **Puccinia Carthami** Corda Icon. Fung. I, pag. 15, tab. 4, fig. 52, Schroet. Pilz. Schles. pag. 340. — Uredosporis in soros castaneo-brunneos, rotundatos congestis, ellipticis vel ovatis, 22-28 $\approx$ 16-20, dilute castaneis, aculeatis, teleutosporis in maculis atro-brunneis insidentibus, ellipsoideis vel ovatis, apice hemisphærice rotundatis,

medio parum vel haud constrictis, basi rotundatis vel subangustatis, 28-35-39 $\approx$ 21-26, punctatis, amœne castaneo-brunneis, pedicello gracili, hyalino.

Hab. in foliis Carthami tinctorii, in Silesia et Bohemia.

01. **Puccinia Diotidis** Pat. et Roum. Fungi Gallici n. 3637, Rev. 2245
Myc. 1886, pag. 88. — Uredosporis oblongis, 30-32 $\approx$ 24-37; teleutosporis hyalinis, echinulatis.

Hab. in foliis vivis Diotidis candidissimæ, in sabulosis prope Pembron (Loire-inf.) Galliæ (PATOILLARD).

102. **Puccinia Endiviæ** Pass. in Hedwigia 1873, p. 113. — Uredo- 2246
sporis globosis, echinulato-scabris; teleutosporis pedicello longissimo fultis.

Hab. in Cichoria Endivia Italia boreali. — A *P. Hieracii* et *Prenanthis* notis allatis vix differre videtur.

103. **Puccinia arnicalis** Peck in Botanical Gazette 1881, pag. 227. 2247
— Maculis pallidis vel nullis, soris amphigenis, confertis vel confluentibus, rufo-brunneis; uredosporis subglobosis, 20-30 μ . diam., 1-2-nucleatis, subtiliter rugulosis, rufo-brunneis; teleutosporis uredosporis intermixtis, obovatis vel ellipticis, obtusis, paullulum constrictis, rugulosis, 30-45 $\approx$ 20-24, concoloribus, pedicello brevissimo, hyalino instructis.

Hab. in foliis vivis Arnicæ cordifoliæ, Colorado in America boreali.

104. **Puccinia Balsamitæ** (Strauss) Rabenh. D.C. Fl. n. 228, Schroet. 2248
Pilz. Schles. p. 340, *Uredo Balsamitæ* Strauss in Wett. Ann. II, p. 106, *Puccinia Discoidearum* Link Sp. II, p. 72, p. p., *Uredo Tanacetii-Balsamitæ* DC. Encycl. VIII, p. 224, *Puccinia Tanacetii-Balsamitæ* Winter Pilze p. 191. — Uredosporis in soros cinnamomeo-brunneos, mox nudos, sæpe orbiculatim dispositos congestis, ellipticis vel ovatis, 20-35 $\approx$ 20-24, aculeatis, castaneis; teleutosporis in soros diu tectos, atro-fuscos, rotundatos, parvos congestis, elliptico-oblongis, 35-60 $\approx$ 24-36, medio haud v. parum constrictis, apice incrassato-marginatis, basi rotundatis, verrucoso-punctulatis, brunneis, pedicello hyalino, plus minus elongato, deciduo.

Hab. in foliis Tanacetii Balsamitæ, in Italia, Austria, Germania, Gallia (GANDOGGER).

105. **Puccinia Cicutæ** Lasch in Klotzsch Herb. viv. myc. n. 787, Schroet. 2249
Pilz. Schles. p. 341, *Puccinia Cicutæ-majoris* Winter Die Pilze p. 192, *Uredo Cynapii* var. *Cicutæ majoris* DC. Fl. Franc. p. 72. — Uredosporis in soros hypophyllos, cinnamomeos, sparsos, me-

dios, liberos, planos, orbiculatos congestis, ovatis vel ellipticis, 17-30 $\approx$ 17-21, dilute fuscis, subtiliter aculeolatis; teleutosporis soros minutos, hypophyllos, atro-brunneos, sparsos, liberos, planos efformantibus, oblongo-ellipsoideis vel ovatis, utrinque subrotundatis vel deorsum angustatis, medio parum constrictis, 28-40 $\approx$ 10-28, verrucosis, fuscis; paraphysibus nullis; pedicello gracili, hyalino, longiusculo, deciduo.

Hab. in foliis Cicutæ virosæ, in Germania, Gallia et prope Minussinsk in Sibiria asiatica.

106. **Puccinia Heideri** Wettst. in Verhandl. Zool. bot. Gesellsch. in Wien, 1885, p. 543. — Soris parvis, 0,3-1 mm. latis, orbicularibus, fusco-atris, gregariis vel solitariis dispersis, rarius confluentibus, plagulas majores efformantibus, epidermidem mox dissolventibus, pulveraceis; uredosporis globosis vel ovato-globosis, 25-31 $\approx$ 18, pallide fuscis, episporio tenui, echinato; teleutosporis ovatis v. obovatis, fuscis, apice obtusissime rotundatis v. deorsum angustatis medio parum constrictis, apice non incrassatis, episporio ubique æquicrasso, verruculoso, 25-37 $\approx$ 12-26, pedicello longo, tenui, centrali vel parum excentrico, hyalino, mox deciduo fultis.

Hab. in foliis vivis Campanulæ barbatae, in Styria.

107. **Puccinia Anthrisci** Thüm. Contr. myc. austr. III, n. 74. — Uredosporis aut teleutosporis immixtis aut in soros proprios congestis, irregulariter globosis, episporio æquali, tenui, levi, pallide fuscidulis, 12-24 μ . diam.; teleutosporis in soris hypophyllis, plus minusve solitariis, applanatis, liberis, pulverulentis, fuscis sed cito expallescentibus, subparvis, ovoideis vel ellipticis, medio leniter constrictulis, interdum in pedicellum brevem, caducum, hyalinum angustatis sed plerumque æqualibus, episporio densissime subreticulato, tenui, æquali, fuscis, 28-34 $\approx$ 19-23.

Hab. ad folia viva Anthrisci silvestris et speciei indeterminatae, in silvis subalpinis, in Neerlandia, Pommerania, Bohemia, Austria nec non in Sibiria asiatica.

108. **Puccinia Pruni** Pers. Syn. Fung. p. 226 (sub nom. *P. Prunispinosæ*) Schroet. Pilz. Schles. p. 341, Winter Die Pilze p. 193. *Uredo Prunastri* DC. Fl. Franç. VI, p. 85, *Puccinia Salicum Prunorum* Link Sp. II, p. 82, *Puccinia discolor* Fuck. Symb. p. 50, *Tricobasis Rhamni* Cooke in Seem. Journ. II, p. 344, *Tricobasis Pruni-spinosæ* Lév. *Uredo Pruni* West. Exs. n. 569, *Puccinia gemella* Hedw. Fungi ined. t. 10, *Uromyces Amygdali* Pass. in Erb. critt. ital., *Uredo Pruni* Mont. Syll. n. 1166 vix Cast.

— Uredosporis in soros minutos, hypophyllos, orbiculares, confluentes, cinnamomeo-brunneos, primo tectos, dein nudos congestis, globulosis vel ovoideo-oblongis, 10-35 $\approx$ 10-18, spinulosis, subsessilibus, apice plerumque incrassatis, conoideo-angustatis, flavo-brunneis, paraphysibus numerosis immixtis: teleutosporis soros hypophyllos, sparsos vel confluentes, planos, brunneo-fuscos, epidermide cinctos efformantibus, oblongis, e loculis duobus globosis compositis, inferiori plerumque minori, 28-45 $\approx$ 17-24, verrucoso-aculeatis, brunneis, pedicello brevi, hyalino, deciduo, paraphysibus numerosis, brunneis.

Hab. in foliis Pruni spinosæ, Amygdali, domesticæ, insititiæ, virginianæ, americanæ, Armeniacæ, vulgaris, serotinæ, in Italia, Gallia, Belgio, Britannia, Austria, Helvetia, Germania, in insulis Canariis et in America boreali.

109. **Puccinia lateripes** Berk. et Rav. in Grevillea III, p. 52, Burrill Fungi of Illinois p. 189. — Amphigena, plerumque epiphylla, maculis flavis vel nullis; soris plerumque minutis, rotundatis vel angulatis, sparsis vel gregariis; uredosporis subglobosis, 21-24 $\approx$ 16-21, echinulatis; teleutosporis late ovatis, leniter constrictis, loculis subæqualibus, utrinque rotundatis, 25-32 $\approx$ 20-22, rugulosis; pedicello longo, flexuoso, laterali, hyalino suffultis. 2253

Hab. in foliis vivis Ruelliæ ciliosæ et strepentis, in America boreali. — Uredosporæ teleutosporis immixtæ etiam caulicolæ: in *Ruellia ciliosa* uredosporæ sunt globosæ, 22 μ . diam., teleutosporæ 30-32 $\approx$ 21-22, pedicello usque 36 μ . longo, in *Ruellia strepenti* uredosporæ sunt subglobosæ, 21 $\approx$ 16-18, teleutosporæ 25-28 $\approx$ 19-21, pedicello usque ad 75 μ . longo (BURRILL).

110. **Puccinia Troximontis** Peck in Botanical Gazette 1881, p. 227. — Maculis pallidis vel obsoletis; soris utriusque formæ amphigenis, sparsis, rufo-brunneis vel atro-brunneis; uredosporis subglobosis, minute rugosis, 20-30 μ . diam., rufo-brunneis; teleutosporis subellipticis, obtusis, vix constrictis, subtiliter rugulosis, 26-35 $\approx$ 20-23, atro-brunneis, pedicello brevi, hyalino suffultis. 2254

Hab. in foliis vivis Troximontis cuspidati, Utah Americæ borealis (JONES).

111. **Puccinia Medusa** Speg. Fungi Guaranitici I, n. 114, *Uredo Medusa* Speg. Fungi Guaranitici I, n. 142. — Maculis amphigenis, epiphyllis, mediocribus, 2-2,5 mm. diam., centro arescenti-griseis, ambitu zona irregulari fusca vel nigricante limitatis, hypophyllis indeterminatis, pallescentibus; soris uredosporiferis teleutosporife- 2255

ris immixtis, hypophyllis, compactis, pulvinatis, testaceis; uredosporis obovatis vel subturbinatis, 20-26 $\approx$ 17-19, antice truncatis vel obtusissime rotundatis, apice vel a medio verrucis majusculis, densis, rectis, obtusis ornatis, episporio crassiusculo praecipue ad verticem, saepius grosse uniguttulatis, nubiloso-farctis, pallide melleo-fuligineis; soris teleutosporiferis pulvinatis 1-1,5 mm. diam., centro macularum insidentibus, saepius hypophyllis, compactis, duris, testaceis; teleutosporis obscure fuligineo-cinnamomeis, elliptico-obovatis, 27-30 $\approx$ 20, utrinque truncato-rotundatis vel depressis, episporio crasso, praecipue vertice loculi superi valide incrassato ac grosse subdenseque verrucoso-hirto, ceterum levi v. vix ruguloso, pedicello mediocri, crassiusculo, 10 $\approx$ 5, hyalino, deorsum parum attenuato, basi saepe lobulato-appendiculato.

Hab. in foliis vivis *Pithecoctenii clematidei*, in silvis prope Villa Rica Americae australis.

112. **Puccinia Conoclinii** Seymour in Burrill Parass. Fungi of Illinois : p. 182. — Plerumque hypophylla; maculis parvis, purpureis, saepe in areas latas confluentibus, demum expallescentibus; soris sparsis vel gregariis, rarius confluentibus, uredosporiferis cinnamomeo-brunneis, teleutosporiferis sordide rufescenti-brunneis; uredosporis subglobosis vel ovoideis, 18-27 μ . diam., echinulatis; teleutosporis late ovoideis, leniter constrictis, apicibus rotundatis, 32-42 $\approx$ 27, verrucosis, episporio crasso praeditis, pedicello firmo, subhyalino, teleutospora triplo longiore.

Hab. in foliis *Conoclinii caelestini*, Illinois Amer. bor. — Huc, teste Burrill, pertinere videtur *Puccinia Centaureae* DC. in Berk. Grevillea III, p. 53.

113. **Puccinia insueta** Winter in Hedwigia 1887, pag. 27. — Soris amphigenis, sparsis vel gregariis, in maculis irregularibus, indeterminatis, luteolis v. fuscidulis, saepe confluentibus, interdum folii magnas partes occupantibus nidulantibus, minutis, rotundatis vel ellipticis saepeque angulatis, haud raro 2-3 confluentibus, vix 500 μ . latis, initio ab epidermide inflata velatis, mox autem denudatis, pulverulentis, uredosporiferis longius ab epidermide tectis, flavidulis; uredosporis subglobosis vel late ellipticis, 32-37 μ . diam. vel (in aqua) usque ad 44 μ . longis, episporio crassissimo pallide luteolo, in aqua valde turgescenti, aculeis validis obsito, pedicello fragili fultis; teleutosporis late ellipsoideis, utrinque late rotundatis, medio septatis et parum constrictis, 40-48 $\approx$ 27-35, fuscis,

opacis, dense verrucosis, pedicello laterali, sublongo, ad apicem vesiculoso-inflato, hyalino fultis.

Hab. ad folia viva Malpighiaceæ ejusdam, prope S. Francisco Brasilæ (ULE).

114. **Puccinia Ellisii** De-Toni, *Puccinia Angelicæ* Ell. et Everh. in 2258
Bull. Washb. Laborat. 1884, pag. 3 nec Fuckel. — Soris parvis, 0,5-1,6 mm., obscure brunneis, mox nudis, irregulariter sparsis, hypophyllis, folium circa se flavescens efficientibus; uredosporis subglobosis vel ovatis, 30-35 $\approx$ 24-30, episporio subtiliter ruguloso verticeque incrassatulo; pedicello valido, 50-70 $\approx$ 5-7, mox deciduo; teleutosporis laxè congestis, ellipticis vel ovoideis, 35-40 $\approx$ 20-25, leniter constrictis, loculo superiore plerumque latiore, episporio verrucoso.

Hab. in foliis Angelicæ genuflexæ, Falcon Valley Amer. bor. (SUKSDORF). — Teleutosporæ et uredosporæ in eodem soro immixtæ.

115. **Puccinia Orbicula** P. et C. in 30 Rep. St. Mus. pag. 53. — So- 2259
ris uredosporiferis circinatis, cinnamomeo-ochraceis, maculis parvis, orbicularibus, flavescens, subinde purpureo-tinctis; uredosporis subglobosis 20-25 μ . diam.; soris teleutosporiferis circinatis, sæpe secus orbem singulum ad maculæ marginem dispositis, atro-brunneis; teleutosporis late ellipticis, 32-38 $\approx$ 20-25, rugulosis.

Hab. in petiolis paginaque inferiore foliorum Nabali et Solidaginis, Buffalo et Center Amer. bor.

116. **Puccinia Lycii** Kalchbr. in Grevillea XI, p. 21. — Soris amphigenis, sparsis v. in maculis congregatis, apertis, planiusculis; uredosporis sphaeroideis, 16 $\approx$ 18, flavidis; teleutosporis ellipticis, utrinque rotundatis, 30 $\approx$ 24, opacis, fuscis, episporio granulato, pedicello æquilongo aut longiore. 2260

Hab. in foliis Lycii tubulosi, prope Somerset East Africæ australis (MAC-OWAN).

c) Teleutosporæ quoad episporii superficiem incertæ

117. **Puccinia Œnotheræ** Vize in Grevillea V, pag. 109, Ell. et Ev. 2261
N. Amer. Fungi n. 1060 et 1858. — Macula nulla; soris rotundatis, nec confluentibus; teleutosporis brunneis, oblongis, constrictis, pedicellatis.

Hab. in Œnothera densiflora, in California (HARKNESS) et Œn. Fremontii Kansas (KELLERMANN) in America boreali. —

Exstant etiam uredosporæ immixtæ globosæ, flavescentes, subtiliter echinulatæ.

118. **Puccinia carbonacea** Kalchbr. et Cooke in Grevillea XI, p. 24. 2

— Soris uredosporiferis hypophyllis, in acervulos rudes confluentibus, nigricantibus; uredosporis subglobosis, 18 μ . diam., flavofuscis; teleutosporis in iisdem soris, breviter ovatis, 24 $\approx$ 20, medio constrictis, breviter pedicellatis, fuscis.

Hab. in foliis *Abutili* cujusdam nec non *Sidæ rhombifoliæ* ad P. Natali Africæ (Mac Owan). — Dissepimentum in plerisque ita obsoletum, ut *Uromycetem* mentiantur.

119. **Puccinia macropoda** Speg. Fungi Argentini pugillus II, n. 34. 2

Uredo striolata Speg. F. Arg. I, n. 50 et II, 45. — Amphigena, sæpius epiphylla vel caulogena, macula nulla; soris teleutosporiferis compactis, suborbicularibus vel elongatis, 1-4 $\approx$ 1 mm., atris, erumpentibus, compactiusculis; teleutosporis elliptico-ovatis, utrinque obtuse rotundatis, medio uniseptato-constrictis, opace fuliginis, episporio apice crassiusculo, 60 $\approx$ 30, pedicello hyalino basin versus attenuato, 100 $\approx$ 8-10; soris uredosporiferis amphigenis, cinnamomeis, diu epidermide cinerescenti tectis, minutis, subrotundis v. elongatis; maculis discoideis 1 mm. latis, exaridis, margine bene determinato, candido-translucidis, soris et areola flavo-pallescenti, indeterminata coronatis, dein difformibus, candido-translucidis, magnis 2-6 mm., raro nullis; uredosporis subsphæroideis vel ellipsoideo-ovoideis, episporio crassiusculo transversim conferte ruguloso-striolato, idcirco peripherice crenulato-dentatis, 20-38 μ . diam., fulvo-fuliginis.

Hab. in foliis caulibusque *Iresines celosioidis* rarius. in Republica Argentina Americæ australis.

120. **Puccinia Plantaginis** West. in Bull. acad. roy. Belg. 2 serie, 25

tome XI, n. 6. — Soris hypophyllis, brunneo-atris, solitariis vel confluentibus, rotundatis, explanatis, minutissimis, epidermide rumpente denudatis; uredosporis centralibus, rufescentibus, globosis; teleutosporis piriformibus v. ovoideis, pedicello brevissimo.

Hab. in foliis *Plantaginis lanceolatae*, in Belgio.

121. **Puccinia Picridis** Haszl. Brand. und Rostp. Ungarns in Akad. 22

wiss. Ung. 1877. — Soris uredosporiferis irregularibus, globosis, linearibus, subinde ramosis, brunneis; uredosporis globosis, oblongis v. ellipticis, epedicellatis, levibus; soris teleutosporiferis immixtis, atro-brunneis; teleutosporis ellipticis v. utrinque acutiusculis, pedicello brevissimo fultis.

Hab. in foliis *Picridis*, in Hungaria.

122. **Puccinia Bergii** Speg. Fungi Argentini pug. I, n. 30. — Hypo- 2266
phylla, macula nulla; soris sparsis v. secus orbem dispositis, rotundatis vel oblongis, $\frac{1}{3}$ mm. diam., compactiusculis, primo tectis, dein erumpentibus, epidermide fissa cinctis, cinnamomeis; uredosporis immixtis, globosis vel irregulariter elongatis, 18-24 μ . diam., rufo-melleis, præcipue sursum verruculosus, episporio tenui; teleutosporis cylindræo-clavatis, medio 1-septato-constrictis, 60-85 $\approx$ 18-20, episporio ubique tenui, apice rotundatis, loculis granuloso-farctis, pallide melleis, pedicello hyalino, 30 $\approx$ 5, paraphysibus nullis.

Hab. in foliis vivis *Adesmiæ punctatæ*, Uruguay Amer. austr. (BERG).

123. **Puccinia Gilbertii** Speg. Fungi Arg. II, n. 14. *Uredo Gilbertii* 2267
Speg. F. Arg. II, p. 15, n. 46. — Hypophylla, maculis nullis; soris minutissimis, 300-500 μ . diam., hinc inde circumatim densiuscule sparsis, fulvo-fuligineis; teleutosporis ellipticis, utrinque obtusissime rotundatis, medio septatis, non vel vix constrictis, 40-45 $\approx$ 20, episporio tenui etiam apici, fuligineo-ochraceis, loculis non vel 1-guttulatis, pedicello cylindræo, 35 $\approx$ 5, hyalino; soris uredosporiferis fulvis; uredosporis globosis, 20-25 μ . diam., hyalino-flavescentibus, papilloso-granulosus.

Hab. in foliis vivis *Hyptidis fasciculatæ*, Uruguay et Pastoræo de Caaguazû in America australi.

124. **Puccinia æthiopica** Kalchbr. et Cooke in *Grevillea* XI, p. 22. 2268
— Soris uredosporiferis hypophyllis, gregariis, apertis, planiusculis, fuscis; uredosporis sphæroideis, rarius subellipsoideis, 18 $\approx$ 20 μ . d., echinulatis, flavis; soris teleutosporiferis hypophyllis, dense disseminatis, apertis, planis, atro-fuscis; teleutosporis breviter ovalis vel subglobosis, 28-30 $\approx$ 24-26, ad septum vix constrictis, loculis æqualibus utrinque obtusissimis, fuscis, vix diaphanis; pedicello hyalino flexuoso, teleutosporam longitudine superante.

Hab. in foliis *Stachydis grandifoliæ* et *æthiopicae* nec non *Leonotidis ovatæ*, ad Port Natal et in Africa australi. — A *Puccinia Stachydis* DC. differt soris atro-brunneis nec ferrugineis teleutosporisque robustioribus obscurioribus, pedicello multo longiore instructis.

125. **Puccinia Vernoniæ** Cooke in *Grevillea* X, pag. 126. — Hypo- 2269
phylla; soris sparsis, fuscis, in tomento nidulantibus; uredosporis subglobosis, leniter granulatis, pallide-fuscis, 16-20 μ . diam.;

teleutosporis uredosporis immixtis, clavatis, nec perfecte evolutis.

Hab. in foliis Vernoniæ ejusdam, ad Natal Africæ (Wood).

126. **Puccinia tumidipes** Peck in Bull. Torr. Bot. Club Vol. XII, n. 4, ² p. 34, t. XLIX, f. 3-8. — Soris uredosporiferis in foliis distinctis, minutis, amphigenis epidermide rupta cinctis, rufo-brunneis vel rubiginosis; uredosporis ovatis, ellipticis vel oblongo-ovatis, utrinque asperulis, 35-40 $\approx$ 25-28; maculis nullis; soris teleutosporiferis amphigenis, inæqualibus, epidermide rupta velatis, nigris; teleutosporis ellipticis vel oblongo-ellipticis, non vel vix septo constrictis, 50-62 $\approx$ 28-35, pedicello hyalino, inflato, teleutosporæ longitudinem æquante præditis.

Hab. in foliis vivis Lycii Andersonii, Arizona Amer. bor.

127. **Puccinia Brickelliae** Peck in Bull. Torr. Bot. Club Vol. XII, n. 4, ² p. 34. — Maculis nullis; soris uredosporiferis congestis, sæpe concentricè dispositis, epidermide velatis, demum ejusdem reliquiis obvallatis, rufo-brunneis; uredosporis subglobosis, late ovatis v. oblongo-ovatis, sæpe uninucleatis, 30-40 $\approx$ 23-26; soris teleutosporiferis conformibus; teleutosporis uredosporis commixtis, ellipticis vel oblongo-ellipticis, non vel vix septo constrictis, 50-62 $\approx$ 35-10; pedicellis teleutosporarum longitudinem æquantibus vel superantibus.

Hab. in foliis vivis Brickelliae, Arizona Amer. bor. (Jones).

128. **Puccinia Pachycarpi** Kalchbr. et Cooke in Grevillea XI, p. 23, ² — Soris uredosporiferis amphigenis, sparsis, solitariis vel confluentibus, primo epidermide tectis, pulvinatis, rufo-fuscis; uredosporis ovato-globosis, 18-20 μ . diam., episporio crasso, ruguloso; teleutosporis in iisdem soris, oblongo-clavatis, medio constrictis, loculo inferiore in pedicellum longissimum angustatis, sine pedicello ad 60 μ . longis.

Hab. in foliis vivis Pachycarpi grandiflori, prope Somerset East et Port Natal Africæ.

129. **Puccinia Gilii** Ell. et Harkn. New Calif. Fungi p. 14. — Uredosporis globosis, levibus, pallide brunneis; soris solitariis, ovatis aut oblongis, 0,5-1 mm. diam.; teleutosporis oblongis, leniter constrictis, rufo-brunneis, loculo supero obscuriore, episporio vertice apiculato incrassatulo, 51 $\approx$ 21, pedicello 2-3-plo teleutosporâ longiore, hyalino.

Hab. in foliis Gilii ciliatæ, ad M. Diablo in California Americæ borealis.

130. **Puccinia Trochomeriæ** Cooke in Grevillea X, p. 125. — Ure- ²²

dosporis ovalibus, brunneis, $22 \approx 18$, episporio granulato; soris teleutosporiferis hypophyllis, sparsis, mox erumpentibus, denique epidermide cinctis, atro-fuscis; teleutosporis ellipticis, medio constrictis, castaneis, $48 \approx 40$, pedicello elongato, 70μ . longo, incrassato, hyalino.

Hab. in foliis *Trochomeriæ sagittatæ*, ad Inanda, Natalia Africa (Woon).

2. Species in Monocotyledoneis parasiticæ.

a) Teleutosporæ episporio levi præditæ vel quoad episporium dubiæ.

131. **Puccinia Allii** (DC.) Rud. in Linnæa IV, pag. 392, Winter Die 2275
Pilze p. 184, *Xyloma? Allii* DC. Flor. Franç. VI, p. 156, *Puccinia Alliorum* Corda Icon. Fung. IV, p. 12, *Uredo Alliorum* DC. l. c. p. 82 pro parte. — Soris uredosporiferis ellipticis aut lanceolatis, epidermide lacerato-laciniata cinctis, sparsis vel numerose confertis confluentibusque; uredosporis irregulariter rotundato-ellipsoideis, obovatis v. oblongis, $22-30 \approx 17-23$, verrucosis, flavis; soris teleutosporiferis irregulariter rotundatis v. ellipticis, dein oblongis, sparsis vel in greges ellipsoideos aut lanceolato-oblongos plerumque circa solum uredosporiferum centalem ordinatis, sæpe confluentibus, epidermide grisea, atra obtectis; paraphysibus numerosis, crassis, brunneis; teleutosporis diversiformibus, plerumque clavato-elongatis, medio parum constrictis, apice valde incrassatis, rotundatis, angustatis vel acutatis, $35-80 \approx 17-30$, pedicello brevi, tenui suffultis.

Hab. in foliis *Allii oleracei*, multiflori et sativi, in Italia, Gallia, Germania, Græcia. — A *Puccinia Porri* certe dignoscenda. Forte eadem species est *Puccinia Allii* Cast. Cat. p. 201 ita descripta: P. caulina, epi- et hypophylla; maculis confluentibus; soris magnis, nigris; teleutosporis oblongis constrictis, flavescentibus, pedicello brevi sæpe recurvo hyalino. In *Allio Ampelopraso* in Gallia.

132. **Puccinia angustata** Peck XXV Rep. of St. Bot. p. 123, Burrill 2276
Parasitic Fungi of Illinois p. 196. — Hypophylla; soris utriusque formæ oblongis v. linearibus, sæpe secus lineas elongatas parallelas vel confluentes dispositis, atris, primo epidermide tectis, dein erumpentibus epidermideque cinctis; uredosporis subglobosis aut ellipticis, echinulatis, $21-30 \approx 16-21$; teleutosporis angustis, clavatis vel oblongo-clavatis, medio constrictis, apice obtusis acuminatisve, basi

attenuatis, 45-60 $\approx$ 15-21, pedicello colorato, plerumque teleuto-sporâ brevior.

Hab. in foliis vivis subemortuisve *Scirpi atro-virentis*, silvatici et eriophori nec non *Junci* ejusdam indeterminati, in America boreali.

133. **Puccinia tomipara** Trel. in Journal of Mycology I, pag. 14. — Soris uredosporiferis parvis, rotundatis vel leniter elongatis, epi-phyllis; uredosporis ut plurimum globosis, subinde ruguloso-verrucosis, 22-26 μ . diam., pallide flavis; soris teleutosporiferis compactis, atris, diu epidermide tectis, rotundatis vel elongatulis, plerumque circ. 2 mm. diam.; teleutosporis irregulariter oblongis, sessilibus, vertice haud incrassatis, 35-43 $\approx$ 13-22, 2-6-ocularibus, sæpe tomiparis, episporio tenui, pallide castaneo-brunneis.

Hab. in foliis *Bromi* verisimiliter ciliati, in America boreali. — *P. triarticulata* (B. et C.) similis, ad genus *Phragmidium* quodammodo vergens. In teleutosporis septum superius est frequenter obliquum et non raro verticale.

134. **Puccinia flaccida** B. et Br. Ceylan Fungi n. 821, Burrill Fungi of Illinois p. 202. — Amphigena; soris parvis, oblongis vel linearibus, sæpe confluentibus, demum emergentibus, ferrugineis; uredosporis subglobosis, 25 μ . diam., echinulatis, cinnamomeis; teleutosporis 10 μ . longis, flaccidis, pedicello 22 μ . longo hyalino, obtusis, medio contractis; mesosporis 30-40 μ . longis, clavatis, cinnamomeis.

Hab. in foliis *Panici Cruris-galli*, pr. Peradenya in insula Ceylon et Illinois Amer. bor. — A *Puccinia graminis* præcipue teleutosporis flaccidis differt.

135. **Puccinia Eleocharidis** Arthur Prelim. List of Iowa Ured. p. 156, n. 34. — Uredosporis polygono-globosis vel ovoideis, flavis, 18-30 $\approx$ 18-24, subtiliter sparseque verrucosis; soris teleutosporiferis subrotundatis, sparsis, fere atris, diu epidermide demum fissa tectis; teleutosporis oblongo-cuneatis, leniter vel non constrictis, 45-54 $\approx$ 16-20, brunneis vel atro-brunneis, vertice valde vel non incrassato, oblique subtruncato, basi cuneata vel leniter inflata, pedicello crasso, brevissimo.

Hab. in foliis *Eleocharidis* intermediæ et palustris, Iowa Americæ borealis.

136. **Puccinia Elymi** Westend. in Bull. Brux. 1851, p. 408, *Uredo Elymi* West. l. c. p. 405. — Soris uredosporiferis hypophyllis, rufescentibus, demum flavescentibus, elongatis, ellipticis, epidermidis

longitudinaliter fissæ fragmentis tectis; uredosporis globosis vel ovoideis, sessilibus vel breviter pedicellatis; soris teleutosporiferis epiphyllis brunneis, dein subatris, elongatis, explanatis, plerumque tectis, dein epidermide fissa subdenudatis; teleutosporis fusiformibus, medio transverse 1-septatis, pedicello brevi, crasso, hyalino fultis.

Hab. in foliis Elymi arenarii, prope Ostende in Belgio (LANDZWEERT).

137. **Puccinia purpurea** Cooke in Grevillea V, pag. 15. — Amphigena; maculis læte purpureis; soris irregularibus, 3-6-congestis, atro-brunneis; uredosporis ovatis, $35 \approx 25-30$, levibus, brunneis; teleutosporis elongato-ovatis, brunneis, superne hemisphæricis, inferne obconoideis, longe stipitatis, $40-45 \approx 22-25$. 2281

Hab. in foliis Sorghi vulgaris, in India orientali (HOBSON) et foliis Zeæ in Africa australi.

138. **Puccinia Kraussiana** Cooke in Grevillea X, pag. 126. — Uredosporis ovatis, pallide fuscis, $35-40 \approx 23-25$, leniter asperulis, immixtis; soris teleutosporiferis hypophyllis, sparsis, orbicularibus, convexis, compactis, purpureo-brunneis; teleutosporis congestis, sublanceolatis, obtusis, mutua pressione difformibus, pallidis, $65-70 \approx 25$, pedicello crassissimo, infra attenuato, $90 \approx 15-18$. 2282

Hab. in foliis Smilacis Kraussianæ, Nataliæ (WOOD).

139. **Puccinia Aletridis** B. et C. North Amer. Fungi n. 543, Burrill Fungi of Illinois pag. 194. — Amphigena; soris uredosporiferis prominulis, pulverulentis, cinnamomeis; uredosporis subglobosis vel ovatis, $21-27 \approx 18-24$, echinulatis; maculis nullis; teleutosporis in soros sparsos congestis, clavatis vel ellipticis, abrupte constrictis, subfusiformibus, apice papilliformi, episporio membranis concentricis insigni, $30-50 \approx 18-21$, pedicello hyalino, teleutosporam subæquante vel paululo longiore. 2283

Hab. in foliis subsiccis Aletridis aureæ et farinosæ, in Carolina infer., Wisconsin, Massachusetts et Indiana, Amer. bor.

140. **Puccinia Iridis** (DC.) Wallr. in Rabenh. Krypt. Fl. n. 211, Winter Die Pilze p. 184, Schroet. Pilz. Schles. p. 337, *Uredo Iridis* DC. Encycl. VIII, p. 224, *Puccinia truncata* Berk. et Br in Ann. Nat. Hist. n. 754, *Uredo limbata* h. Rabenh. l. c. I, p. 12, *Puccinia crassivertex* Thüm. in Myc. univ. n. 546. — Uredosporis in soros confertos, hypophyllos, tectos, dein liberos, ferrugineo-fusculos, parvulos, orbiculares congestis, ellipticis vel ovoideis, $20-35 \approx 16-26$, aculeatis, ochraceis, 3 poros incrassatos gerentibus; 2284

teleutosporis in soros hypophyllos, striiformes, liberos, atros, exiguos congestis, clavatis, apice rotundato vel obtusiusculo vel acuminato, medio constrictis, 30-55 $\approx$ 14-22, levibus, dilute fuscis, pedicello 12 $\approx$ 5, rarius longiore, hyalino.

Hab. in foliis Iridis foetidissimæ, graminifoliæ, *Syrinchii*, fumosæ, ruthenicæ, germanicæ, pumilæ, *Pseudo-acori*, gramineæ, in Italia, Gallia, Arduennis, Britannia, Helvetia, Germania nec non in Sibiria asiatica (Thümen) et in regione sinensi (Patonvillard).

141. **Puccinia oblongata** (Link) Winter Die Pilze p. 183, Schroet. Pilz. Schles. p. 337, *Cecoma oblongatum* Link Observ. II, p. 27, *Puccinia Luzulæ* Lib. Exsicc. I, n. 94, *Uredo macrospora* Desm. Crypt. II, n. 401, *Trichobasis oblongata* Berk. Outl. p. 208, Cooke M. F. t. VII, f. 158, 159, *Uredo oblongata* Grev. Sc. crypt. Fl. t. 12, *Uromyces oblongatus* Fisch. in Fungi Europ. n. 2370. — Uredosporis in soros ovato-ellipticos, ferrugineos, in macula bullata, minuta, purpurascente insidentes, epidermide lacerata tectos congestis, oblongo-ovatis vel clavulatis, rarius ellipsoideis, plerumque 30-42 $\approx$ 12-18, rarius 23-30 $\approx$ 17-20, flavis, levibus, apice tantum aculeolatis; teleutosporis soros epi- vel hypophyllos, ellipticos vel lineares, atro-brunneos, epidermide lacerata cinctos maculasque plus minus rufescentes efficientes efformantibus, clavatis, 40-80 $\approx$ 16-24, apice rotundatis, medio constrictis, episporio levi, brunneo, apice usque ad 27 μ . incrassato, concentrice striato præditis, contentu rufescente, pedicello crassiusculo, brevi.

Hab. in foliis *Luzulæ pilosæ*, vernalis, campestris, maximæ, in Italia, Arduennis, Belgio, Britannia, Germania, Austria et Helvetia.

142. **Puccinia Junci** (Strauss) Winter Die Pilze p. 171, Schroet. Pilz. Schles. p. 338, *Uredo Junci* Strauss in Wett. Ann. II, p. 105, *Puccinia littoralis* Rostr. in Thümen. Myc. univ. n. 327. — Uredosporis in soros ferrugineos, ellipticos, plerumque in maculis rotundatis sitos congestis, globosis, ellipticis vel ovatis, plerumque 20-28 $\approx$ 15-20, episporio dilute brunneo, aculeolato, sæpe sublevi; teleutosporis soros oblongos, convexos, atro-fuscos, sæpe confluentes efformantibus, clavatis vel subfusoides, plerumque 35-60 $\approx$ 16-23, sursum explanatis vel acuminatis, medio parum vel haud constrictis, episporio dilute brunneo, levi, apice valide (usque ad 8 μ .) incrassato, pedicello brunneolo, usque ad 50 μ . longo, glabro.

Hab. in foliis culmisque *Junci Leersii*, conglomerati,

compressi et Gerardi, sociâ sæpe *Darlucâ Filo*, in Germania nec non ad littora marina ins. Fionæ ad Bjornemose Daniæ et in America boreali.

143. **Puccinia cancellata** Sacc. et Roum. in Rev. Myc. 1881, p. 26, 2287
Uredo cancellata Dur. et Mont. Fl. Alger. I, p. 314, Syll. n. 1169.
 — Soris subcutaneis, majusculis, elongatis, dein rimose dehiscentibus, obscure cinnamomeis; teleutosporis constricto-didymis utrinque rotundatis truncatisve, 30-35 $\approx$ 20-22, episporio apice leniter incrassato, ochraceo-cinnamomeis, pedicello brevi, 18-20 $\approx$ 5, hyalino sæpe deciduo suffultis; uredosporis commixtis ellipsoideis vel subglobosis, 35-40 $\approx$ 25-28, pallide ochraceis, hyalino-stipitellatis, parce tuberculosi.

Hab. in calamis Junci acuti, in Algeria.

144. **Puccinia Scirpi** DC. Fl. Franç. II, pag. 223, Winter Die Pilze 2288
 pag. 182, Schroet. Pilz. Schles. pag. 338, *Uredo scirpina* West.
 7. Notice n. 38, *Puccinia Junci* Mart. Fl. Mosq. pag. 227 pro parte. — Uredosporis in soros oblongos, ellipticos vel lineares, epidermide bullata, dein longitudinaliter fissa, diu tectos, sæpe confluentes, sparsos vel seriatos, ferrugineos congestis, plerumque ovatis, rarius subglobosis, 19-32 $\approx$ 12-24, aculeatis, dilute brunneis; teleutosporis in soros ovales vel sublineares, brunneos, dein nigrescentes, minutos, epidermide fissa cinctos congestis, clavato-oblongis, apice explanatis vel angustato-acuminatis, medio plerumque haud constrictis, 30-60 $\approx$ 10-20, episporio dilute brunneo, levi, apice circ. 5 μ . crasso, obscuriori, pedicello flavescente, 25-40 μ . longo; teleutosporis unilocularibus plus minus frequenter intermixtis, 32-40 μ . longis.

Hab. in calamis folisque Scirpi lacustris, in Italia, Belgio, Gallia et Germania.

145. **Puccinia Sorghi** Schwein. North Amer. Fungi p. 295, n. 2910 2289
 (1831), Schroet. Pilz. Schles. p. 338 (1887), *Puccinia Maydis* Béreng. in Atti VI Riun. scienz. ital. in Milano p. 475 (1844), Garov. e Pirotta Rugg. gran. turc. p. 6 cum tabula (1875), *Uredo Zeæ* Desmaz. in Ann. Scienc. Nat. 1840 p. 182, *Puccinia arundinacea* var. *Maydis* Cast. Catal. I, p. 199 (1845), *Puccinia Zeæ* Béreng. in Klotzsch Herb. viv. myc. Cent. XVI, Suppl. (1845), *RugGINE del grano Turco* Carradori in Giorn. fis. Pavia vol. VIII (1815) non *Uredo Maydis* DC. nec *Cevoma Zeæ* Link. — Soris uredosporiferis amphigenis, numerosis, ellipticis vel sphaericis, sparsis vel approximatis, hinc inde confluentibus, convexiusculis, mox ex

epidermide bullata longitudinaliter fissâ erumpentibus, brunneo-rufescentibus; uredosporis globosis, ellipticis vel ovatis, 23-30 $\approx$ 22-26, leniter verruculosus, interdum guttulis oleosis faretis, primo lutescentibus, demum rufo-brunneis, pedicello brevi cylindræo, hyalino fultis, paraphysibus subnullis; soris telentosporiferis formâ variis, plerumque linearibus vel oblongis sat prominulis, amphigenis, sub epidermide albidis, dein (ea rupta), convexiusculis, superficialibus, athermis; teleutosporis ovato-oblongis vel clavatis, obtusis, medio constrictis, loculo superiore interdum leniter acuminato, episporio crasso, pro ætate sordide lutescentibus, dein fuscis, tandem subatris, 28-45 $\approx$ 12-17, levibus, pedicello elongato, circ. 5 μ . cr., cylindræo, persistente, superne incrassatulo fultis; paraphysibus nullis.

- Hab.* in foliis, vaginis, culmis etc. Zeæ Maydis et Sorghi, in Italia, Gallia, Austria, Germania, Lusitania, America boreali et australi, prope Somerset East Africae australis. — Sec. Winter Die Pilze p. 181 uredosporæ 23-38 $\approx$ 20-26, teleutosporæ 30-52 $\approx$ 16-24.
146. **Puccinia Baryi** (Berk. et Br.) Winter Die Pilze p. 178, Schroet. Pilz. Schles. p. 338, *Epilea Baryi* Berk. et Br. in Ann. Nat. Hist. 1854, n. 755, *Puccinia Brachypodii* Otth. in Mitth. Nat. Gesellsch. in Bern, 1861, pag. 81, *Lecythea Baryi* Berk. Outlines pag. 334, Cooke Handb. n. 1694. — Uredosporis in soros ferrugineos, minutos sed secus series lineares ordinatos congestis, globosis vel ovatis, 17-25 $\approx$ 15-18, aurantiacis, aculeolatis, paraphysibus apice globoso-inflatis, usque ad 33 longis intermixtis; teleutosporis soros lineares, diu tectos, atro-fuscos efformantibus, ellipsoideis vel clavatis, apice explanatis vel acutiusculis, medio parum vel non constrictis, 26-35 $\approx$ 27-24, episporio fuscidulo, levi, apice crassiusculo et obscuriori, pedicello brevissimo, sæpe subnullo.

Hab. in foliis vaginisque Brachypodii silvatici, gracilis et pinnati, in agro Veneto Italiae, in Austria, Helvetia, Britannia et Germania et Bambusæ Thouarsii prope Peradenya in insula Ceylon.

147. **Puccinia longissima** Schroet. in Cohn Beitr. III, pag. 70, Pilz. Schles. pag. 339, Winter Die Pilze pag. 170, *P. paraphysaria* Bagnis Monogr. Pucc. p. 75 (ex parte), fig. 323-324. — Uredosporis non evolutis; teleutosporis in soros latos, crassos, pulvinatos, atro-brunneos, sæpe confluentes, mox nudos, lanceolatos vel lineares congestis, clavatis vel subfusoides, 50-110 $\approx$ 13-25, loculo inferiori longiore, angustiori, loculo superiori elliptico vel oblon-

go, obtuso, rotundato vel conoideo, medio plus minus constrictis, brunneis, levibus, apice crassiusculis obscurioribusque, pedicello brunneolo, brevi, paraphysibus nullis.

Hab. in *Koeleria cristata* in Silesia Germaniæ (SCHROETER) et *Koeleria Berythriæ* in Ægypto (BARBEY). — *Uredo*-*spor*is ignotis, species videtur ad hanc sectionem pertinere.

148. **Puccinia Stipæ** Arthur Prelim. List of Iowa Uromyces p. 160, 2292
n. 60. — Soris uredosporiferis oblongis, minutis, plerumque epiphyllis, flavescentibus, inconspicuis, diu tectis; uredosporis rotundatis, oblongis seu ovatis, 20-30 $\approx$ 15-20, flavis, subtiliter rugulosis vel subinde echinulatis; soris teleutosporiferis oblongis vel oblongo-ovatis, medio valde constrictis, 42-56 $\approx$ 18-25, levibus, brunneis, vertice incrassato quandoque tenui, rotundato vel obtuso, raro acuto, basi obtusa vel subinde angustato, pedicello leniter colorato, teleutospora 2-3-plo longiore.

Hab. in foliis *Stipæ Spartæ*, Iowa Americæ borealis.

149. **Puccinia Kalchbrenneriana** De-Toni, *Puccinia Ornithogali* 2293
Kalchbr. in *Grevillea* IX, p. 21 nec Hazsl. — Sparsa; soris ellipticis, tectis, demum elongato-fissuratis, fuscis; uredosporis ellipticis, levibus, pallidis, 20-22 $\approx$ 18; teleutosporis ellipticis, uniseptatis, constrictis, fuscis; episporio levi; pedicellis teleutosporis æquilongis.

Hab. in *Ornithogalo*, in Africa australi. — Adest etiam species homonyma ab Hazslyni Magyar. Krypt. Viran. p. 12 quæ cum hac forte identica est.

150. **Puccinia Smilacis** Schwein. Syn. Carol. p. 494, Burrill Fungi 2294
of Illinois p. 195, *Uredo Smilacis* Schwein. l. c. p. 471. — Hypophylla; maculis minutis, numerosis, lateritio-rufis; soris sparsis vel irregulariter circinatis, punctiformibus aut elongatis, epidermide rupta cinctis, paraphysibus brevibus immixtis; uredosporis ovatis, leniter echinulatis, 21-27 μ . diam., pallidis, pedicellis fragilibus fultis; teleutosporis late ellipticis, constrictis, loculo superiori rotundato vel obtuse acutato, 36-42 $\approx$ 21, levibus, sordide coloratis, pedicello colorato, crasso longiusculo.

Hab. in foliis *Smilacis rotundifoliæ*, glaucæ, pumilæ et hispidæ, in Carolina infer., Pennsylvania, Shelter Island et Illinois Americæ borealis. — Sec. Peck viget etiam in *Lilio canadensi*.

151. **Puccinia Cynodontis** Desmaz. Exsicc. III, n. 655, Winter Die 2295
Pilze p. 180. — Soris uredosporiferis minutis, ellipticis vel oblon-

gis, ochraceo-umbrinis, sparsis aut seriatis; uredosporis irregulariter globosis aut breviter ellipticis, 19-28 μ . diam., concoloribus, subtilissime granulatis, sublevibus, pedicello brevissimo instructis; soris teleutosporiferis ellipsoideis, oblongis vel linearibus, sparsis vel seriatis sæpeque confluentibus, pulvinulatis, atris; teleutosporis plerumque ellipsoideis vel oblongis, loculo superiore ut plurimum longiori, apice incrassatis, rarius rotundatis, plerumque apiculo conoideo auctis, deorsum rotundatis aut angustatis, medio parum constrictis, 30-60 $\approx$ 15-25, levibus, brunneis.

Hab. in foliis vaginisque Cynodontis Dactyli, in Gallia, Austria et Germania passim.

152. **Puccinia Cesatii** Schroet. in Cohn Beitr. III, p. 70, Winter Die Pilze p. 180, *Uredo (Podocystis) Andropogonis* Ces. in Klotzsch Herb. myc. I, n. 1997. — Soris utriusque formæ ellipticis, oblongis vel elongatis, crasse pulvinatis, sæpe confluentibus, mox denudatis; uredosporis globosis vel irregulariter rotundatis, rarius breviter ellipticis, 23-33 μ . diam., subtiliter verrucosis, obscure brunneis; teleutosporis late ellipsoideis, utrinque rotundatis, apice valde incrassatis, medio leniter constrictis, 30-40 $\approx$ 22-30, levibus, brunneo-fuscis, pedicello longiusculo, persistenti, sæpe brunneolo instructis.

Hab. in foliis Andropogonis Ischæmi et hirti, in Italia, Lusitania, Helvetia, Austria et Germania. — Sæpe cum teleutosporis 1-septatis teleutosporæ nonnullæ uniloculares seu mesosporæ immixtæ reperiuntur.

153. **Puccinia australis** Körn. in Thümen F. austr. n. 842, non Spezz., Winter Die Pilze p. 179. — Soris uredosporiferis linearibus, angustatis; uredosporis globosis vel piriformibus, aculeatis, levibus, 15-13 $\approx$ 14-17, pulchre aurantiacis, stipite nullo; soris teleutosporiferis ellipticis vel elongato-ellipticis, apertis, exsertis, nigris; teleutosporis fuscis, ellipticis vel breviter ellipticis, medio vix vel non constrictis, apice paullo incrassatis, obtusis vel in acumen breve obtusum sensim productis, basi subrotundatis, 28-45 $\approx$ 17-24, levibus, pedicello gracili, subhyalino vel læte fuscescente, teleutosporis longiore vel eas æquante.

Hab. in foliorum pagina inferiore et vaginis Moliniæ serotinæ vivæ, vix florentis, prope Bozen in Tyrolia.

154. **Puccinia caricicola** Fuck. Symb. II. Nachtr. p. 16, Winter Die Pilze p. 182. — Soris uredosporiferis rotundatis vel linearibus, seriatis vel sparsis, minutis, erumpentibus, fuscis; uredosporis obovatis, breviter pedicellatis, 19-28 $\approx$ 15-20, asperis, fuscis; soris te-

leutosporiferis plerumque in foliis aridis, evolutis sparsis, hemisphaericis, atro-fuscis; mesosporis in pedicello hyalino ovatis irregularibusque, antice apiculatis obtusisve et episporio incrassato, obscuriore, $23-40 \approx 15-19$, fuscis, levibus; teleutosporis multo paucioribus sed semper praesentibus, breviter pedicellatis, oblongo-ovatis, basi angustatis, apice obtusis, ad septum parum constrictis, $30-45 \approx 15-20$, levibus, fuscis.

Hab. in foliis culmisque Caricis supinae, in Rhenogovia Germaniae.

155. **Puccinia microsora** Körn. in Fuck. Symb. myc. II, p. 14, Winter 2299

Die Pilze p. 181. — Soris uredosporiferis parvis ellipticis aut linearibus, sparsis, flavis; uredosporis globosis, piriformibus vel ellipsoideis, $24-35 \approx 19-26$, subtiliter aculeatis, flavescentibus; soris teleutosporiferis minimis, subseriatim dispositis, exsertis, suborbicularibus v. breviter ellipticis, epidermide demum parum fissa obtectis; teleutosporis difformibus, aliis rarioribus Pucciniae modo septatis, ellipticis, $35-60 \approx 12-17$, medio paullo constrictis, apice plerumque acutis et parum vel vix incrassatis, episporio tenui levi, fuscescenti-hyalinis, pedicello brevi vel perbrevis ipsis multo breviori insidentibus; aliis (mesosporis) plurimis, Uromycetis modo simplicibus, obovatis vel clavatis, $35-60 \approx 17-26$, obtusis, apice vix vel non incrassatis, levibus, fuscis, in pedicellum hyalinum gracilem mesosporam circiter aequantem angustatis.

Hab. in foliis Caricis vesicariae, in Germania. — «Praecedenti peraffinis».

156. **Puccinia emaculata** Schwein. North Amer. Fungi n. 2912, p. 295, 2300

Burrill Fungi of Illinois p. 201. — Epiphylla, rarius hypophylla; soris parvis, prominulis, numerosis, irregulariter sparsis vel gregariis, raro confluentibus, atris, erumpentibus, diu epidermide lacerata cinctis; uredosporis subglobosis, $15-24 \mu$. diam., echinulatis; teleutosporis ellipticis vel late clavatis, leniter constrictis, apice incrassatis obtuseque acutatis aut rotundatis, deorsum angustatis, $30-48 \approx 15-21$, levibus, fuscidulis, pedicello colorato, longiusculo.

Hab. in foliis Tricuspidis seslerioidis, Eragrostidis pectinaceae et nonnullorum Panicorum, in America boreali.

157. **Puccinia Cypripedii** Arthur Prelim. List of Iowa Uredineae, 2301

p. 156, n. 32. — Soris uredosporiferis rotundatis, explanatis, hypophyllis, sparsis, brunneis, nudis, epidermide lacerata cinctis; uredosporis rotundatis vel ellipsoideis, $17-22 \approx 14-18$, obscure brunneis, sparse echinulatis; soris teleutosporiferis hypophyllis, sparsis,

rotundatis, atris, nitidis, epidermide lacerata vix cinctis; teleutosporis oblongis vel oblongo-obovatis, 30-42 $\approx$ 16-18, levibus, medio constrictis, episporio tenuiusculo instructis, vertice valde incrassatis, 6-10 μ . cr., explanatis, rotundatis vel obtusis vel rarius acutis, pedicello teleutosporam subæquante, gracili.

Hab. in foliis Cypripedii pubescentis, Decorah Jowa Americæ borealis.

158. **Puccinia Windsoræ** Schwein. North Amer. Fungi p. 295, Burrill Fungi of Illinois p. 197. — Hypophylla, subinde epiphylla; soris parvis, leniter elevatis, irregulariter sparsis, numerosissimis, linearibus vel oblongis, snbnudis; uredosporis subglobosis vel obovatis, 18-24 μ . diam., echinulatis, obscure brunneis; teleutosporis late ellipticis vel obovatis, leniter vel haud constrictis, apice obtuse rotundatis, 27-39 $\approx$ 18-21, levibus, pedicello valide colorato, teleutosporam æquante vel eâ brevior.

Hab. in foliis Muehlenbergiæ et Windsoræ quinque-dentatæ, in America boreali.

159. **Puccinia Sporoboli** Arthur Prelim. List of Jowa Ured. p. 159, n. 58. — Uredosporis rotundatis, 24-28 μ . diam., flavis, subtiliter rugulosis; soris teleutosporiferis folii- vel cauliculis, oblongis aut linearibus, brunneo-atris, mox nudis, epidermidis fragmentis vix cinctis; teleutosporis oblongis vel oblongo-clavatis, 28-45 $\approx$ 15-21, medio vix vel non constrictis, levibus, obscure brunneis, vertice incrassato, semicirculari vel obtuso, basi acuta sæpius obtusa, pedicello valido, colorato, teleutosporâ plerumque longiore.

Hab. in foliis caulibusque Sporoboli heterolepis, Jowa Americæ borealis. — Adsunt quoque teleutosporæ uniloculares seu mesosporæ oblongo-clavatæ v. oblongo-fusiformes v. obovatæ, 18-24 $\approx$ 14-18.

160. **Puccinia Wurmbeæ** Cooke et Masee in Grevillea XVI, p. 74. — Soris elongatis, bullatis, atro-fuscis; uredosporis ellipticis, granulatis, fuscis, 25-28 $\approx$ 15-18; teleutosporis clavatis, uni-septatis, leniter medio constrictis, loculo superiori convexo truncato, obscuriori, loculo inferiori triquetro, deorsum in pedicellum hyalinum attenuato, episporio levi, 60-70 $\approx$ 20-25.

Hab. in foliis Wurmbeæ dioicæ, ad Beltana Australiæ (Dom. RICHARDS).

161. **Puccinia Andropogonis** Schwein. N. Amer. Fungi n. 2911, p. 295, Burrill Fungi of Illinois p. 202. — Hypophylla; soris majusculis, numerosis, ellipticis, dense aggregatis, clavatis, obtusis, fuscis, epi-

dermide dein lacerata cinctis; uredosporis subglobosis, 21-30 μ . d., echinulatis, crassiuscule tunicatis; teleutosporis obovatis aut ellipticis vel clavatis, leniter medio constrictis, apice ut plurimum incrassatis, obtuse rotundatis aut subinde breviter acutatis, 30-45 $\approx$ 15-22, levibus, fuscis; pedicello plus minus colorato, elongato.

Hab. in foliis *Andropogonis furcati* et *scoparii*, in America boreali. — Teste Farlow, huc spectare videtur *Puccinia Ellisiana* Thüm. in Myc. Univ. n. 1336.

162. **Puccinia Anthoxanthi** Fuck. Symb. II. Nachtr. p. 15, Winter 2306
Die Pilze p. 180. — Soris uredosporiferis mox nudis, ellipticis vel linearibus, flavo-ferrugineis; uredosporis plerumque ovatis obovatisque, raro magis elongatis, 20-30 $\approx$ 14-19, flavescentibus, pedicello nullo, subtilissime spinulosis; soris teleutosporiferis sparsis, minutis, mox nudis, brunneis, ellipticis vel linearibus; teleutosporis ovatis seu oblongo-clavatis, medio constrictis, antice obtusis, obscurioribus, rare obtuse apiculatis, basi rotundatis, pedicello cylindraceo, abrupte inserto, raro parum attenuatis, sine pedicello, 26-42 $\approx$ 16-21, brunneis, levibus.

Hab. in foliis vaginisque *Anthoxanthi odorati*, prope Gëstrich in Rhenogovia Germaniæ.

b) Teleutosporæ episporio verrucoso vel papillato præditæ.

163. **Puccinia Veratri** Niessl in Verhandl. Zool. bot. Gesellsch. in 2307
Wien 1859, p. 177, Winter Die Pilze p. 184. — Maculis indeterminatis, flavescentibus; soris utriusque formæ parvis, brunneis, nudis, sparsis; uredosporis globosis aut ellipsoideis, 19-30 $\approx$ 17-23, aculeatis, pallide brunneis; teleutosporis oblongis, medio profunde constrictis, basi rotundatis vel in pedicellum angustatis, apice vix incrassatis, rotundatis vel subattenuatis, loculis facile secedentibus, 25-50 $\approx$ 15-26, verrucosis, brunneis, pedicello deciduo, breviusculo, hyalino.

Hab. in foliis vivis *Veratri albi* et *Veratri viridis*, in Gallia, Helvetia, Austria et Germania, prope Buffalo et in California Americæ borealis nec non in Sibiria asiatica.

164. **Puccinia gibberosa** Lagerh. in Bericht. der Deutsch. botan. Ge- 2308
sellschaft 1888, pag. 126 cum icone. — Soris uredosporiferis in pagina superiore foliorum solitariis vel secus strias dispositis, non confluentibus, paraphysibus præditis; uredosporis globosis vel ovato-globosis, 28-30 μ . diam., episporio pallide fusco, echinulato et poris circiter 8 (ad 10?) præditis, aureis; soris teleutosporiferis

hypophyllis, nigris, parvis, epidermide tectis; teleutosporis cuneiformibus vel oblongo-cylindricis, $40-63 \approx 12-18$, medio non vel levissime constrictis, apice attenuatis vel obtusis, ad basim attenuatis vel rarius rotundatis, episporio fusco ad apicem teleutosporarum incrassato et papillis fuscis 1-4 prædito; pedicello brevi, pallide fusco, 6 μ . longo, haud deciduo.

Hab. in foliis vivis Festuæ silvaticæ, prope Freiburg in Br. in Germania.

165. **Puccinia obtecta** Peck in Burrill Fungi of Illinois p. 196. — Amphigena et caulina; soris sparsis vel irregulariter aggregatis, sæpe confertis, oblongis vel plus minus circularibus, diu tectis, leviter elevatis, atris; uredosporis ellipticis vel obovato-oblongis, $21-30 \approx 15-20$, subtiliter echinulatis; teleutosporis ellipticis, constrictulis, obtusis vel obtuse acutiusculis, $45-60 \approx 18-20$, subinde septatis, levibus, pedicello colorato, brevi, teleutosporam dimidiam subæquante.

Hab. in foliis caulibusque Scirpi validi et pungentis, in America boreali.

166. **Puccinia Asphodeli** Duby Bot. Gall. II, p. 891, Bagnis Monogr. tab. IV, fig. 136, *Uredo Asphodeli* DC. Fl. Fr. VI, *Cutomyces Asphodeli* Thüm. Contr. Fl. Lusit. p. 12, n. 64. — Amphigena; maculis violaceo-fuscis; soris prominulis, rufo-fuscis, orbiculus ovatisve, sparsis, solitariis aut hinc inde aggregatis, epidermide rupta cinctis; teleutosporis magnis, ovato-sphæricis, $50-55 \approx 40-42$, ovatisve obtusis, tenuissime punctulatis, medio vix constrictis, pedicello brevissimo vel subnullo; uredosporis globosis, 45 μ . diam., tenuissime granulosis, dilute flavidis.

Hab. in foliis vivis Asphodeli cerasiferi et ramosi, in Sardinia (Doct. MARCUCCI), Lusitania (THUENEN) et Gallia (DUBY).

Sectio D. Pucciniopsis Schroet. Spermogonia, æcidia et teleutospore in eadem matrice evolutæ; uredospore haud evolutæ (rarius singulæ incurvæ teleutosporis immixtæ). — Hæc sectio videtur magis quam aliæ fictilia.

167. **Puccinia Sii-Falcariae** (Pers.) Schroet. Pilz. Schles. pag. 311, *Æcidium Sii-Falcariae* Pers. Syn. Fung. p. 212, *Æcidium Falcariae* DC. Fl. Franç. VI, p. 91, *Uredo Falcariae* Spr. Syst. IV. p. 573, *Cecoma falcariatum* Link Sp. II, p. 53, *Cecoma Falcariae* Schlecht. Fl. Berol. II, pag. 116, *Puccinia Falcariae* Fuck. Symb. Myc. p. 52. — Spermogoniis æqualiter per totam foliorum superficiem expansis, subdistantibus, sæpius omnia folia radicalia

unius plantæ infestantibus, melleis: æcidiis ut spermogoniis dispositis, pseudoperidiis explanatis, margine albo, dentato, deciduo; æcidiosporis polygoniis, $14-28 \approx 12-20$, subtiliter punctatis, aurantiaco-rufis; teleutosporis in soros rotundatos vel irregulares, sæpius confluentes, diu epidermide tectos, castaneo-brunneos congestis, ellipticis vel ovatis, plerumque utrinque rotundatis v. basi angustatis, medio parum vel haud constrictis, $30-45 \approx 18-26$, levibus, brunneis, pedicello gracili, brevi, deciduo, hyalino.

Hab. in foliis caulibusque Falcariae Rivini, *F. vulgaris* et Pimpinellæ magnæ (æcidia), in Austria, Germania, Gallia et Belgio.

68. **Puccinia Bunii** (DC.) Wint. Die Pilze p. 197, *Æcidium Bunii* 2312

DC. Synops. p. 51, *Puccinia Bulbocastani* Fuck. Symb. p. 52. — Æcidiis confertis; pseudoperidiis breviter cylindraceis, margine albedo, profunde laciniato, erecto vel extrorsum revoluti; æcidiosporis polygoniis, $26 \approx 15-20$, subtiliter verrucosis, flavo-aurantiacis; soris teleutosporiferis rotundatis aut ellipticis, in petiolis elongatis, sæpius confluentibus, atro-fuscis, sparsis v. per paucos aggregatis, diu epidermide vesiculosa tectis; teleutosporis ellipsoideis vel oblongis, non raro clavatis vel utrinque rotundatis, medio non vel parum constrictis, breviter pedicellatis, $26-44 \approx 15-23$, subtiliter punctatis, fusciculis.

Hab. in foliis petiolisque Cari Bulbocastani et Pimpinellæ Saxifragæ, in Helvetia, Britannia, Germania et Gallia nec non in foliis Athamanthæ cretensis et Laserpitii Sileris in Italia boreali.

69. **Puccinia conglomerata** (Strauss) Schm. et Kunze Crypt. exs. 2313

n. 191, Winter Die Pilze p. 195, Schroet. Pilz. Schles. pag. 342, *Uredo conglomerata* Strauss in Wett. Ann. II, p. 100, *Puccinia Syngenesiarum* Link Sp. II, pag. 74, p. p., *P. expansa* Link l. c. p. 75?, *Æcidium Senecionis* Desmaz. in Ann. Scienc. Nat. 1836, pag. 243, *Puccinia Senecionis* Libert Crypt. Ard. exsicc. n. 92. — Æcidiis in maculis brunneolis, sæpe nigro-marginatis insidentibus, in greges sine ordine dispositis; pseudoperidiis latis, explanatis, albidis, margine irregulariter laciniato; æcidiosporis rotundato-angulatis, $15-20 \mu$ diam., sublevibus, aurantiacis; teleutosporis in soros gregarios, circinatos, minutos, punctiformes, convexos, subatros, epidermide medio introflexa perforataque tectos congestis, ellipticis vel ovatis, utrinque rotundatis vel attenuatis, apice plerumque papilla latiuscula, hyalina vel pallida ornatis, $21-$

52 $\approx$ 14-26, levibus, castaneo-brunneis; pedicello brevissimo, gracillimo, mox deciduo, hyalino.

Hab. in foliis vivis petiolisque Homogynes alpinæ, Adenostylis albifrontis et alpinæ, Senecionis cordati, nemorensis, aquatici, sarracenici (dubie) et Cacalia hastatæ, in Italia, Arduennis, Austria, Helvetia, Germania et Britannia nec non prope Minussinsk Sibiriae asiaticæ.

170. **Puccinia Liliacearum** Duby Botan. Gall. II, p. 891, Winter Die Pilze p. 194, Schroet. Pilz. Schles. p. 342. — Spermogoniis numerosis, præsertim ad apices foliorum, flavo-melleis, conoideis; æcidiis plerumque sparsis vel nullis, profunde immersis, margine tantum prominulis; æcidiosporis rotundato-angulatis, subglobosis, rarius ellipsoideis, 16-23 $\approx$ 14-17, aurantiacis; soris teleutosporiferis in apicibus foliorum flavidis vel flavo-maculatis, sæpius exsiccatis congestis, hemisphæricis, diu tectis, epidermide longitudinaliter rimulosa subdenudatis; teleutosporis oblongis, vix vel haud constrictis, apice rotundatis, non incrassatis vel angustatis apiculatisque, deorsum in pedicellum angustatis, 40-70 $\approx$ 22-35, levibus, pallide brunneis; pedicello longiusculo, crasso, hyalino.

Hab. in foliis Ornithogali pyrenaici, umbellati, nutantis, nec non Endymionis nutantis et Gageæ luteæ in Gallia, Austria, Germania et Italia. — Var. **Rossiana** Sacc. in Michelia. A typo differt soris plerumque crassioribus, sæpius erumpentibus sed imprimis teleutosporis vertice acute hyalino-apiculatis, 50-55 $\approx$ 25-27, dilute cinnamomeis, stipite 30-40 $\approx$ 10, hyalino. In foliis Scillæ bifoliæ in alpinis prope Possagno agri veneti in Italia (Art. Rossi).

171. **Puccinia Tragopogonis** (Pers.) Corda Icon. Fung. V, p. 50, t. II, f. 11, Winter Die Pilze p. 209, Schroet. Pilz. Schles. p. 342, *Æcidium Tragopogonis* Pers. Syn. p. 211, *Uredo Scorzonerae* Schum. Pl. Saell. II, pag. 229, *Puccinia Podospermi* DC. Fl. Franc. II, p. 595, *Æcidium Cichoracearum* DC. l. c. p. 239, *Uredo Hysterium* Strauss in Wett. Ann. II, pag. 102, *Puccinia Hysterium* Roehl in D. Flor. III, p. 131, *Puccinia cincla* Bonord. Coniom. p. 52, *Æcidium Tragopogonis* Sacc. in Michelia 1877. *Cyoma Cichoracearum* Schlecht. Fl. Berol. II, pag. 116, *Cyoma Tragopogonatum* Link Sp. II, pag. 50. — Spermogoniis per totam foliorum superficiem expansis, subremotis, melleis; sporulis ovoideis, 4 $\approx$ 3, hyalinis; æcidiis ut spermogoniis dispositis, rotundatis aut oblongis, primo conoideis, dein poculiformibus, margi-

ne albo, inæquali, lacero, revoluti; æcidiosporis coacervatis rufescentibus, singulis angulatis, $35 \approx 18-27$, verrucosis, aurantiacis, episporio hyalino; teleutosporis in soros gregarios, rotundatos, epidermide diu cinctos, punctiformes, atro-fuscos congestis, ellipticis vel subglobosis, utrinque rotundatis, medio subconstrictis, apice non incrassatis, $26-48 \approx 20-38$, verrucosis, fuscis; pedicello hyalino, gracili, deciduo, brevi.

Hab. in foliis *Tragopogonis porrifolii*, *pratensis*, *orientalis*, *floccosi*, *Scorzoneræ austriacæ*, *humilis*, *Podospermi Jacquini* et *laciniati*. *Galasiæ villosæ*, in Italia, Gallia, Austria, Helvetia, Germania, Bohemia, Belgio, Fennia, Britannia.

172. **Puccinia fusca** Relhan Fl. Cantabr. Suppl. II, (1793), Winter 2316
Die Pilze p. 199, Schroet. Pilz. Schles. p. 343, *Æcidium fuscum* Sow. Engl. Fungi t. 53, *Æcidium Anemones* Pers. Syn. Fung. p. 226, *Æcidium leucospermum* DC. Fl. Franc. II, p. 239, *Uredo quincunæ* Strauss in Wett. Ann. II, p. 99, *Æcidium leucosporum* Wallr. Fl. Crypt. Germ. n. 1758, *Lycoperdon Anemones* Pult. Hoffm. Germ. t. 11, f. 1, *Uredo leucosperma* Spr. Syst. IV, p. 573, *Cavoma leucospermum* Schlecht. Fl. Berol. II, p. 116, *Puccinia Anemones* Pers. Obs. II, t. 6, f. 5. — *Spermogoniis* æcidisque æqualiter per folia distributis, totam plerumque plantam, quæ expallescit, infestantibus; *spermogoniis* explanatis, albidis; *pseudoperidiis* breviter cylindræco-explanatis, albis, margine profunde inciso et revoluti; æcidiosporis angulatis, $27 \approx 16-22$, levibus, hyalinis; teleutosporis in soros æque sparsos vel ad margines numerosiores, minutos, rotundatos vel ellipsoideos, sæpe confluentes, mox nudos, atro-brunneos congestis, e 2 loculis subglobosis, raro ellipticis efformatis, apice rotundatis, medio profunde constrictis, raro haud constrictis, $30-50 \approx 16-24$, verrucosis, brunneis; pedicello circ. ad 18 μ . longo.

Hab. in foliis ramulisque vivis *Anemones nemorosæ*, *ranunculoidis*, *vernalis*, *Pulsatillæ*, *pratensis*, *silvestris*, *trifoliæ*, in Italia, Gallia, Belgio, Britannia, Fennia, Austria, Helvetia, Germania, in America boreali et pr. Minussinsk in Sibiria asiatica. — «Iluc forte pertinet *Æcidium punctatum* Pers.».

173. **Puccinia Valerianæ** Carest. in Erb. Critt. Ital. ser. I, n. 500, 2317
Winter Die Pilze p. 196, *Æcidium Centranthi* Thüm. in Verz. Schles. bot. Tauschverein 1874? — *Æcidii* confertis, cupulatis,

marginē lato, albo, lacerato, revolutō; æcidiosporis polygoniis, 14-19 μ . diam., subtiliter verrucosis, aurantiacis; soris teleutosporiferis parvis, plerumque ellipticis, sæpius confluentibus, pulvinulos magnos, nudos efformantibus; teleutosporis irregularibus, oblongis, fusoidēis aut clavatis, basi angustatis, apice paullum incrassatis, raro rotundatis, plerumque subconoideo-attenuatis, medio non vel leniter constrictis, 40-60 $\approx$ 20-35, levibus, castaneo-brunneis; pedicello longiusculo, deciduo fultis.

Hab. in foliis vivis languidisve et petiolis Valerianæ officinalis et Centranthi Calcitrapæ, in Italia et Germania.

— «Forte huc pertinet *Uredo Valerianæ* Desm. non DC.»

174. **Puccinia Trollii** Karst. Enum. Fung. Lapp. or. p. 221 (1866), Winter Die Pilze p. 198, *Puccinia Lycoctoni* Fuck. var. *Trollii* Körn. in Hedw. 1877, p. 18, *Puccinia Lycoctoni* Fuck. Symb. III, p. 11. — Æcidiis in greges rotundatos confertim dispositis, cylindraceis, margine albido, denticulato; æcidiosporis angulatis, 16-28 $\approx$ 14-20, verrucosis, aurantiaco-flavis; soris hypophyllis, rarius petiolicolis, per epidermidem fissam erumpentibus, solitariis vel per paucos aggregatis, orbicularibus vel oblongatis, fuscis; teleutosporis ellipsoideo- vel obovoideo-oblongatis, levibus, vertice incrassatis et in apicem latiore productis, brevissime pedicellatis vel subsessilibus, ad septum hand vel paululum constrictis, loculis subæqualibus, flavis, facillime deciduis, 25-53 $\approx$ 16-26.

Hab. in foliis, petiolis caulibusque Aconiti Lycoctoni et Trollii europæi, in Italia, Helvetia et Lapponia rossica juxta mare glaciale.

175. **Puccinia Calochorti** Peck in Botanical Gazette 1881, p. 228. — Maculis atris vel nullis; æcidiis homoeicis; pseudoperidiis confertis, brevibus, congestis; æcidiosporis subglobosis vel angulatis, circ. 20 μ . latis, flavis vel aurantiacis; soris teleutosporiferis sparsis vel confertis, ovatis aut oblongis, atris; teleutosporis ellipsoideis, obtusis, medio leniter constrictis, 35-40 $\approx$ 25, rugulosis, pedicello brevi instructis.

Hab. in foliis vivis Calochorti Nuttallii, Utah in America boreali (Jones). — *P. Lojkianæ* proxima, a qua teleutosporis minoribus, minus verrucosis et obtusioribus distinguitur.

176. **Puccinia Smyrnii** Biv. Bernh. Manip. plant. Sic. (1816), Corda Icon. (1840), IV, f. 67, *Puccinia Torquati* Pass. in Giorn. bot. Ital. III (1871), n. 2, *Æcidium Smyrnii* Bagnis in Thümen Mycoth. univ. n. 153. — Pseudoperidiis sparsis, minutis, breviter elevatis in

macula flavescenti, margine sublaceris; æcidiosporis oblongis vel globosis, minimis; maculis obsoletis; soris teleutosporiferis hypophyllis, magnis, solitariis, sparsis, brunneis; teleutosporis ovatis, 40-45 $\approx$ 25, obtusis, grosse tuberculatis, leniter constrictis, ochraceo-fuliginis; pedicello brevi suffultis.

Hab. in foliis Smyrni Olusatrici, in Gallia, Bohemia (?), Italia et Britannia.

177. **Puccinia Bellidiastris** (Unger) Winter Die Pilze p. 196, *Æcidium* 2321

Bellidiastris Unger Exanth. p. 109. — *Æcidii* hypophyllis, in parvos greges nullo ordine aut secus orbes dispositis; maculis purpurascentibus; pseudoperidiis explanato-cupulatis, margine dentato, albedo; æcidiosporis angulatis, 14-20 μ . diam., aurantio-flavis; soris teleutosporiferis minutis, rotundatis v. ellipticis, convexo-pulvinatis, diu epidermide obtectis, in greges irregulares congestis; teleutosporis plerumque oblongis, raro ellipsoideis, apice more conoideo-angustatis et valde incrassatis, medio constrictis, 30-45 $\approx$ 16-24, levibus, obscure castaneo-brunneis.

Hab. in foliis petiolisque *Bellidiastris* Michellii, in Germania.

178. **Puccinia Ipomeæ** Cooke in Rav. Amer. Fungi n. 792, *Æcidium* 2322

Ipomeæ-panduranæ Schwein. Syn. Carol. p. 69, n. 454, *Æcidium Ipomeæ* Thüm. an Spegazz.? — *Æcidii* maximis, bullatis, supra impressis, albis; pseudoperidiis flexuosis, majoribus, elevatis, rima ruptis, pulvere cinereo-rutilo; æcidiosporis minutis, oblongis; soris teleutosporiferis epiphyllis secus circulos supra æcidia efformatis vel hypophyllis cum æcidiiis vetustis immixtis, atro-fuscis, pulverulentis; teleutosporis elliptico-fusiformibus, magnis, medio constrictis, leniter asperulis, atro-fuscis, 50-60 $\approx$ 20-30; pedicello crasso, elongato, hyalino 60 $\approx$ 10 fultis.

Hab. in foliis *Ipomeæ* panduranæ et trichocarpæ, Batatas paniculatæ, Darien, Georgia (Ravenel) aliisque locis Americæ borealis, Natali Africæ (Wood). — Verisimiliter huc pertinet *Æcidium Ipomeæ* Thüm. F. Afr. n. 107, vix Spegazz.: sparsum, submagnum; pseudoperidiis primo tectis, dein margine levi apertis, flavo-brunneis vel ochroleucis, parvis, subelevatis; æcidiosporis globosis v. polygoniis, episporio crasso, levi, 18-24 μ . diam., hyalinis. In foliis vivis nec non in capsulis immaturis maturisque *Ipomeæ* argyreodis prope Klyn Visch Rivier juxta Somerset-East, Promont. Bonæ Spei (Mac-Owan).

179. **Puccinia asperior** Ell. et Everh. in Bull. Washb. Laborat. 1884, p. 3. — Pseudoperidiis hemisphæricis vel e pressione subangulatis, 500-750 μ . diam., margine fere erecto subtiliterque dentato; æcidiosporis subglobosis, 20-22 μ . diam. aut 25-35 $\approx$ 15-18, aurantiacis; soris teleutosporiferis atris, subpulvinatis, suborbiculatis v. leniter oblongis, circ. 1 mm. diam., initio epidermide tectis; teleutosporis ellipsoideis, obtusis, utrinque rotundatis, vix ad septum constrictis, 25-35 $\approx$ 19-23, episporio verrucoso vertice paullum incrassato; pedicello, ut videtur, brevissimo, deciduo.

Hab. in petiolis foliisque *Ferulæ dissolutæ*, in Terr. Washington Amer. bor. (SUKSDORF). — A *P. Jonesii* Peck teleutosporis verrucosis præcipue distincta.

180. **Puccinia Plectranthi** Thüm. in Flora 1875, pag. 378, Cooke in Grevillea X, p. 126. — Pseudoperidiis in maculis orbicularibus, decoloratis congestis, semiimmersis, margine albo-fimbriatis; æcidiosporis flavidis; soris teutosporiferis hypophyllis, sparsis, fuscis; teleutosporis subclavatis, medio constrictis, loculo superiore apice incrassato, obtuso, loculo inferiore ovoideo, 56 $\approx$ 15, flavescentibus, pedicello hyalino, curvato, 19 μ . longo.

Hab. in foliis vivis *Plectranthi laxiflori* in silvis ad pedem montis «Boschberg» pr. Somerset East (MAC-OWAN), nec non ad Port Natal (Wood) Africae australis.

181. **Puccinia carniolica** Voss Ein. Kennt. Rostpilze in Öst. bot. Zeit. 1885, *Æcidium Peucedani* Voss in Öst. bot. Zeit. 1835. — Pseudoperidiis plerumque hypophyllis, sparsis, minutis, margine albo dilacerato, disco luteo; æcidiosporis plus minusve globosis, ellipsoideis v. polygoniis, episporio levi, intus luteis, 20 μ . diam. v. 24-26 $\approx$ 15; soris teleutosporis pulvinatis, hypophyllis, etiam in petiolo longitudinaliter dispositis, epidermide tectis (semper?), nigris; teleutosporis irregularibus aut cuneatis vel clavatis oblongisve vel polyhedris, vertice truncatis, rotundatis vel apiculatis, incrassatis, medio paullulo constrictis, basi in pedicellum angustatis, episporio levi, fuscis, 49-53 $\approx$ 20-24 (sine pedicello).

Hab. in foliis et petiolis vivis *Peucedani Schottii*, in Carniola Austriae.

182. **Puccinia intermixta** Peck in Botanical Gazete 1879, p. 218. — Maculis nullis; soris teleutosporiferis numerosis, sparsis, sæpe æcidio intermixtis, amphigenis, sordide rufescenti-brunneis; teleutosporis oblongo-ellipticis, obtusis, ad septum leniter constrictis, 35-40 $\approx$ 20-23; pedicello brevissimo vel subnullo.

Hab. in foliis *Ivæ axillaris*, ad Green River in Terr. Wyoming Amer. bor. (JONES). — «*Æcidii descriptio haud nota*».

183. **Puccinia Jonesii** Peck in Bot. Gazette 1881, p. 226. — *Ma-* 2327
culis pallidis, indeterminatis; pseudoperidiis brevibus, confertis, late
margine dentatis crenulatisque; æcidiosporis subglobosis, 20-25
μ. latis, aurantiaco-flavis; soris teleutosporiferis plerumque hypo-
phyllis, raro paucis epiphyllis, sparsis, primo epidermide tectis, dein
nudis, subpulverulentis, atris; teleutosporis ellipticis vel oblongo-
ellipticis, obtusis, substriatis, vix medio constrictis, 30-40 ≈ 20-23,
subtiliter rugulosis, pedicello brevissimo fultis.

Hab. in foliis vivis *Ferulæ multifidæ* et *Peucedani simplicis*, Utah Americæ borealis (JONES). — «Cum *Puccinia Ferulæ* Rud. et *asperiori* E. et E. comparanda».

184. **Puccinia melanconioides** Ell. et Harkn. New Calif. Fungi p. 7. 2328
— *Æcidii* amphigenis; pseudoperidiis sparsis, in maculis vel ad
margines secus orbem interruptum dispositis; soris teleutosporiferis
rotundatis, sparsis, initio tectis, dein cinctis; teleutosporis late el-
lipticis, leniter constrictis, 28-50 ≈ 16-28, obscure brunneis, den-
se coacervatis.

Hab. in pagina plerumque superiori foliorum vivorum *Dodecatheontis Meadiæ*, in California Americæ borealis. — *Habitus Melanconii*, *Pucciniae Primulæ* affinis at teleutosporis majoribus obscurioribusque distincta.

185. **Puccinia Macrorrhynchi** Rabenh. in F. Europæi n. 2387. — Pseu- 2329
doperidiis margine revoluta subtiliter denticulato-fisso; æcidiospo-
ris ovato-globosis, 12-18 (plerumque 15) μ. diam., luteis vel lu-
teolis, episporio levi, subcrasso, hyalino; teleutosporis oblongis,
40 ≈ 20, medio plus minus constrictis, luteo-fuscis vel subbadiis,
loculo superiori globoso v. depresso-globoso, inferiori subrhomboi-
deo vel cuneato, in pedicellum attenuato, episporio levi, tenui, tum
vertice, tum basi æquali.

Hab. in foliis *Macrorrhynchi aspleniifolii*, in India orientali.

186. **Puccinia Mariæ-Wilsoni** Clinton in Peck 25 Rep. of Stat. Bot. 2330
p. 115, Burrill Fungi of Illinois p. 174, *Cæoma* (*Æcidium*) *Claytonianum* Schwein. N. Amer. Fungi p. 294, n. 2892. — *Spermogoniis* inter *æcidia* sparsis; *æcidii* amphigenis, regulariter sparsis, sæpe confertim gregariis; pseudoperidiis latiusculis, laciniatis, margine subrevoluta; æcidiosporis subglobosis, 15-18 μ. d., episporio tenui, subtiliter echinulato donatis, aurantiacis; soris teleutospori-

feris hypophyllis, raro amphigenis, irregulariter sparsis vel aggregatis, subelevatis, primo epidermide tectis, demum ab ea rupta cinctis, rufo-brunneis; teleutosporis irregularibus, plerumque ellipsoideis, vix constrictis, apice obtuso breviter papillulatis, episporio crasso, subtiliter tuberculato instructis, $30-48 \approx 21-27$; pedicello brevi, fragili, hyalino.

Hab. in foliis Claytoniæ virginicæ et carolinianæ, in Carolina inf. (SCHWEINITZ), Montreal (D. MACLAGAN), Buffalo (CLINTON), Knowersville (PECK), et Illinois (BURRILL) in America boreali.

187. **Puccinia Mac-Owani** Winter in Hedwigia 1885, p. 255, *Æcidium truncatum* Kalchbr. mscr. — Pseudoperidiis in maculis pallide luteolis, in pagina superiore foliorum fuscis, late luteo cinctis, indeterminatis, rotundatis irregularibusve, sæpe confluentibus insidentibus, magnitudine variis, hypophyllis, solitariis vel 2 usque circ. 10 laxe gregariis vel cæspitosis, albidis, longe tubulosis, 1-2 mm. altis, primitus clausis, demum apertis, margine erecto, parce et irregulariter sed subprofunde incisis, laciniis interdum revolutis; cellulis pseudoperidii densissime minuteque verruculosi; æcidiosporis angulato-rotundatis, $23-32 \mu$. diam., verruculis subvalidis obtusis obsitis, hyalinis (an semper?); soris teleutosporiferis hypophyllis, æcidiis immixtis, in maculis similibus sparsis, rotundatis irregularibusve minutis, 0,25-1 mm. latis, pallide fuscis, pulveraceis, non compactis, superficialibus; teleutosporis elongatis, late fusiformibus, utrinque attenuatis, medio constrictis, vertice incrassatis, $60-90 \approx 19-25$, levibus, pallide luteo-fusculis; pedicello longo subpersistente hyalino suffultis, jam in planta adhuc viva germinantibus.

Hab. in foliis vivis Helichrysi petiolati, in M. Boschberg. pr. Sommerset East Africae australis (Mac OWAN).

188. **Puccinia Physalidis** Peck in Botanical Gazette 1879, p. 218, *Æcidium Solani* Mont. Syll. Crypt. n. 1146 Burrill Parasitic Fungi of Illinois p. 285. — Spermogoniis numerosissimis, hypophyllis, sparsis vel in greges late extensos dispositis, sociis vel non cum æcidiis, latiusculis, flavo-melleis; æcidiis hypophyllis sparsis, macula nulla; pseudoperidiis sparsis aut gregariis, subtus convexis, supra urceolatis, margine subduplicato integris; æcidiosporis primo concatenatis, polygoniis tandem sphaericis, flavescentibus, $15-21 \approx 13-15$, minute tuberculatis; soris teleutosporiferis numerosis, macula nulla, sæpius confluentibus, totam paginam inferiorem folii occupantibus, rufo-brunneis; teleutosporis ellipticis vel oblongo-el-

lipticis, subinde irregularibus, leniter ad septum constrictis, 30-40 $\approx$ 20-25; pedicello hyalino teleutosporam longit. subæquante fultis.

Hab. æcidia et spermogonia in foliis Solani pinnatifolii et Physalidis viscosæ, sori in foliis Physalidis viscosæ, in Illinois, Colorado Amer. bor., in Chili Amer. austr. et in Himalaya Indiæ.

189. **Puccinia Podophylli** Schwein. Syn. Fungi North Carol. p. 72, 2333 n. 489, Burrill Fungi of Illinois p. 173, *Puccinia aculeata* Schwein. Syn. Carol. n. 489, *Æcidium Podophylli* Schwein. Syn. Carol. n. 435, *Puccinia aculeata* Link Sp. II, pag. 79? — Hypophylla; maculis indeterminatis, latiusculis, subconfluentibus, flavis; spermogoniis minutis, sparsis, æcidiis oppositis; æcidiis dense confertis; pseudoperidiis brevissimis, margine profunde numero-seque laciniatis revolutoque fragilissimis; æcidiosporis subglobosis vel ellipsoideis, 16-27 μ . diam., episporio tenui instructis, subtiliter tuberculatis, sublateritiis; soris teleutosporiferis amphigenis vel cauliculis, parvis, rotundatis, plerumque plus minus confluentibus, flavis aut brunneis; teleutosporis ovoideis vel oblongis, rarius obovatis, obtusis, vix constrictis, deorsum ut plurimum attenuatis, 38-48 $\approx$ 20-27, spinulosis, pedicello brevissimo v. subnullo, fugaci, gracili instructis.

Hab. in foliis caulibusque Podophylli peltati, Ohio, Carolina inf., Pennsylvania, New York et Illinois in America boreali.

190. **Puccinia subcircinata** Ell. et Everh. North Amer. Fungi n. 1840 2334 et in Journ. of Mycology 1887, pag. 56. — Æcidiis gregariis, plerumque soris teleutosporiferis cinctis, ut plurimum hypophyllis, circ. 500 μ . diam., margine dentato, patenti; æcidiosporis globosis, 12-15 μ . diam. aut subellipticis, 20 $\approx$ 12-15, vel subangulatis irregularibusve; soris teleutosporiferis hypophyllis, circa æcidia annulum efficientibus vel etiam plus minus sparsis etiamque petiolicolis, subhemisphaericis, plumbeis, circ. 500 μ . diam.; teleutosporis ellipticis, vix constrictis, plerumque utrinque rotundatis, vertice vix incrassatis, subtiliter granulato-verruculosis, 22-30 $\approx$ 16-20, breviter pedicellatis.

Hab. in foliis vivis Senecionis triangularis, ad M. Paddo Washington Terr. in America boreali (SUKSDORF).

191. **Puccinia Symphoricarpi** Harkn. New. Calif. Fungi p. 15. — 2335 Æcidiis teleutosporas præcedentibus, hypophyllis, secus orbes circulares 8-20 aggregatis, maculis obscure brunneis vel discoloribus insidentibus; pseudoperidiis æquilongis ac latis; æcidiosporis aurantiacis; soris teleutosporiferis parvis, aggregatis, epidermide tectis,

1-3 mm. diam., maculis irregularibus, brunneis; teleutosporis oblongis, constrictis, 50-60 $\approx$ 15-17, superne obscurioribus, levibus, episporio sursum crassiore, demum subinde oblique 1-digitatis; pedicello concolori, teleutospora sesquolongiore.

Hab. in foliis vivis *Symphoricarpi mollis*, Tamalpais in America boreali.

192. **Puccinia tenuis** Burrill *Parasitic Fungi of Illinois* p. 181, *Æcidium tenue* Schwein. *North Americ. Fungi* n. 2889. — *Æcidii* hypophyllis, raro etiam epiphyllis, in greges subirregulares dispositis vel sparsis; pseudoperidiis minutissimis, brevibus, subelevatis, margine angustato irregulariter lacerato recurvatoque; æcidiosporis subglobosis, 14-18 μ . diam., subtilissime tuberculatis, pallidis; soris teleutosporiferis hypophyllis, maculis parvis, sæpe confluentibus, more flavis (centro late nigrescente) insidentibus, subinde sparsis, plerumque confluentibus, effusis, leniter convexis, epidermide tectis, sordide griseo-atris; teleutosporis oblongo-clavatis, leniter constrictis, 40 $\approx$ 15, ut plurimum angulatis vel acuminatis, pedicello hyalino vel vix colorato, dimidiam teleutosporam subæquante fultis.

Hab. in foliis *Eupatorii ageratoidis* in America boreali.

193. **Puccinia aucta** Berk et Müll. in *Linn. Journ.* XIII, p. 173, Cooke in *Grevillea* XI, p. 98, *Æcidium microstomum* Berk. *Linn. Journ.* XIII, p. 173, *Æcidium Lobeliae* Thüm. in *Grevillea* IV, p. 75, *Mycoth. Univ.* n. 321. — Pseudoperidiis rotundatis vel ovatis, dense gregariis, folia petiolaque fere tota occupantibus, ampullaceis, primo epidermide tectis, demum liberis, margine crassiusculo, levi, elato, ochraceis; æcidiosporis irregulariter globosis vel varie rotundatis, 18-22 μ . diam. episporio punctulato, levi, pallide ochraceis; soris teleutosporiferis hypophyllis, nervo medio utrinque consitis, bullatis, epidermide dein fracta cinctis; teleutosporis pedicellatis, elongatis, pallidis, demum biseptatis.

Hab. in foliis *Lobeliae ancipitis*, pedunculatæ et platycalycis, in Victoria et Australia meridionali.

194. **Puccinia Tragiae** Cooke in *Grevillea* X, p. 125. — Epiphylla vel amphigena; æcidiiis minimis; pseudoperidiis 5-6 congestis, albis, elongatis, marginato-dentatis; æcidiosporis globosis, aurantio-flavis; soris teleutosporiferis pulverulentis, purpureo-fuscis; teleutosporis ellipticis, medio costrictis, castaneis, 50 $\approx$ 28; pedicello elongato, hyalino, infra attenuato, 70 μ . longo.

Hab. in foliis *Tragiae*, ad Inanda Natal in Africa (Wood).

Sectio E. MICROPuccinia Schroet. Teleutosporæ tantum evolutæ, haud in matrice viva sed post longam pausam in planta emortua germinantes.

195. **Puccinia Betonicæ** (Alb. et Schwein.) DC. Fl. Franç. VI, p. 57, 2339
 Winter Die Pilze p. 172, Schroet. Pilz. Schles. p. 343, *Puccinia Anemonæ* var. *Betonicæ* Alb. et Schwein. Consp. p. 131, *Dicæoma Betonicæ* Nees Syst. p. 16. t. 1, f. 11, *Lycoperdon epiphyllum* Aubry Fl. Morb. p. 22, *Uredo Betonicæ* Strauss in Wett. Ann. II, p. 99. *Puccinia Vossii* Körn. in Rabenh. Fungi Europæi n. 1294, Winter Die Pilze p. 173. — Teleutosporis in soros hypophyllos, minutos, aurantiaco-rufos, aggregatos, sæpius ad nervos foliorum constipatos, epidermide lacerata cinctos congestis, late ellipticis v. ovatis, 27-45 $\approx$ 15-24, levibus, apice rotundatis, apiculo verruciformi-compresso, dilute brunneo auctis, medio leniter vel non constrictis, brunneo-flavescentibus, pedicello hyalino, deciduo, gracili, breviusculo.

Hab. in foliis, rarius in petiolis *Betonicæ* officinalis et *Stachydis rectæ*, in Italia, Belgio, Gallia, Britannia, Helvetia et Germania.

196. **Puccinia Campanulæ** Carmich. in Sm. Fl. Brit. V, p. 365, Winter 2340
 Die Pilze p. 173, Schroet. Pilz. Schles. p. 344, Cooke Handb. n. 1479. — Teleutosporis in soros magnos, irregulares, confertos, diu epidermide tectos, demum ab ea cinctos, castaneo-brunneos congestis, oblongis vel ovatis, apice rotundatis vel obtuse acuminatis, apiculo verruciformi plerumque brunneolo, rarius hyalino auctis, medio leniter constrictis, 26-45 $\approx$ 12-21, levibus, flavo-brunneis; pedicello brevi, deciduo, gracili, hyalino.

Hab. in foliis præcipue radicalibus *Campanulæ Rapunculi* et *Jasiones montanæ*, in Britannia, Belgio et Germania.

197. **Puccinia Schneideri** Schroet. in Schneid. Herb. Schles. Pilze 2341
 fasc. IX, Pilz. Schles. p. 344. *Puccinia caulicola* Schneider in 48. Jahresb. Schles. Ges. 1870, p. 120, Winter Die Pilze p. 195 non Nees, nec Tracy et Gall., nec Spreng. — Teleutosporis in soros parvos, atro-brunneos, pulveraceos diu epidermide bullata tectos congestis, ellipticis, utrinque rotundatis, apice incrassatis, 24-33 $\approx$ 15-23, medio plus minus constrictis, levibus amœne, castaneo-brunneis; pedicello gracillimo, hyalino, longiusculo.

Hab. in foliis, petiolis caulibusque *Thymi Chamædryos* et *Serpylli*, in Helvetia, Suecia et Germania. — Forte huc pertinet *Æcidium Thymi* Fuck. Symb. p. 376, ita descriptum: pseudope-

ridiis hemisphæricis, demum laceratis, sparsis, albidis, æcidiosporis majusculis, rotundatis, 18-19 μ . diam., fuscis.».

198. **Puccinia Ægopodii** (Schum.) Link Sp. II, p. 77, Winter Die Pilze p. 174, Schroet. Pilz. Schles. p. 344, *Uredo Ægopodii* Schum. Pl. Saell. II, p. 233, *Puccinia difformis* Bonord. Con. p. 50, t. III, f. 39, *Uredo bullata* Alb. et Schwein. Consp. p. 129 (sec. Winter). — Teleutosporis in soros amphigenos, aggregatos, confluentes, maculæ lividæ insidentes, fusco-atros, primo flavo-melleos congestis, ovoideo-oblongis vel subclavatis, apice rotundatis vel attenuatis, apiculo obtuso, verruciformi, hyalino ornatis, medio non vel vix constrictis, basi plerumque angustatis, 28-40 $\approx$ 15-25, brunneis; pedicello cylindraceo, hyalino, evanescenti, longiusculo.

Hab. in foliis, petiolis, raro in caulibus *Ægopodii* *Podagrariæ*, *Astrantiæ* majoris et *Imperatoriae* *Ostruthii*, in Italia, Belgio, Arduennis, Britannia, Austria, Helvetia, Germania, Hungaria, Neerlandia et Fennia australi.

199. **Puccinia asarina** Kunze in Kunze et Schm. Mykol. Heft. I, p. 70, Winter Die Pilze p. 172, Schroet. Pilz. Schles. p. 344, *Puccinia Asari* Link Sp. II, p. 68. — Teleutosporis in soros parvos, amphigenos, subglobosos, confertos vel circinatos, demum confluentes, epidermide rupta subvelatos, massam plerumque latam, rotundatam, convexam, pulveraceam efformantes congestis, ellipticis v. ovoideis, apice attenuatis, apiculis hyalinis vel dilute coloratis auctis, medio leniter constrictis, 30-45 $\approx$ 15-24, levibus, brunneo-flavis; pedicello longiusculo, deciduo, hyalino.

Hab. in foliis *Asari* europæi, in Italia, Helvetia, Austria, Hungaria, Germania et Britannia nec non in California America borealis.

200. **Puccinia Saxifragæ** Schlecht. Flor. Berol. II, p. 134 (*P. Saxifragarum*) Winter Die Pilze p. 174, Schroet. Pilz. Schles. p. 345, *P. inquinans* Wallr. Fl. Crypt. Germ. II, p. 218. — Teleutosporis in soros parvos, primo melleo-marginatos, dein sordide castaneos vel atro-fuscos demumque sæpe confluentes, pulveraceos, mox nudos congestis, ellipticis v. ovoideis, medio subconstrictis, apice rotundatis vel attenuatis, apiculis verruciformibus vel conicis, dilutioribus auctis, deorsum angustatis, 26-45 $\approx$ 15-20, levibus, longitudinaliter striis tenuibus ornatis, flavo-brunneis; pedicello longiusculo, deciduo, gracili.

Hab. in foliis *Saxifragæ* granulatae, *Aizoonis*, mutatae, *aizoidis*, rotundifoliae, longifoliae, nivalis, hieracifo-

liæ in Germania Britannia et Adventbay Spitzberg (KARSTEN). — «An huc pertinet *Puccinia curtipes* Howe in foliis Saxifragæ pensylvanicæ in America boreali?»

201. **Puccinia Ribis** DC. Flor. Franç. II, p. 221, Schroet. Pilz. Schles. 2345
p. 345, *Puccinia granulata* De Bary in Rabenh. Herb. Myc. II, n. 499. — Teleutosporis in soros rotundatos, maculiformes, flavo-cinctos, orbiculatim dispositos, castaneo-brunneos congestis, ellipsoideis, utrinque rotundatis, apice incrassato-explanatis, medio leniter vel haud constrictis, 22-30 $\approx$ 16-21, verrucoso-punctulatis, amœne castaneo-brunneis; pedicello brevi.

Hab. in foliis Ribis rubri, Grossulariæ, nigri, alpini et petræi, in Gallia, Belgio, Germania et Fennia. — Cl. Winter huc refert *Æcidium rubellum* var. *Grossulariæ* Gmel. in L. Syst. Nat. II, p. 1473, at, suadente cl. Schroeter, forma hæc æcidiospora haud omnino certa ad aliud locum referenda videtur. Sec. cl. Karsten, ut stat. uredosp., ad hanc speciem forte *Uredo Ribesii* Link Sp. II, p. 28 p. p., *U. confluens* Alb. et Schwein. Consp. n. 339, *Uredo circinalis* Strauss in Am. Wett. II, p. 208 et *Cycloma Ribesii* Fuck. Symb. p. 42 pertinere viderentur.

202. **Puccinia Virgaureæ** (DC.) Libert Crypt. Arduenn. IV, n. 393, 2346
Winter Die Pilze p. 173, *Xyloma Virgaureæ* DC. Syn. n. 821, *Puccinia Succisæ* Kunze et Schm. Mykol. Hefte I, p. 72, *Asteroma atratum* Chev. Flor. paris I, p. 449 (sec. Rabenhorst), *Puccinia minutula* Peck in 25 Rep. of Stat. bot. p. 117. *Xyloma Solidaginis* Fr. Obs. I, p. 199. — Soris teleutosporiferis minutissimis, punctiformibus, subnitentibus, atris, in maculis flavis centro sæpius purpureo v. brunneo tinctis insidentibus, convexis, secus series elongatas et ramosas, plerumque stellatas dispositis, hypophyllis v. petiolicolis; teleutosporis oblongis, clavatis vel fusioideis, non vel parum constrictis, deorsum angustatis, apice rotundatis vel obtusiusculis, 30-55 $\approx$ 12-20, levibus, flavo-brunneis, basi dilutioribus, pedicello longiusculo, colorato fultis; paraphysisibus brunneis.

Hab. in foliis petiolisque Solidaginis Virgaureæ et altissimæ, in Italia, Gallia, Belgio, Arduennis, Britannia et prope M. Catskill in America boreali.

203. **Puccinia Tulipæ** Schroet. in 53. Jahresb. Schles. Gesellsch. 1875 2347
p. 117, *Puccinia fallaciosa* Thüm. in Oesterr. botan. Zeitschr. 1876, n. 6. — Soris teleutosporiferis minutis, rotundatis vel ellipticis, amphigenis, dense gregariis, dein confluentibus, atro-brunneis, primo epidermide tectis, demum liberis; teleutosporis late ovalibus

vel late ellipsoideis, utrinque rotundatis, medio vix constrictis, raro ad basim subangulatis, episporio crasso, vertice incrassato, dense verruculoso, (verrucis minimis), fuscis, pedicellatis, 30-44 $\approx$ 21-32; pedicello caduco, hyalino, 10 $\approx$ 5; paraphysibus nullis.

Hab. in foliis vivis Tulipæ Gesnerianæ, pr. Wien Austriae (J. WALLNER) et pr. Breslau Germaniæ (SCHROETER). — Huc pertinet *Puccinia Prostii* Duby in Thüm. F. austr. n. 374 et H. M. œc. n. 78.

204. **Puccinia scandica** Johans. Bot. Sekt. Nat. Stud. Upsala in Botan. Centralblatt 1886, p. 395. — Soris teleutosporiferis hypophyllis, confertis, rotundatis, mox denudatis, rufescenti-brunneis, epidermide lacerata, haud distincte cupulata cinctis; teleutosporis clavatis vel oblongis, apice incrassatulis vel acutatis, medio constrictis, basi in pedicellum deciduum angustatis, 27-35 $\approx$ 13-16, episporio verruculis punctiformibus, apicem versus subdistinctis obsito instructis.

Hab. in foliis Epilobii anagallidifolii (Epil. alpini), in Jämtlandia.

205. **Puccinia rubefaciens** Johans. Bot. Sekt. Nat. Stud. Upsala in Botanisches Centralblatt 1886, pag. 394. — Soris teleutosporiferis majusculis, rotundatis vel oblongis, tantum hypophyllis, raro cauliculis mox denudatis, epidermide irregulariter lacerata diu cinctis, atro-brunneis, maculas epiphyllas læte rufas, flavo-marginatas vel dein expallescentes efformantibus; teleutosporis clavatis v. oblongis 30-53 $\approx$ 14-22, basi in pedicellum breviusculum, persistentem plerumque angustatis, apice valde incrassatis more rotundatis, medio constrictis, levibus, dilute brunneis, vertice obscurioribus.

Hab. in foliis caulibusque Galii borealis, pr. Are in Jämtlandia (JOHANSON) et pr. Tronfield Norvegiæ (HENNING).

206. **Puccinia Thalictri** Chev. Flor. Paris I, p. 417, Winter Die Pilze p. 177, *Puccinia tuberculata* Körn. in Fuck. Symb. Nachtr. III, p. 11 non Spegazz. — Soris hypophyllis, dense confertis, per totam fere folii superficiem sparsis, minutis, rotundatis aut ellipticis, mox nudis, sordide brunneis; teleutosporis e loculis duobus constrictione profunda distinctis efformatis, loculo inferiori globoso, elliptico, obovato vel clavato, superiore plerumque rotundato, rarius elliptico utroque verrucis acutis obsitis, insimul 26-52 $\approx$ 17-26, obscure brunneis, pedicello longo, deciduo.

Hab. in foliis Thalictri minoris, cornuti, elati, aqui-legiifolii, Jacquiniæ et flavi, in Belgio, Gallia, Germania, America boreali et Sibiria asiatica. — Incertum adhuc manet an

huc pertineat ut forma æcidiospora *Æcidium Ranunculacearum* DC. var. *Thalictri* (Grev.) h. e. *Æcidium Sommerfeltii* Johans.

207. **Puccinia Sedi** Körn. in Winter Die Pilze p. 175. — Soris teleu- 2351
 tosporiferis irregulariter rotundatis, diu epidermide tectis vel circumvelatis, remotiusculis, atro-brunneis; teleutosporis irregularibus, clavatis aut linearibus, medio subconstrictis, 40-90 $\approx$ 17-24, deorsum cuneatis, apice incrassatis, obscurioribus, obtusis, rotundatis v. paullulum attenuatis, sæpius lateraliter apiculatis, levibus, brunneis; pedicello brevi, persistenti.

Hab. in foliis Sedi elegantis, in Germania.

208. **Puccinia Morthieri** Körn. in Hedwigia 1877, p. 19, Winter Die 2352
 Pilze p. 175, Massal. Ured. Veron. p. 28, t. II, f. XIV, 1-3, *Puccinia Geranii* Fuck. Symb. myc. p. 51 non Corda nec Lév. — Soris teleutosporiferis hypophyllis, densissime consociatis, in parte folii superiori maculam sanguineam efformantibus, primo epidermide cinctis; teleutosporis oblongis, medio constrictis, apice valde incrassatis, loculo inferiori sæpe basim versus paullo attenuato, 40-65 $\approx$ 17-24, levibus, saturate fuscis; pedicello teleutosporam æquantem, fuscidulo vel fere hyalino.

Hab. in foliis Geranii silvatici et macrorrhizi, in agro veneto Italiæ, in Austria, Helvetia et Germania nec non pr. Minussinsk in Sibiria asiatica.

209. **Puccinia Galanthi** Unger Exanth. p. 88, 182, 234, 247, Winter 2353
 Die Pilze p. 172. — Soris teleutosporiferis in maculis pallidis insidentibus, sæpius confluentibus, amphigenis; teleutosporis plicato-striatis, 27-34 $\approx$ 17-22, loculo inferiore rotundato, breviter pedicellato, loculo superiore, episporio apice incrassato, rufescenti-brunneis; pedicello hyalino.

Hab. in foliis Galanthi nivalis, in Austria. — «Forte *Puccinia Schroeteri* Pass. hujus formam sistit.»

210. **Puccinia Lojkaiana** Thüm. in Oester. bot. Zeitschrift 1876, p. 183. 2354
 Winter Die Pilze p. 171, Cocconi e Morini Enum. fung. Bologna III Cent. p. 8, t. I, f. 1-2, *Puccinia trechispora* Pass. mscr. — Soris amphigenis, longe seriatis, epidermide tectis, plumbeis, nonnumquam demum erumpentibus, tum atris; teleutosporis plus minusve ovoideis, utrinque rotundatis, vertice raro minime acutato, non incrassato, medio vix constrictis, episporio tenui, granuloso vel verruculoso, pedicellatis, 40-65 $\approx$ 22-35, fuscis; pedicello caduco, hyalino, 8 μ . longo; paraphysibus nullis.

Hab. ad folia viva Ornithogali umbellati et chloran-

thi, in Italia in hortis pr. Parma (PASSERINI) et pr. Botzen Tyroliae (HAUSMANN): in Hungaria pr. Buda Pesth (LOJKA).

211. **Puccinia Geranii-silvatici** Karst. Enum. Fung. Lapp. or. p. 220, Winter Die Pilze p. 175, *Puccinia semireticulata* Fuck. Symb. myc. et *P. Fuckelii* Körn. in Hedw. 1877, pag. 20. — Soris teleutosporiferis hypophyllis, primo membrana cinerea, nitida, tenuissima tectis, sæpe, præcipue in nervis, confluentibus, fuscis; teleutosporis sphæroideo-ellipsoideis, utrinque rotundatis, ad septum haud vel vix constrictis, loculo superiori tuberculato, inferiori fere levi paullo minori, fuscis, facile secedentibus, 20-38 $\approx$ 14-22; pedicello brevi.

Hab. in foliis petiolisque Geranii silvatici, in regionibus Lapponiæ borealibus non infrequenter nec non S. Moritz in Engadina sup. et in Rhenogovia Germaniæ. — Potissimum nervos sequitur maculamque flavescentem in pagina folii superiori efficit.

212. **Puccinia Fergussonii** Berk. et Br. in Ann. Nat. Hist. 1875, n. 1465, Winter Die Pilze pag. 176, *Puccinia nidificans* Magnus in Hedwigia 1875, p. 20. — Soris teleutosporiferis in maculis flavo-pallidis, rotundatis insidentibus, numerosis, minutis, irregulariter vel secus orbes dispositis, punctiformibus, diu epidermide tectis; teleutosporis oblongis, plerumque utrinque attenuatis, medio parum constrictis, apice incrassato-conoideis, 20-30 $\approx$ 13-20, levibus, flavo-brunneis, pedicello brevi, deciduo suffultis.

Hab. in foliis Violæ palustris et epipsilæ, in Britannia et Germania. — Var. **Hastatæ** (Cooke), *Puccinia hastata* Cooke in Grevillea III, p. 179. Amphigena; soris sparsis, pulverulentis, atro-brunneis; teleutosporis ellipticis, leniter constrictis, levibus, 35-40 $\approx$ 20-25, breviter pedicellatis; uredosporis globosis, levibus, 29-22. Ad folia Violæ hastatæ, Maine U. S. in Amer. bor.

213. **Puccinia enormis** Fuck. Symb. Myc. Nachtr. III, p. 12, Winter Die Pilze p. 174. — Soris teleutosporiferis in caulibus, petiolis et foliorum nervis primariis, evolutis, $\frac{1}{2}$ mm. diam. æquantibus, hemisphæricis, demum erumpentibus, fuscis, secus strias parallelas, densas, longissimas (60 mm. et ultra), fere totum caulem etc. occupantes seriatis; teleutosporis valde irregularibus, levissimis, ovatis, 28-45 $\approx$ 14-24, medio vix constrictis, basim versus plerumque obliquis, parum attenuatis, breviter pedicellatis, antice plus minusve apiculatis, rectis vel obliquis, gibbosis, quandoque biseptatis, fuscis.

Hab. in caulibus, petiolis et nervis foliorum Chærophylli aurei (C. Villarsii), prope S. Moritz in Engadina superiori.

14. **Puccinia Drabæ** Rud. in Linnæa IV, p. 115, Winter Die Pilze 2358
p. 177 vix Haszl. — Soris teleutosporiferis ellipticis vel oblongis,
sæpius confluentibus, diu epidermide demum in fragmenta majuscula lacerata tectis; teleutosporis plerumque ellipticis aut oblongis, medio vix constrictis, apice haud incrassatis, rotundatis, 26-35 $\approx$ 16-21, verrucosis, brunneis, pedicello longiusculo, deciduo suffultis.

Hab. in pedunculis, pedicellis et siliquis recentibus Drabæ aizoidis, in Germania australi.

15. **Puccinia Dentariæ** (Alb. et Schwein.) Fuck. Symb. Myc. App. I, 2359
p. 7, Winter Die Pilze p. 177, *Uredo Dentariæ* Alb. et Schwein. Consp. p. 129, *Cæoma Dentariæ* Link Sp. II, pag. 24. — Soris teleutosporiferis inflationes vesiculosas, usque ad 25 mm. longas, sæpe confluentes, diu epidermide grisea tectas demumque maculatas efformantibus; teleutosporis oblongis, rarius ellipticis, medio paululum constrictis, 30-40 $\approx$ 14-18, apice incrassatulis, rotundatis v. subangustatis breviterque conoideis, udis levibus, siccis tenuiter longestriatis, primo hyalinis, dein flavo-brunneis, pedicello longiusculo, deciduo suffultis.

Hab. in foliis, petiolis caulibusque, Dentariæ bulbiferæ et enneaphyllæ, in Germania passim et Nova Semlia. — Forte huc pertinet species homonyma a cl. Haszliński in Ung. wiss Akad. von Budapest (1877), descripta in Dentariæ glandulosæ foliis.

16. **Puccinia Atragenes** Haussm. in Erb. Critt. Ital. n. 550 non Fuckel, Winter Die Pilze p. 178, *Puccinia Haussmanni* Niessl Beitr. p. 10. — Soris teleutosporiferis in maculis flavescentibus vel brunneolis insidentibus, irregulariter rotundatis vel ellipticis, 2-3 mm. latis, gregariis, confluentibus, mox nudis, pulveraceis, fuscis; teleutosporis plerumque oblongis, medio parum vel non constrictis, basi plerumque rotundatis, apice papilla brevi, lata, pallida auctis, 35-60 $\approx$ 18-32, fuscis, pedicello persistenti, 80-120 μ . longo, hyalino instructis.

Hab. in foliis vivis Atragenes alpinæ, pr. Botzen Tyroliae.

Sectio F. LEPTOPUCCINIA Schroet. Teleutosporæ tantum notæ, plerumque soros pulvinatos, firmos congestæ, jam in matrice viva germinantes. Sori sæpe sporidiolis albidis vel rufescentibus maculati.

17. **Puccinia Arenariæ** (Schum.) Schroet. Pilz. Schles. p. 345, Winter Die Pilze p. 169 excl. synonym. *Uredo Arenariæ* Schum. Pl. Saell. II, p. 232, *Puccinia Dianthi* DC. Flor. Franc. II, p. 220,

Uredo verrucosa Strauss in Wett. Ann. II, pag. 107, *Puccinia Saginæ* Kunze et Schm. Exsicc. n. 221, *P. Stellariæ* Duby Botan. Gall. II, pag. 887, *P. Lychnidearum* Link Obs. II, pag. 25, p. p. *P. Mœhringiae*, *P. Agrostemmae* Fuck. Symb. Myc. p. 50 et 51, *P. Arenariæ-serpyllifolice* DC. Flor. Franç. VI, p. 55, *Puccinia fuscata* Bonord. Con. und Crypt. p. 52 p. p. *P. Caryophyllearum* Wallr. Fl. Crypt. Germ. n. 1688, *P. Cerastii* Wallr. mscr. — Teleutosporis in soros rotundatos, pulvinatos, sæpe orbiculatim dispositos vel in crustas elongatas confluentes, primo pallide brunneos, dein atro-brunneos, ob sporidiola numerosa griseo-pulveraceos congestis, fusoides vel clavatis, apice rotundatis vel conoideo-incrassatis, medio leniter constrictis, basi angustatis, 30-50 $\approx$ 10-20, ochraceo-brunneis, levibus; pedicello hyalino, teleutosporam æquante vel eâ longiori, 60-85 μ . longo, persistente.

Hab. in foliis caulibusque Caryophyllacearum gen. Tunicae, Dianthi, Saponariae, Melandryi, Agrostemmatidis, Saginæ, Alsines, Mœhringiae, Arenariæ, Stellariæ, Cerastii, Malachii, in Italia, Gallia, Belgio, Austria, Helvetia, Germania, Britannia, Lusitania, Fennia nec non in America boreali et pr. Minussinsk in Sibiria asiatica.

218. **Puccinia Corrigiolæ** Chev. Flor. Paris I, p. 420, Schroet. Pilz Schles. p. 346. — Teleutosporis in soros minutos, rotundatos, liberos, 1-2 mm. latos, primo flavos, dein brunneos congestis, fusoides vel clavatis, apice rotundatis vel acutiusculis, deorsum cuneatis, opacis, 41,5 $\approx$ 15, loculo superiori plerumque longiore et latiore, brunneis; pedicello hyalino, usque ad 90 μ . longo.

Hab. in foliis Corrigiolæ littoralis, pr. Paris Galliae, in Belgio et in Silesia Germaniæ.

219. **Puccinia Herniariæ** Unger Ueber den Einfl. etc. (1836) Kirchn. in Lotos 1856, p. 182?, Schroet. Pilz. Schles. p. 346 vix Montagne — Teleutosporis in soros determinatos, pulvinatos, primo rufo-brunneos, dein obscure brunneos congestis, fusoides, 33-44 $\approx$ 12-15, apice rotundatis vel acutiusculis, medio leniter constrictis, levibus, episporio ochraceo vel dilute brunneolo, apice incrassatulo, contentu achroo; pedicello hyalino, teleutosporam æquante vel eâ brevior.

Hab. in foliis Herniariæ glabræ et hirsutæ, in Germania et Bohemia (?).

220. **Puccinia Spergulæ** DC. Flor. Franç. II, p. 219, Schroet. Pilz. Schles. p. 346. — Teleutosporis in soros determinatos, pulvinatos,

rotundatos vel elongatos, primo rufescenti-brunneos, dein subatros congestis, fusoides aut clavatis, apice acutiusculis vel rotundatis, medio leniter constrictis, basi angustatis, 31-50 $\approx$ 11-15, loculis æquilatis, episporio levi, dilute brunneo, contentu rufescente; pedicello 32-60 μ . longo, hyalino, persistente.

Hab. in foliis *Spergulæ arvensis*, pentandræ et vernalis, in Gallia, Fennia et Germania.

21. **Puccinia Chrysosplenii** Grev. in Sm. Engl. Fl. V, p. 367, Winter Die Pilze p. 167, Schroet. Pilz. Schles. p. 347. — Teleutosporis in soros plerumque minutos, sparsos vel confluentes, dilute cinnamomeos, pulvinatos, rotundatos vel ellipticos, sæpe in macula orbiculari insidentes congestis, clavatis v. fusoides, apice rotundatis vel acutiusculis, medio leniter constrictis, margine subundulatis, 25-45 $\approx$ 10-15, episporio tenuissimo, levi, dilute flavido, pedicello hyalino, valde elongato. 2365

Hab. in pagina inferiori foliorum *Chrysosplenii* oppositifolii et alternifolii, in Britannia et Germania.

22. **Puccinia Veronicæ** (Schum.) Winter Die Pilze p. 166, Schroet. 2366
Pilz. Schles. p. 347, *Uredo Veronicæ* Schum. Pl. Saell. II. p. 228. — Teleutosporis in soros hypophyllos, sparsos vel subgregarios, orbiculares, elevatos, obscure fuscis, primo flavo-melleis congestis, fusoides-oblongis, utrinque attenuatis, medio constrictis, 25-50 $\approx$ 14-25, levibus, flavo-brunneis; pedicello hyalino, usque ad 60 longo instructis.

Hab. in foliis *Veronicæ urticifoliæ*, montanæ, officinalis, longifoliæ, spicatæ, alpinæ et *Pæderotæ*, *Ageriæ*, in Italia, Gallia, Belgio, Helvetia, Britannia, Germania et Lapponia rossica. — Forma **persistens** Körn. in Hedwigia 1877, pag. 1, *Puccinia Veronicarum* DC. Fl. Franç. II, p. 594, Schroet. Pilz. Schles. p. 348. A typo recedit soris semper pulvinatis, compactis. Cum specie. — Forma **fragilipes** Winter Die Pilze p. 166. Soris mox denudatis, pulveraceis. Cum specie.

23. **Puccinia Valantiæ** Pers. Observ. Myc. II, pag. 25, Winter Die 2367
Pilze p. 167, Schroet. Pilz. Schles. p. 347, Massal. Ured. veron. p. 25, t. II, f. XII, 1-3, *Puccinia Stellatarum* Duby Bot. Gall. II, p. 888, *P. Galii-cruciati* Duby l. c. p. 890, *P. heterochroa* Rob. et Desm. in Ann. Scienc. Nat. 1850, p. 108, *P. Galii-vernii* Ces. in Erb. Critt. It. I, n. 99, *P. acuminata* Fuck. Symb. p. 55 non Peck. — Teleutosporis in soros crassiusculos, pulvinatos, minutos, subrotundatos, sparsos aut in plagulas longas latasque con-

fluentes, primo flavescentes, dein castaneo-brunneos, demum griseo-fuscos congestis, plerumque fusoido-oblongis, medio subconstrictis, utrinque attenuatis, 35-65 $\approx$ 12-18, levibus, pallide brunneis, pedicello usque ad 80 μ . longo, persistenti, hyalino.

Hab. in foliis Galii cruciati, verni, saxatilis, veri, silvatici, Molluginis et uliginosi, in Italia, Gallia, Fionia, Germania, Britannia et in silvis prope Bolschaja-Juga in Sibiria asiatica (THÜMEN).

224. **Puccinia Malvacearum** Mont. in Gay Hist. fis. y polit. de Chile VIII, p. 43, Syll. n. 1159, Winter Die Pilze p. 168, Schroet. Pilz. Schles. p. 347. — Hypophylla, confertim sparsa; teleutosporis in soros hemisphæricos, primo epidermide persistente centro velatos, ambitu nudos, rufos, subtus umbilicatos dense congestis, ovoideo-oblongis, 35-75 $\approx$ 12-26, fuscis, levibus, medio subconstrictis, obtuse acuminatis, longissime pedicellatis; pedicello hyalino, usque ad 120 μ . longo.

Hab. in foliis Althææ officinalis, roseæ, multifloræ, narbonensis, Modiolæ geraniifoliæ, Anodæ cujusdam, Malvæ rotundifoliæ, parvifloræ, silvestris, nicæensis, neglectæ et maritimæ, Malopes grandifloræ, Sidæ rhombifoliæ, in Italia, Helvetia, Germania, Gallia, Lusitania, prope Somerset East Africa australis, in Uruguay, Rep. Argentina, Brasilia, Chile et Patagonia Americæ australis, pr. Melbourne Australiæ in America boreali. — Var. **ayajuchensis** Speg. F. Arg. Pug. n. 63 bis. Maculis nullis; foliis ad soros superne non vel parce bulloso-umbilicatos; soris hypophyllis, magnitudine ludentibus (0,2-1 mm. diam.), solitariis vel sæpius densissime gregariis, orbiculariter dispositis circa centralem majorem, compactis, non vel vix pruinulosis, atro-cinnamomeis; teleutosporis obovato-ellipticis, 35-45 $\approx$ 18-24, medio 1-septato-constrictis, episporio levissimo, apice incrassato, loculis non vel guttulatis, intense cinnamomeis vel fuligineo-fulvis, pedicello longiusculo 80-120 $\approx$ 5-10 hyalino, fultis. In foliis Abutili peduncularis in montuosis «Sierra Chica» pr. S. José (Dr. Hieronymus) ac Sidæ sulphureæ prope Ayajucho (Dr. Berg) in America australi.

225. **Puccinia Circææ** Pers. Disp. meth. pag. 39, Winter Die Pilze p. 168, Schroet. Pilz. Schles. pag. 348. — Teleutosporis in soros minutos, hypophyllos, pulvinatos, determinatos, primo flavidos, dein brunneolos denumque subatros, sæpe orbiculariter dispositos et in caulibus sæpe crustiformi-confluentes congestis, fusoides, apice

plerumque obtusiusculis, 23-10 $\approx$ 9-14, flavescentibus, medio paululum constrictis; pedicello longiusculo, crasso.

Hab. in foliis caulibusque *Circææ* lutetianæ, alpinæ, intermediæ, socio sæpe *Æcidio Circææ*, in Italia, Gallia, Britannia, Helvetia, Belgio, Germania, America boreali. — «An huc *Æcidium Circææ* Ces. in Kl. Herb. myc. II, n. 372?»

26. **Puccinia Asteris** Duby Botan. Gall. II, pag. 888, Winter Die 2370

Pilze p. 167, Schroet. Pilze Schles. p. 349, *Puccinia Millefolii* Fuck. Symb. myc. pag. 55, *Puccinia Tripolii* Wall. Fl. Germ. p. 223, B. et Br. Brit. Fungi n. 1467, *Puccinia Doronici* Niessl Beitr. p. 9, *Puccinia Ptarmicæ* Karst. Myc. Fenn. IV, pag. 41, *Puccinia Gerardi* Peck in 25 Rep. p. 118. — Teleutosporis in soros orbiculares oblongosve, convexos, minutos, diu tectos, pulvinatos, atro-fuscos, gregarios, in macula pallida concentrice circulos efformantes, sæpe confluentes congestis, oblongis vel clavatis, 35-55 $\approx$ 14-28, sursum late et sæpe oblique apiculatis, fuscis, parum constrictis; pedicello usque ad 50 μ . longo, dilute fuscidulo vel hyalino.

Hab. in foliis *Asteris* alpini, Amelli, cordifolii, simplicis, acuminati, Shortii, sagittifolii, miseri, Novæ-Angliæ, Tripolii, macrophylli, Artemisiæ austriacæ, campestris, Calimeris altaicæ, Achilleæ Ptarmicæ, Clavennæ, Millefolii, Doronici austriaci, Cirsii oleracei, Centaureæ montanæ, Scabiosæ et maculosæ, in Italia, Germania, Hungaria, Fennia, Transylvania, Belgio, Britannia et America boreali nec non pr. Minussinsk Sibiriaë asiaticæ. — Huc verisimiliter pertinent *Æcidium Doronici* Tausch. in Rabenh. F. E. II, n. 2192 et *Puccinia purpurascens* Cooke et Peck.

27. **Puccinia Anemones-virginianæ** Schwein. Syn. Fung. Carol. p. 46, 2371

Winter Die Pilze p. 170, Schroet. Pilz. Schles. pag. 349, Massal. Ured. Veron. p. 27, t. II, f. XIII, 1-4, *Puccinia solidi* Schwein. Syn. N. Amer. Fungi p. 296 nec Berkeley, *Puccinia Atragenes* Fuck. Symb. myc. pag. 49 non Haussm., *Puccinia compacta* De Bary in Botan. Zeitung 1858, p. 83, *Puccinia De-Baryana* Thüm. in Flora 1875, p. 364. — Teleutosporis in soros densos, duros, plerumque bullatos, 1-3 mm. latos, atro-brunneos, tectos, orbiculares, rugulosos, parallele confertos congestis, cuneatis vel oblongo-clavatis, constrictis, 35-65 $\approx$ 10-20, apice sensim obtuso-angustatis, crassis, episporio levi, brunneo, sursum usque ad 10 μ . crasso, ob-

scuriori; pedicello breviusculo, crasso; paraphysibus brunneis intermixtis.

Hab. in foliis *Anemones cylindricæ*, *montanæ*, *alpinae*, *silvestris*, *pennsylvanicæ*, *virginianæ* et *Atrages alpinæ*, in Italia, Austria, Hungaria, Helvetia, Germania, America boreali et Sibiria asiatica.

228. **Puccinia Buxi** DC. Flor. Franç. VI, p. 60, Winter Die Pilze pag. 164. — Soris teleutosporiferis hemisphærico-pulvinatis, mox nudis, amphigenis, sparsis, brunneo-fuscis, macula plerumque nulla: teleutosporis oblongis v. oblongo-clavatis, constrictis, apice incrassatis obtusisque, loculo inferiori subovoideo vel cuneiformi plerumque longiore, 55-90 $\approx$ 20-35, levibus, amœne cinnamomeis; pedicello subæquilongo, hyalino fultis.

Hab. in foliis *Buxi sempervirentis*, in Italia, Gallia, Helvetia, Germania, Belgio, Britannia et Lusitania. — Maculæ nullæ vel flavo-brunneolæ.

229. **Puccinia Thlaspeos** Schub. Flora Dresd. II, p. 254, Winter Die Pilze p. 170. — Soris rotundato-pulvinatis, compactis, dilute brunneis, æque per totam paginam inferiorem foliorum sparsis crustaque plerumque efformantibus; teleutosporis oblongis vel lanceolato-fusoideis, medio leniter constrictis, apice incrassatis, plus minus attenuatis vel rotundatis, 28-50 $\approx$ 14-20, levibus, flavo-brunneis; pedicello longiusculo fultis.

Hab. in foliis *Thlaspeos alpestris* et *montani*, *Arabidis hirsutæ*, in Austria, Gallia, Helvetia et Germania.

230. **Puccinia Glechomatis** DC. Encycl. VIII, p. 245, Schroet. Pilz. Schles. p. 349, *Aecidium verrucosum* Schultz. Fl. Starg. p. 452, *Puccinia verrucosa* Link Observ. II, p. 29, Winter Die Pilze p. 166, *Puccinia affinis* Hedw. Fung. ined. t. 9, *Dicwoma verrucosum* Nees Fungi t. I, f. 12, *Puccinia Hyssopi* Schwein. Amer. n. 2944, *Puccinia Salviæ-glutinosa* Ces. in Sacc. Myc. ven. n. 130, *Puccinia Salviæ* Unger Infl. Bod. p. 218. — Teleutosporis in soros hypophyllos, sparsos vel orbiculariter dispositos, rotundatos, pulvinatos, primo melleos, dein castaneos demumque subatros congestis, ellipticis, ovatis vel fusoideis, apice papilla subverruciformi, obtusa, 8-11 μ . alta, sæpe laterali auctis, basi rotundatis vel parum attenuatis, medio vix vel non constrictis; pedicello hyalino, plerumque teleutosporâ longiori.

Hab. in foliis, petiolis caulibusque *Glechomatis hederaceæ* nec non *Salviæ glutinosæ*, *Hyssopi scrophulariifolii* et

Lophanthi nepetoidis, in Italia, Gallia, Belgio, Austria, Germania nec non pr. Minussinsk in Sibiria asiatica (Thümen), ad Port Natal Africae (Wood) et in America boreali (Schweinitz).

31. **Puccinia grisea** (Strauss) Wint. Die Pilze p. 165, Massal. Ured. 2375
Veron. p. 24, t. II, f. IX, 1-2, *Uredo grisea* Strauss in Wett. Ann. II, p. 107, *Puccinia Globulariæ* DC. Flor. Franç. VI, p. 55. — Soris teleutosporiferis in maculis brunneolis vel atro-brunneis insidentibus, raro solitariis, plerumque confertiusculis et in greges dilute brunneos rotundatis congestis; teleutosporis oblongo-fusoides vel lineari-lanceolatis, utrinque angustatis, apice valide incrassatis, plus minus conoideis, rarius rotundatis, medio subconstrictis, 35-60 $\approx$ 12-20, levibus, pallide flavo-brunneolis.

Hab. in foliis *Globulariæ vulgaris*, *cordifoliæ* et *nudicaulis*, in Italia, Belgio, Gallia et Germania.

32. **Puccinia annularis** (Strauss) Wint. Die Pilze p. 165, Massal. 2376
Ured. Veron. p. 24, t. II, f. X, 1-3, *Uredo annularis* Strauss in Wett. Ann. II, p. 106, *Puccinia Scorodonæ* Link Sp. II, p. 72, *Puccinia Chamædryos* Ces. in Klotzsch Herb. myc. I, n. 1991, *Puccinia Teucrii* Fuck. Symb. p. 56, non Biv. Bernh. — Soris teleutosporiferis primo minutis, rotundatis vel oblongis, epidermide tectis, circa unum centralem circulariter secus unam v. plures series dispositis, dein nudis, confluentibus, pulvinulum plerumque rotundatum efformantibus, hypophyllis, brunneis, maculis obsoletis vel brunneo-flavidis; teleutosporis plerumque oblongis, raro ellipticis, medio constrictis, apice incrassatis, rotundatis, subinde obtusis, plerumque plus minus attenuatis, basi rotundatis aut angustatis, 30-50 $\approx$ 15-21, levibus, pallidissime flavo-brunneis; pedicello longissimo, persistenti, hyalino.

Hab. in foliis *Teucrii Scorodonæ* et *Chamædryos*, in Italia, Austria, Arduennis, Belgio, Germania et Britannia.

33. **Puccinia aurea** Wint. in Flora 1884, n. 14. — Soris in maculis 2377
pallidis, lutescentibus, demum fusciscentibus, indeterminatis, irregularibus, sæpe confluentibus insidentibus amphigenis, sparsis gregarisve, minutis, punctiformibus, superficialibus, rotundatis, compactiusculis, luteo-fulvis, demum griseo-pulverulentis; teleutosporis oblongis v. fusiformibus utrinque attenuatis, apice valde incrassatis et plus minus conicis, 35-55 $\approx$ 14-21, levibus, dilute luteis, episporio tenui, pedicello æquali, persistente, circ. 8 μ . crasso, hyalino fultis.

Hab. in foliis vivis *Monadeniæ rufescentis*, pr. Capetown Africae australis (P. MAC OWAN).

Species quoad sectionem dubiæ.

A. In Dicotyledoneis vigentes.

* *Teleutosporæ* episporio levi (rarissime subruguloso) donatæ vel quoad episporium dubiæ.

234. **Puccinia stromatica** Berk. et Curt. North Amer. Fungi n. 547. — Soris effusis, rubiginosis; teleutosporis levibus, brevibus, utrinque obtusis; pedicello longo, flexuoso.

Hab. in caulibus *Clematidis*, Alabama Amer. bor. (PETERS).

235. **Puccinia insidiosa** Berk. in Hook. Journ. bot. 1854, p. 208, Dec. of Fungi n. 470. — Hypophylla; teleutosporis elongatis, clavatis, apiculo obtuso præditis, episporio crasso, extus obscuriori; pedicello longo, hyalino, flexuoso.

Hab. inter *Uredinem Clematidis* in foliis *Clematidis* nantis, Paras Nath Indiæ orientalis (Dr. HOOKER). — « An revera *Uredinis Clematidis* status teleutosporus? »

236. **Puccinia rhytismoides** Johans. Bot. Lekt. Nat. Stud. Upsala in Botanisches Centralblatt pag. 394. — Soris hypophyllis, rotundatis, cauliculis et petioliculis, magnis elongatisque, atris v. atro-brunneis, subnitidis, parum convexis, nunquam inflationes efficientibus; teleutosporis brevissime pedicellatis, anguste clavatis vel fere linearibus, rarius fusoides vel irregularibus, vertice incrassatis, obtusis vel rotundatis, nonnumquam acutatis, medio sæpius constrictis, 33-67 $\approx$ 6,5-14, levibus, brunneis; paraphysibus brunneis immixtis, stroma atrum efformantibus.

Hab. in foliis caulibusque *Thalictri alpini*, in Jämtlandia et (JOHANSON) Härjedalen nec non pr. Tronfield Norvegiæ (HENNING).

237. **Puccinia Schelliana** Thüm. in N. Giorn. botan. ital. 1880, p. 197. — Soris hypophyllis, postremo amphigenis, magnis, applanatis, pulveraceis, epidermide dilacerata et arescente cinctis et pro parte tectis, inquinantibus, obscure spadiceis vel fere fusco-atris; teleutosporis clavatis aut ovatis, medio non vel vix constrictis, vertice basique subangustatis, loculo superiori plerumque majori, episporio tenui, æquali, levi, 38-50 $\approx$ 10-24; pedicello hyalino, brevissimo, caduco.

Hab. in foliis vivis *Anemones narcissifloræ*, pr. Orenburg. — A. *Puccinia Anemones* Pers. forma et magnitudine teleutosporarum, defectu tuberculorum episporii etc., toto cælo diversa.

38. **Puccinia ustalis** Berk. in Hook. Journ. bot. 1854, pag. 207, 2382
Dec. n. 469. — Hypophylla, maculis pallidis; soris magnis, sub-orbicularibus, depressis, fuscis, sparsis, margine obscurioribus, quasi innatis; teleutosporis elongatis, oblongis, superne attenuatis obtusisque, sæpe apice obliquis, pallide-fuscis, pedicello breviusculo fultis.

Hab. in foliis Ranunculi pulchelli, Momay Samdong in India orientali alt. 5000 M. et ultra (Dr. HOOKER).

39. **Puccinia Martianoﬀiana** Thüm. Pilzfl. Sibir. n. 40. — Soris hy- 2383
pophyllis, dense gregariis, primo tectis, demum liberis, fuscis, sæpe confluentibus, in macula expallescenti insidentibus; teleutosporis irregulariter ovoideis, vertice truncato, basi rotundatis, medio non vel leniter constrictis, fuscis, pedicello brevissimo, hyalino, caduco fultis, $28 \approx 18$, impellucidis.

Hab. in foliis vivis Pæoniæ anomalæ, sociâ sæpe *Septoriâ Martianoﬀianâ* Thüm., in pratis silvaticis prope lacum Kyskul Sibiriae asiaticæ.

40. **Puccinia antarctica** Speg. Fungi Fuegiani p. 47, n. 132. — Soris 2384
hypophyllis, dense gregariis sæpeque confluentibus, 300-500 μ . diam., discoideis, compactiusculis, pulvinatulis, atro-fuligineis; teleutosporis ellipticis v. vix subclavulatis, tenuissime tunicatis, levissimis, antice sæpius rotundatis vel obtusissime subacutatis, medio parce constrictis, postice rotundatis vel vix attenuatis, 50-55 $\approx$ 25-30, saturate cinnamomeis, pedicello mediocri, crassiusculo, 40-50 $\approx$ 5, hyalino fultis.

Hab. ad folia viva Berberidis, in scopulosis New Year Island Patagoniæ. — Ex auctore dubium manet, num hæc species typum Montagneanum (P. Berberidis) sistat.

41. **Puccinia Berberidis** Mont. Syll. Crypt. n. 1158, Speg. F. Arg. 2385
IV, n. 59. — Maculis indeterminatis, nullis vel epiphyllis ac fulvescentibus; soris 0,5-1 mm. latis, hypophyllis, solitariis v. 2-5 gregario-confluentibus, compactis, rufis, pseudo-peridiis acidii circumdatis, subtus planis; teleutosporis fasciculatis, anguste oblongis vel cylindraceo-subfusiformibus, 70-85 $\approx$ 12-15, medio 1-septatis, non v. vix constrictis, utrinque attenuato-rotundatis, episporio levissimo, incrassatulo, pallide melleis; pedicello longissimo, 150-200 $\approx$ 10, hyalino v. apice vix fuscescente.

Hab. in foliis vivis Berberidis glaucæ et spinulosæ in Chili (GAY) et in Republica Argentina (Spegazzini) socio sæpe *Æcidio Berberidis* (?), quod forte metagenetice connexum.

242. **Puccinia Brandegei** Peck in Bot. Gazette 1882, p. 44. — Maculis nullis; soris amphigenis vel caulicolis, sæpe confluentibus, rufo-brunneis, caules petiolaque torquentibus; teleutosporis subellipticis, 26-35 $\times$ 20-25, levibus, pedicello brevi suffultis.

Hab. in foliis vivis caulibusque *Corydalis Brandegei*, Colorado Amer. bor. (T. S. BRANDEGEE).

243. **Puccinia Cheiranthi** Ell. et Everh. in Botanical Gazette X, 1885, p. 364. — Soris hemisphaericis, brunneis, nudis, 500-570 μ . diam., amphigenis, dense sparsis, plerumque haud confluentibus; teleutosporis clavatis vel oblongis, læte brunneis, ad septum constrictis, 35-53 $\times$ 15-22, loculis subæqualibus vel superiori latiori breviorique, levibus vel superne grosse rugulosis, apice sæpe laceratis, pedicello persistenti, valido, longiusculo fultis.

Hab. in foliis *Cheiranthi pygmaei*, Grinnell Land Amer. bor. (GREELY).

244. **Puccinia Hazslinskyi** De-Toni, *Puccinia Drabæ* Hazsl. Ung. Rostp. und Brandp. 1877 non Rudolphi. — Soris linearibus vel lineari-lanceolatis, atro-brunneis; teleutosporis oblongis, levibus, pedicellatis, loculis æqualibus globosis, 40-42 μ . longis; pedicello hyalino, 40-85 μ . longo.

Hab. in caulibus *Drabæ Aizoonis*, in Hungaria. — «Aueadem ac species Rudolphiana, teleutosporis tantum levibus (an?) diversa.

245. **Puccinia Vuilleminii** De-Toni, *Puccinia Thlaspidis* Vuill. in Bull. Soc. Bot. Fr. tom. XXXII, (1885), pag. 184 nec Schub. — Soris hypophyllis, mox erumpentibus, expansis; teleutosporis episporio crasso, levi, haud mucronato instructis, vix constrictis; pedicello teleutosporam subæquante fultis, arcte matrici adnatis ibique germinantibus.

Hab. in foliis *Thlaspeos alpestris*, Vosges Galliae. — Ad *Chrysomyxam* quodammodo vergit.

246. **Puccinia aberrans** Peck in Botanical Gazette 1879, p. 217, Ellis et Everh. North Amer. Fungi n. 1834. — Maculis nullis; soris teleutosporiferis amphigenis, plerumque confluentibus, sordide rufo-brunneis; teleutosporis oblongis vel oblongo-clavatis, obtusis vel obtuse acutiusculis, 40-60 $\times$ 20-25, medio constrictis, levibus, subinde biseptatis episporio ad verticem explanatum incrassato; pedicello brevi vel obsoleto.

Hab. in foliis *Smelowskiae calycinae*, Alta, Mont. Wasath, Utah in America boreali (M. E. JONES), et in foliis Arabi-

dis Lyallii, M. Paddo 2300 m. alt. Amer. bor. (SUKSDORF). — Teleutosporis sæpe biseptatis ad genus *Phragmidium* vergit.

247. **Puccinia Lepidii** Thüm. in Hedwigia 1882, p. 190. — Soris hy- 2391
pophyllis, sparsis, parvis, verrucoso-hemisphæricis, induratis, spadi-
ceis, in macula vaga, exhausta, ochroleuca insidentibus; teleu-
tosporis clavatis, curvis, medio constrictis, utrinque subobtusato-at-
tenuatis, dilute fuscicululis, episporio levi, tenui sed vertice paullo
incrassato, $35 \approx 15-17$; pedicello cylindrico. æquali, hyalino. cur-
vato, $50 \approx 2$.

Hab. in foliis vivis Lepidii latifolii, prope Minussinsk Si-
biriae asiaticæ.

248. **Puccinia Iberidis** Duby Botan. Gall. II, p. 887. — Amphigena; 2392
soris fuscis, minutis, convexis, orbicularibus, annulatim digestis, con-
fertis, confluentibus in greges sparsos aggregatosque epidermide
rupta demum oblitterata cinctis; teleutosporis oblongo-ellipticis,
medio constrictis, loculo inferiore turbinato-globoso, superiore ob-
tusato, pedicello filiformi, elongato fultis.

Hab. in foliis Iberidis sempervirentis, in M. Pyrenæis
Galliæ (REQUIEN).

249. **Puccinia rostrata** Cooke in Grevillea IV, pag. 116, *Puccinia* 2393
Cruciferarum Cooke in Grevillea III, p. 75 non Rudolphi. — Hy-
pophylla, sparsa vel circinatim congesta; soris irregularibus, pul-
verulentis, vinoso-brunneis; teleutosporis ellipticis, brunneis, con-
strictulis; pedicello deciduo, brevi instructis, sursum apiculatis.

Hab. in foliis nonnullarum Cruciferarum, Himalaya Asiæ.
— «An a *Puccinia Cruciferarum* Rud. diversa?»

250. **Puccinia Barbareæ** Cooke in Grevillea VIII, p. 34. — Grega- 2394
ria, amphigena; soris rotundatis, atris, epidermide cinctis; teleu-
tosporis late lanceolatis, forte constrictis, læte brunneis, levibus,
 $50 \approx 16$, episporio supra incrassatis; pedicellis hyalinis, subpersi-
stentibus.

Hab. in foliis Cruciferarum imprimis Barbareæ, socio *Æcidio Barbareæ* quod forte metagenetice connexum est. Oregon (Dr.
LYALL).

251. **Puccinia alpina** Fuck. Symb. myc. II. Nachtr. p. 13, Winter 2395
Die Pilze p. 176. — Soris folia et caules incolentibus, aggregatis,
confluentibus, valde prominentibus, cuticula tenuissima, grisea. ni-
tida, demum lacerata tectis, pro ratione maximis, fuscis; teleuto-
sporis fusoido-ellipsoideis, ad septum haud vel vix constrictis,

antice aut obtuse apiculatis aut obtusis, levibus, flavis, 30-52 $\approx$ 17-23; pedicello hyalino, brevi.

Hab. in foliis caulibusque vivis Violæ bifloræ, in Italia, Helvetia, Germania et Lapponia rossica.

252. **Puccinia Pyrolæ** Cooke in Peck 25 Rep. St. Mus. p. 119, n. 28, Ellis North. Amer. Fungi n. 1039. — Hypophylla; maculis pallidis vel dilute albido-flavis, subinde brunneo- v. purpureo-marginatis; soris gregariis, epidermide rupta cinctis, subcircinatis, sæpe confertis, atris; teleutosporis ellipticis vel obovatis, obtusis, leniter constrictis, 32-40 $\approx$ 15-18, episporio vertice conoideo-incrassato, levi; pedicello subhyalino, plerumque teleutosporam subæquante.

Hab. in foliis, petiolis caulibusque Polygalæ paucifoliæ, in America boreali. — «An potius *Puccinia Polygalæ* nuncupanda?; an matrix male indicata?».

253. **Puccinia pulvinulata** Rud. in Linnæa IV (1829), p. 115, *Puccinia alsophila* Sacc. in Michelia I, p. 241, Mycoth. Ven. n. 1130. — Maculis nullis; soris subrotundis, pulvinulatis, compactis, hypophyllis, solitariis, nigricantibus; teleutosporis oblongis, subinæqualiter constrictis, arcte conglomeratis, atro-fuligineis, 2-nucleatis, 40-45 $\approx$ 25, pedicello longo, 80-90 $\approx$ 5-6, fragilissimo, hyalino fultis.

Hab. in pagina inferiore Frankenïæ pulverulentæ, in Europa australiori; Venetiis (CHIAMENTI). — Sori 4-7 mm. longi, 3 mm. crassi.

254. **Puccinia Tremandræ** Berk. Fungi of Ceylon n. 819. — Maculis nullis; soris sparsis, hypophyllis, ferrugineis; teleutosporis pallidis, elongatis, apiculatis.

Hab. in foliis Tremandræ oppositifoliæ, in insula Ceylon (W. H. HARVEY).

255. **Puccinia obliqua** B. et C. Fungi of Cuba n. 590. — Sori sine ordine sparsis hemisphæricis brunneis cuticula Physari ejusdam ad instar subiridescenti diu tectis; teleutosporis obovatis, obtusissimis, e pedicello laterali obliquo oriundis, pallidissimis.

Hab. in foliis plantæ ejusdam ex Alsineis. in insula Cuba.

256. **Puccinia Sherardiana** Körn. in Hedwigia 1877, p. 29. — Sori teleutosporiferis dicrois, hypophyllis, parvis, aggregatis, orbicularibus, apertis fusco-nigris; teleutosporis persistentibus, ovatis vel breviter obovatis, apice rotundatis, levibus, obscure fuscis, episporio crasso vertice paullo crassiore; pedicello lato, hyalino, teleutospora pluries longiore.

Hab. in foliis Malvæ Sherardianæ, in Armenia.

257. **Puccinia Malvastri** Peck in Bull. Torr. Bot. Club vol. XII, n. 4, 2401
pag. 35. — Maculis evanescentibus; soris congestis, confluentibus,
amphigenis, obscure rufo-brunneis, compactis, prominulis; teleuto-
sporis oblongo-ellipticis, leniter constrictis, levibus, obtusis v. raro
obtusè acutis, $47-62 \approx 23-30$; pedicello teleutosporam longitudi-
ne plerumque superante duplo quadruplove longiore, hyalino.

Hab. in foliis Malvastri, Arizona Amer. bor. (JONES). — A
P. Malvacearum soris obscurioribus, magnitudine teleutosporarum
pedicellis sæpe longioribus differt.

258. **Puccinia lobata** B. et C. North American Fungi n. 550. — Te- 2402
leutosporis longe pedicellatis, demum mitriformibus, episporio hya-
lino, crasso.

Hab. in Sida lepidota, Texas in Amer. bor. (WRIGHT).

259. **Puccinia heterospora** B. et C. Journ. Linn. Soc. X, pag. 356, 2403
Uromyces pulcherrimus Berk. et Curt. North Amer. Fungi n. 565,
Uromyces Thwaitesii B. et Br. Fungi of Ceylon n. 824. — Macu-
lis determinatis, purpureis v. lutescentibus; soris minutis, hypophyl-
lis, mox nudis, in glomerulos orbiculares congestis, brunneis; te-
leutosporis elongatis v. subglobosis, levibus, $15-27 \mu$ diam., sensim
vertice incrassatis, primo continuis, demum biseptatis; pedicello
hyalino, gracili, deorsum angustato, teleutospora 3-4-plo longiore.

Hab. in foliis Sidæ spinosæ, humilis, hirsutæ et Abuti-
li texensis, in America boreali, insula Ceylon et Port Natal
Africæ.

260. **Puccinia Abutili** B. et Br. Ceylon Fungi n. 816. — Maculis ef- 2404
fusiis, amphigenis, luteis vel nullis; soris latis, nigris, cuticula sca-
riosa circumdatis; teleutosporis brevibus obovatis, $35 \approx 20$, obtusis-
simis levibus; pedicello brevi fultis.

Hab. in foliis Abutili graveolentis, Kandy in insula Cey-
lon. — A *P. malvacea* diversa.

261. **Puccinia Arechavaletæ** Speg. Fungi Argentini pug. IV, n. 57, 2405
F. Guaranitici n. 108. — Maculis nullis; soris innato-prominulis,
hemisphæricis, sæpius minutis, concentrice dispositis ac non rarius
confluentibus glomerulumque unicum, orbicularem efformantibus,
quandoque amphigenis quandoque hypophyllis tantum, folia late
occupantibus; teleutosporis polymorphis, subsphæroideis v. obovatis,
 $18-28 \approx 15-18$, quandoque bilocularibus quandoque unilocularibus,
loculis non v. 1-guttulatis, episporio crassiusculo, apice incrassatulo
protoplasmate dense granuloso, vivide fulvis.

Hab. ad folia viva Cardiospermi velutini, prope Monte-

video et prope Quilmes nec non Cupaniæ prope Villa Rica in America australi. — In speciminibus guaraniticis teleutosporæ fere omnes uromycetiformes, pucciniiformes rarissimæ et tandem fungillus melius ad genus *Uromyctem* adscribendus videtur: teleutosporæ obovatæ, 18-22 μ . diam., sæpius subtruncato-rotundatæ, varie truncatæ, præcipue ad verticem obscure cinnamomeæ, pedicello exili, prælongo, 50-65 $\approx$ 2,5-4, hyalino fultæ.

262. **Puccinia Acerum** Link Sp. II, p. 80, Winter Die Pilze p. 224, *P. bullata* Link Obs. II, p. 29. — Soris sparsis, subrotundis, epidermide bullata, nitente, centro rumpente tectis; teleutosporis brunneis, ovatis.

Hab. ad folia Aceris Pseudo-Platani, dasycarpi etc. in Germania.

263. **Puccinia kirghisica** Thüm. in N. Giorn. botan. ital. 1880, p. 197. — Soris hypophyllis, gregariis, parvulis, punctiformibus, epidermide tectis, induratis, elevatis, purpureis in macula indistincta, non marginata, ochracea, hypophylla, in pagina superiore purpurea; teleutosporis fasciculatis, longe ellipticis, medio constrictis, in pedicellum angustatis, fuscis, vertice incrassato subacutatoque, 42-50 $\approx$ 20; pedicello longissimo, arcuatulo, hyalino, 60-70 $\approx$ 6-8.

Hab. ad folia viva Geranii pratensis, Tirlandsk Orenburg.

— Differt a *Puccinia Geranii* Corda et *Puccinia Morthierii* Körnicke characteribus notatis.

264. **Puccinia Leveilleana** De-Toni, *Puccinia Geranii* Lév. in Ann. Scienc. Nat. 1846, p. 270 vix Corda nec Fuckel. — Soris hypophyllis, convexis, minutis, fuscis, secus orbem dispositis, primo tectis, dein nudis; teleutosporis ovatis, ad septum non constrictis, abbreviato-obtusis, levibus, opacis, pedicello brevi suffultis.

Hab. in foliis Geranii dissecti (?), in Chili Amer. Austr. (Gay). — Maculae orbiculares, brunneæ. — A *P. Geranii* Corda vix teleutosporis medio non constrictis pedicelloque brevi fultis distincta.

265. **Puccinia Geranii** Corda Icon. IV, p. 12, t. 4, f. 36 non Fuckel vix Lév., Winter Die Pilze p. 224, vix *Trichobasis Geranii* Berk. — Maculis nullis; soris minutis, atris, solitariis aut sparsis; teleutosporis oblongis, medio constrictis, apice incrassatis aut conoideo-attenuatis, levibus, flavescenti-brunneis; pedicello longo, crasso.

Hab. in foliis Geranii Robertiani, in Bohemia.

266. **Puccinia Pilocarpi** Cooke in Grev. IX (1880) p. 11, *Puccinia Parodii* Speg. Fungi Argentini pug. III, pag. 32. — Maculis epiphyllis, griseo-aridis, valide determinatis, subconcavis, sori magni-

itudine; soris amphigenis, sparsis, orbicularibus compactis, duris, erumpentibus ac epidermide fissa cinctis, pulvinato-prominulis, applanatis, majusculis 2-5 mm. diam., obscure fusco-ferrugineis uredosporis nullis; telentosporis levibus, ellipticis, antice acutiusculis, subtruncato-rotundatis, episporio non v. vix incrassato, deorsum attenuato-rotundatis, medio 1-septato-constrictis, $62-68 \approx 20$, ochraceo-fuligineis, loculis non v. 1 guttulatis, in pedicello prælongo, $100-120 \approx 5-8$ cylindraceo, fusco acrogenis, paraphysibus filiformibus, $150-200 \approx 3-4$ obrvallatis.

Hab. in foliis vivis *Pilocarpi pinnati* et *Selloani*, Paraguay (Cl. D. PARODI) et in Algeria (TRABUT). — Var. **minor** Speg. Fungi Guaranitici I, n. 117. Maculis epiphyllis, 1-1,5 mm. diam. vir fuscescentibus sed parenchymate profunde impresso-buloso; soris hypophyllis pugillus, 1-3 mm. diam., orbicularibus, applanato-pulvinatis, compactissimis, duris, fuligineo-cinnamomeis, nudis; telentosporis ellipticis vel obovatis, $40 \approx 15-18$, apice plus minus attenuatis ac obtusatis, episporio crassiusculo sæpius pervio, medio parte constrictis, levibus, fulvo-cinnamomeis, pedicello $120-150 \approx 2-6$ gracili, hyalino apice dilute fulvescente fultis; paraphysibus nullis. In foliis vivis plantæ cujusdam arborescentis in silvis ad ripas fluminis Pirayû Americæ australis.

267. **Puccinia Tecleæ** Pass. in N. Giorn. bot. ital. VII, p. 184, t. 4, 2411 f. 3, Martell Flor. Bogos p. 135. — Soris hypophyllis, in macula exarida fuscè-limitata, ad *Cucurbitariæ* modum aggregatis, prominentibus, epidermide rupta cinctis, atris; telentosporis oblongis, utrinque subtruncatis, medio constrictis, loculo inferiore sublongiore, pedicello excluso $16-20 \approx 5-6$, rubiginosis; pedicello concolore pallidiore translucido tenui, longitudine admodum varia telentosporam duplo vel triplo plerumque superante.

Hab. in foliis *Tecleæ nobilis*, pr. Keren in Abyssinia Africæ.

268. **Puccinia Mesleriana** Thüm. in Myc. univ. n. 834, Contrib. fl. Lusit. p. 11, n. 8. — Soris amphigenis, plerumque hypophyllis, sæpe marginalibus et petiolicolis, sparsis, orbiculato-elevatis, verruciformibus, induratis, epidermide tectis, dein erumpentibus, sine macula v. in pagina superiore maculam nigro-violaceam formantibus nitido-atris; telentosporis fasciculatis, longe-clavatis, medio constrictis, loculo superiori oblique quadrangulo, 15μ . crasso apice imposito, obtuso, sæpe subcoronato ut in *P. coronata*, loculo inferiori duplo longiore, basi angustato, 12μ . crasso, episporio levi, tenui, vertice subincrassato, 50μ . longo; pedicello basi verticeque

dilatato, medio angustato, 35 $\approx$ 2-4, hyalino, fuscis; paraphysibus nullis.

Hab. ad folia viva Rhamni Alaterni, pr. Coimbra Lusitaniæ (P. G. MESNIER).

269. **Puccinia digitata** Ell. et Harkn. New. Calif. Fungi p. 7. — Hypophylla; soris rotundatis, 1.4 mm. diam., solitariis, obscure brunneis, prominulis, epidermide rupta cinctis; teleutosporis clavatis, loculo superiori rufo-brunneo, inferiori longiori pallido, episporio sursum incrassatulo processusque 1-7 digitatos gerente, 45-54 $\approx$ 15-18; pedicello tertiam teleutosporæ partem æquante, valde, persistente.

Hab. in foliis vivis Rhamni crocei, in California America borealis. — A *Puccinia coronata* soris amplioribus valde prominentibus præcipue differt.

270. **Puccinia neurophila** Grounot Crypt. cell. p. 154 (*P. verriphila*). — Amphigena sed præcipue hypophylla; soris pallide brunneis, *P. Veratri* similibus, dia tectis, secus nervos primariis præsertim dispositis.

Hab. in foliis Trifoliorum, Saone-et-Loire Gallæ — Species maxime dubia.

271. **Puccinia Arachidis** Speg. F. Guaran. pug. I, n. 107. — Maculis nullis v. vix manifestis, parvulis, indeterminatis, fusciscentibus; soris hypophyllis, rarissime epiphyllis, minutis, 200-350 μ diam., plus minus dense gregariis vel sparsis, hemisphærico-prominulis, primo epidermide tenuissima velatis, dein nudis, laxe granulosis, ferrugineis; teleutosporis ellipticis vel obovatis, 38-45 $\approx$ 14-16, sursum obtuse rotundatis vel acutatis ibique crassiusculis tunicatis, medio 1-septatis, parum constrictis, deorsum leniter attenuato-truncatis, fulvellis, levissimis, intus nubilosis, pedicello longiusculo, gracili, 50-60 $\approx$ 4-5, hyalino suffultis.

Hab. in foliis vivis Arachidis hypogææ, in silva subvirginea Caa-guazû Amer. austr.

272. **Puccinia simplex** Peck 34 Rep. of St. Ms. p. 41. — Maculis parvis, orbicularibus, sparsis, brunneis vel disco-brunneis, margine purpureis; soris hypophyllis, hemisphæricis vel depressis, compactis, centro maculæ plerumque singulis, obscure brunneis; teleutosporis fragilibus, oblongo clavatis, ad seum leniter constrictis, 40-50 $\approx$ 10-13, pallide brunneis, pedicello brevissimo fultis.

Hab. in foliis vivis plantæ ejusdam crismiliter Gei, Albany Americæ borealis.

273. **Puccinia Waldsteiniae** Curt. North American Fungi n. 551. — 2417

Maculis parvis, roseis; soris magnis ut plurimum solitariis; teliosporis oblongis vel oblongo-clavatis, constrictis, loculo superiori latiore, $34-50 \approx 12-16$, levibus, granuloso-farctis, sursum incrassatis, obtusissimis, pedicello fusco, teliosporam subaequante fultis.

Hab. in foliis Waldsteiniae fragarioidis, Fort Edward, Portville et New York in America boreali (Howe) et Waldsteiniae geoidis Buczacz in Galicia (KRUPA).

274. **Puccinia Peckiana** Howe in Peck 25 Rep. p. 114, Burrill Fungi 2418

of Illinois p. 178, *Puccinia tripustulata* Peck l. c. pag. 113. — Hypophylla; soris parvis, sparsis, plus minus numerosis, subinde confluentibus, pulveraceis, cinnamomeo-brunneis, maculis minutis, angulatis, distinctis, flavis, rarius nullis; teliosporis (uno latere visis) plus minus angulatis (altero) ellipsoideis, haud constrictis, loculo superiori triangulari, apiculo minuto, hyalino, obtuse rotundato instructo, loculo inferiori e latere viso subquadrangulari, 2 projectionibus basi instructo, una pedicello adnata, altera apiculiformi, $36-45 \approx 22-27$, pedicello brevi vel obsoleto, fragili, recedente, hyalino instructis.

Hab. in foliis Rubi villosi, strigosi et R. occidentalis, in America boreali.

275. **Puccinia gigantea** Karst. Mycologia Fennica p. 42 n. 31. — 2419

Soris in caulibus compactis, sparsis, per epidermidem erumpentibus eaque fissa cinctis, crassissimis, elevatis, rugosis, obscure fuscis, vulgo oblongatis, 1 cm. usque longis, circiter 4 mm. latis, in foliis suborbicularibus liberis, rugosis v. levibus multo minoribus; teliosporis fusoideo-elongatis, vertice valde incrassatis, ad septum constrictis, deorsum in pedicellum, teliosporam æquantem, attenuatis, subflavis, levibus, $43-55 \approx 10-14$.

Hab. in caulibus emortuis Epilobii angustifolii, in Lapponia rossica.

276. **Puccinia Gayophyti** Peck in Botan. Gazette 1882, p. 56. — Ma- 2420

culis nullis; soris minutis, sparsis, amphigenis, rufo-brunneis; teliosporis obovatis vel fere ellipticis, plerumque ad septum constrictis, obtusis, $30-40 \approx 20-25$, levibus, pedicello brevi, hyalino suffultis.

Hab. in foliis vivis Gayophyti, California (JONES, PRINGLE).

277. **Puccinia Boisduvaliae** Peck in Botan. Gazette 1882, p. 45. — 2421

Maculis indeterminatis, flavescentibus, sæpe rubro vel brunneo tinctis; soris paucis, sparsis, amphigenis, brunneis; teliosporis ob-

ovatis vel oblongo-ellipticis, obtusis, ad septum leniter constrictis, $85-40 \approx 20-24$, levibus, pedicello brevi, hyalino fultis.

Hab. in foliis vivis Boisduvaliæ Torreyi, Santa Cruz Californiæ (JONES).

278. **Puccinia Jussiei** Speg. Fungi argentini Pugillus IV, n. 62. — Maculis epiphyllis, parvulis, 1-2 mm. diam., violaceo-purpurascens; soris hypophyllis, pulvinulo incrassato, aurantiaco-purpurascens insidentibus, minutis, 2-3 mm. diam., compactis, cinnamomeis; teleutosporis cylindraceo-subclavatis, $35-50 \approx 20$, medio 1-septatis, ad septum plus minusve constrictis, episporio hyalino, levissimo ad apicem loculi superioris incrassato sæpeque in umbonem centram v. excentricum producto, basi loculi inferioris truncati tenuissimo, protoplasmate granuloso, intense castaneo-fulvo, loculis 1-guttulatis, pedicello crasso, $50-60 \approx 10-12$, hyalino, apice non v. vix fusciscente fultis.

Hab. ad folia viva Jussiei longifoliæ, socio *Ecidio Jussiei* Speg., in paludibus æstuarii, Ensenada, in Republica Argentina.

279. **Puccinia Umbilici** Guep. in Duby Bot. Gall. p. 890, Cooke Handbook n. 1504, F. Brit. n. 132. — Maculis pallidis; soris rotundatis, convexis, compactis, primo tectis, demum in maculas orbiculares, magnas confluentibus; teleutosporis subglobosis, granuloso farctis, haud constrictis, levibus, breviter pedicellatis, loculis subæqualibus, depressis, plerumque $28-32 \approx 18-20$, subinde hyalino-apiculatis.

Hab. in foliis Umbilici pendulini, in Gallia, Belgio et Britannia.

280. **Puccinia exanthematica** Mac-Owan in Grevillea XI, p. 24. — Soris hypophyllis, distinctis, maculæ latæ, disciformi, carneo-purpureæ insidentibus, circinantibus, primum aurantiis, demum ochraceis; teleutosporis cylindricis, $24 \approx 16$; pedicello æquilongo, flavido, episporio crassiusculo, levi.

Hab. in foliis Crassulæ ejusdam, ad Somerset East Africa australis.

281. **Puccinia Blyttii** De-Toni, *Puccinia Rhodiolæ* Blytt Bidrag Norg. Soperter in Christ. Vidensk. Selsk. Forhandl. 1882, n. 5 nec B. et Br. — Soris atro-brunneis, confluentibus, hypophyllis et cauliculis; teleutosporis $24-35 \approx 16-19$, non verrucosis, vertice tantum paululum incrassatis, postice rotundatis; pedicello deciduo, teleutosporam dimidiam æquante.

Hab. in foliis caulibusque Rhodiolæ roseæ, in Norvegia.

282. **Puccinia Rhodiolæ** B. et Br. Ann. Nat. Hist. n. 468, Cooke Handb. 2 426
n. 1505 nec Blytt. — Maculis orbicularibus, brunneis; soris minutis, confertis; teleutosporis breviter pedicellatis, loculis depressis, subinde spurie subdivisis.

Hab. in foliis Sedi Rhodiolæ, in Britannia. — Propter teleutosporas subinde spurie pluriseptulatas ad *Endophyllum* vergit.

283. **Puccinia Claytoniæ** Thüm. Pilzfl. Sibir. num. 183. — Soris hy. 2427
pophyllis v. raro etiam amphigenis, sparsis, mediis, primum tectis, demum liberis et cuticula disrumpenti cinctis, badiis, in macula pallida, indeterminata; teleutosporis late ellipsoideis vel oblongo-ovatis, sessilibus, vertice rotundatis basi minime subacutatis, medio non constrictis, homogeneis, pallide fuscis, episporio levi, tenuissimo, 24-28 $\approx$ 18-21 paraphysibus nullis.

Hab. ad folia viva Claytoniæ arcticæ, in montibus Sajauensibus Sibiriae asiaticæ.

284. **Puccinia pulchella** Peck 25 Rep. p. 111, Thüm. Mycoth. Univ. 2428
n. 544. — Epiphylla; maculis flavis vel flavo-virentibus, orbicularibus, raro confluentibus; soris parvis, circinatis, subinde confluentibus, atro-brunneis; teleutosporis 25-33 $\approx$ 15, levibus, brunneis, vix constrictis, elliptico-oblongis, loculis subæqualibus, episporio ubique æquicrasso; pedicello brevi, hyalino.

Hab. in foliis Ribis prostrati, North Elba Amer. borealis. — Sori plerumque secus orbes binos concentricos dispositi. Maculæ 3-3,5 mm. diam.

285. **Puccinia spreta** Peck in 29 Rep. St. Muss. p. 67, *Puccinia* 2429
Tiarellæ Peck in 25 Rep. St. Mus. pag. 115 nec Berk. et Curt. Burrill Parasitic Fungi of Illinois p. 178. — Amphigena; maculis brunneis vel rufescenti-brunneis, sæpius flavo-marginatis; soris sparsis, promiulis, rufescenti-brunneis, subinde confluentibus; teleutosporis subellipticis vel oblongis, ad septum leniter constrictis, subacuminatis, 21-35 $\approx$ 12-18, levibus, episporio tenuiusculo, pedicello gracili, hyalino, plus minus longo fultis.

Hab. in foliis Mitellæ diphyllæ et nudæ nec non Tiarellæ cordifoliæ, in America boreali. — «Cum *Puccinia Tiarellæ* et *P. Saxifragarum* comparanda».

286. **Puccinia Tiarellæ** Berk. et Curt. North Amer. Fungi n. 549 2430
nec Peck. — Maculis pallidis; soris magnis, rufis; teleutosporis clavatis apice papilla acutis, 5 μ . longis, obtusis, pedicello brevi fultis.

Hab. in foliis Tiarellæ, Canadâ (Poe). — *Puccinia spreta*

Peck subaffinis at teleutosporis minutissimis (an revera?) statim dignoscenda. «An teleutosporæ potius 50 μ . longæ?»

287. **Puccinia congregata** Ell. et Harkn. New Calif. Fungi p. 6. — Hypophylla, maculam efformans; soris dense congestis, maculæ brunneæ medio insidentibus, 4-6 mm. latis; teleutosporis oblongis, leniter constrictis, apice subhyalino-apiculatis, 38-45 $\approx$ 13-15.

Hab. in foliis vivis Heuckerae micranthæ et Mitellæ nudæ in California et Lacu Nipigon Amer. bor. — *Pucciniæ Tiarella* B. et C. et *P. spretæ* Peck proxima.

288. **Puccinia? Loranthei** Speg. Fungi guaranitici I, n. 111. — Maculis nullis; soris amphigenis, sparsis vel hinc inde laxè gregariis, pulviniformibus, 1-2 mm. diam., subcrenulatis, compactis, sordide fusco-testaceis; teleutosporis dense constipatis, subclavato-cylindraceis, fere bacillaribus, apice obtuse rotundatis, postice truncatis, 70-75 $\approx$ 12-14, medio 1-septatis, non constrictis, episporio tenui ubique æquicrasso, levi, protoplasmate granuloso-nubiloso, pallidissime fulvis vel hyalino-chlorinis, pedicello brevissimo, crasso, 20 $\approx$ 10, hyalino, facillime deciduo fultis.

Hab. ad folia Loranthei cujusdam, in silvis prope Paraguari Amer. australis. — Species externa facie vere puccinioidea, forma teleutosporarum tamen anomala, ergo nonnihil dubia.

289. **Puccinia Astantiæ** Berk. et Curt. North Amer. Fungi n. 545. — Hypophylla; maculis flavis; soris rubiginosis; teleutosporis 32-33 μ . longis, acutis.

Hab. in foliis Astantiæ, Canada in Amer. bor.

290. **Puccinia Pimpinellarum** Rabenh. in Helwigia 1871. p. 19. — Teleutosporis oblongis, 38 $\approx$ 25, amœne brunneis, utroque polo perfecte rotundatis, levibus, glabris, ad dissepimentum haud constrictis, pedicello elongato, hyalino suffultis.

Hab. in Pimpinella puberula, prope Buschir in Persia. — A *Puccinia Pimpinellæ* dignoscenda.

291. **Puccinia Cryptotæniæ** Peck in 23 Rep. of Stat. Bot. p. 114. — Hypophylla; maculis parvis, pallidis aut flavescentibus, subinde purpureo-tinctis confluentibusque; soris minutis, subcircinatim dispositis, demum confluentibus, primo tectis, dein epidermide disrupta cinctis, rufo-brunneis; teleutosporis subellipticis, leniter constrictis, minute umbilicatis vel apiculatis, 26-40 $\approx$ 15, pedicello brevissimo suffultis.

Hab. in foliis petiolisque Cryptotæniæ canadensis, prope Greenbush in America boreali.

292. **Puccinia Angelicæ** (Schum.) Fuck. Symb. myc. p. 52 nec E. et 2436
 Ev., *Uredo Angelicæ* Schum. Pl. Saell. II, p. 233. — Soris hypophyllis, orbicularibus, plerumque secus nervos in series confluentibus, epidermide lacerata cinctis, fuscis; teleutosporis ovoideo-ellipsoideis, irregularibus, ad septum leviter constrictis, flavis, 30-40 $\approx$ 18-26.

Hab. in foliis Angelicæ silvestris, in Rhenogovia Germaniæ, Neerlandia, Arduennis et Fennia. — *Puccinia Ellisii* De-Toni peraffinis, nisi identica. «An huc *Aeidium Angelicæ* Rostrup.»

293. **Puccinia porphyrogenita** Curt. in Thüm. Mycoth. Univ. n. 545, 2437
Puccinia acuminata Peck 23 Rep. of St. Bot. p. 119 nec alior. — Hypophylla; maculis orbicularibus, purpureis vel rufo-brunneis; soris magnis, sparsis vel confluentibus, compactis, prominulis, epidermide rupta velatis, atris; teleutosporis oblongis, medio constrictis loculis inæqualibus, 45-62 $\approx$ 15-18, apice obtuse acuminatis, levibus; pedicello colorato, sporam plerumque æquante.

Hab. in foliis Corni canadensis, Sandlake, M. Adirondack et North Elba nec non in California Americæ borealis. — *Puccinia Waldsteiniae* affinis.

294. **Puccinia spongiosa** B. et Br. Fungi of Ceylon n. 820. — Soris 2438
 magnis crassis; teleutosporis subellipticis, obtusissimis, uniseptatis, nec medio contractis.

Hab. in foliis Stylocorynes Weberi, in insula Ceylon.

295. **Puccinia Galopinæ** Cooke in Grevillea X, p. 124. — Hypophyl- 2439
 la; soris compactis, densis, purpureo-brunneis, convexis; teleutosporis congestis, elongato-fusiformibus, lateraliter compressis, hyalinis, fusco-tinctis, 50 $\approx$ 9, episporio tenui; pedicello brevi.

Hab. in foliis Galopinæ asperæ, ad Inanda, Natal Africae (Wood).

296. **Puccinia Spermacocis** B. et C. North Amer. Fungi n. 548. — 2440
 Hypophylla; maculis flavis, orbicularibus, parvis; soris rubiginosis; teleutosporis brevibus, levibus, utrinque obtusis, pedicello hyalino brevioribus.

Hab. in foliis Spermacoces glabræ, Alabama Americæ borealis (PETERS).

297. **Puccinia clandestina** Carm. in Sm. Engl. Flor. V, p. 365, Cooke 2441
 Handbook n. 1480. — Maculis flavescentibus; soris minutissimis, distinctis, numerose gregariis, obscure brunneis, epidermide eva-

nescente denudatis; teleutosporis oblongis, lenissime constrictis, pedicellatis.

Hab. in foliis Scabiosæ succisæ raro in Britannia.

298. **Puccinia Spegazzinii** De-Toni, *Puccinia australis* Speg. Fungi Argentini Pug. II, n. 33, non Körn. Fungi Guaranitici I, n. 109. — Hypophylla; maculis epiphyllis, orbicularibus, concavis, fulvescentibus, subdeterminatis; soris hinc inde dense glomerulatis, compactis, 1-3 mm. diam., tumidis, fulvo-fuliginis; teleutosporis elongato-subclavatis, 50-65 $\approx$ 15-18, superne attenuato-rotundatis, medio septatis, vix constrictis, deorsum leniter in pedicellum desinentibus, episporio tenui vix apice crassiore, granuloso-farctis; pedicello hyalino, 40-60 $\approx$ 8-10.

Hab. ad folia viva Mikaniæ scandentis var. periplocifoliæ, ad la Boca del Riachuelo, (O. SCHNYDER), nec non Mikaniæ cordifoliæ, in dumetis silvæ Caá-guazú et S. Barbara pr. Villa Rica in America australi.

299. **Puccinia Nardosmiæ** Ell. et Everh. in Journal of Mycology 1885, p. 85. — Soris numerosis, hypophyllis, purpureo-brunneis, subconcentrice secus greges circulares circ. 4 mm. latos dispositis, mox nudis; teleutosporis ellipticis vel oblongis, sæpe uno latere magis prominentibus, vix medio constrictis, 25-30 $\approx$ 15-20, sæpius sursum angustatis, episporio levi, vertice incrassato, papilla subhyalina aucto; pedicello teleutosporam subæquante, fragili facileque deciduo.

Hab. in foliis Nardosmiæ (Petasitidis) palmatæ prope Red Rock in Lacu superiori Amer. bor.

300. **Puccinia Printziæ** Thüm. in Mycoth. univ. n. 742. — Soris hypophyllis, sparsis, maximis, confluentibus vel compositis, elevatis, suborbiculatis, verruciformibus, firmis, spadiceo-castaneis, in macula expallescenti, pagina superiore luteo-fusca, concava; teleutosporis clavatis, vertice obtuso-acutatis, medio constrictis, longe pedicellatis, 68-72 μ . longis, loculo superiore 20-22 μ . crass., loculo inferiore 16-18 μ . crass., fragilibus, dilute fuscis, episporio levi, subcrasso, vertice incrassato; pedicello subrecto vel vix curvato, utrinque subincrassato, 25 $\approx$ 5-8.

Hab. in foliis vivis Printziæ Huttoni, in silvis elatioribus montis «Boschberg» pr. Somerset-East, Promont. Bonæ Spei Africæ australis (P. MAC OWAN).

301. **Puccinia æcidiiformis** Thüm. in Flora 1875, p. 378. — Soris teleutosporiferis hypophyllis, gregariis vel sparsis, ochraceis, dein

expallescens; teleutosporis ovoideis, leniter constrictis, obtusis, pallide flavis, $54-58 \approx 30$; pedicello hyalino, recto, caduco, 6 μ . longo.

Hab. in foliis vivis *Nidorellæ mespilifoliæ*, ad pedem montis Boschberg prope Somerset East Africae (Mac OWAN). — *Fungillus Æcidii* habitu.

302. **Puccinia doloris** Speg. Fungi Argentini Pug. IV, n. 61. — Ma- 2446
culis parvulis, amphigenis, pallentibus; soris hypophyllis, sæpius areolatim circa centalem majorem dispositis, minutis, 2-3 mm. diam. pulvinato-prominulis, compactis, amœne cinnamomeis; teleutosporis elongato-subclavatis, centro 1-septato-constrictis, episporio levissimo in vertice loculi superioris valde incrassato sæpeque in umbonem producto, $45-50 \approx 15-16$, protoplasmate granuloso foetis, loculis 1-guttulatis, dilute fuligineis, pedicello hyalino, $30 \approx 57$, apice fusciscente suffultis.

Hab. in foliis vivis *Erigerontis bonariensis*?, in sepiibus prope Dolores in Republica Argentina.

303. **Puccinia Grindeliæ** Peck in Bot. Gazette 1879, p. 127. — Maculis 2447
pallidis, orbicularibus, 2-7 mm. diam. metientibus, subinde confluentibus; soris amphigenis, minutis, confertis, atris vel atro-brunneis; teleutosporis oblongis, obtusis vel obtuse acutatis, profunde ad septum constrictis, $40-50 \approx 20-25$, nonnullis aseptatis, pedicello hyalino, teleutosporam subæquante fultis.

Hab. in foliis radicalibus *Grindeliæ squarrosæ* rarius, Colorado Amer. bor.

304. **Puccinia variolans** Harkn. New Calif. Fungi pag. 15. — Soris 2448
solitariis, ovatis, obscure brunneis, 1 mm. longis; teleutosporis oblongis vel clavatis, constrictis, brunneis, $40-70 \approx 18-24$, levibus, episporio sursum incrassato; pedicello hyalino, 1-2-plo teleutosporâ longiore.

Hab. in foliis ramulisque *Tetradymiae canescentis*, in California ad M. Davidson 2300 m. circ. alt.

305. **Puccinia Leucanthemi** Pass. in Hedwigia 1874, p. 47. — Am- 2449
phigena; maculis obsoletis; soris subrotundis vel elongatis, primo tectis, rubiginosis, dein epidermide fissa cinctis, rufo-fuscis, velutinis; teleutosporis elongatis, flavidis, ad septum constrictis, apice plus minusve acuminato-rostratis, interdum trilocularibus, pedicello longiusculo, hyalino fultis.

Hab. in foliis *Leucanthemi vulgaris*, locis humidis umbrosis pr. Parma Italiæ borealis (PASSERINI). — A *P. Tanacetii* colore teleutosporarumque forma differre videtur.

306. **Puccinia Verbesinæ** Schwein. Syn. Carol. pag. 73, n. 496, vix 3
Spegazz. — Soris punctiformibus, sparsis, atro-fuscis, epidermide
haud cinctis; teleutosporis ovatis, apice angustioribus, pedicello
brevis, loculis æqualibus.

Hab. in foliis vivis Verbesinæ Siegesbeckiæ, in Carolina
inferiori Amer. bor. — A *Puccinia Spegazziniana* De-Toni que
in Verbesinæ foliis viget, forma teleutosporarum pedicellique bre-
vitate diversa.

307. **Puccinia Silphii** Schwein. N. Am. Fungi p. 296, Burrill Paras. 2
Fung. of Illin. p. 184. — Hypophylla; maculis minutulis, purpu-
reis, numerosis, sparsis, concavis; soris valde prominentibus, ver-
ruciformibus, compactis, sordide griseo-brunneis; teleutosporis ir-
regularibus, oblongo-clavatis, distincte angulatis acuminatis, 40 ≈
13, episporio tenui, levibus, pedicello firmo, colorato, teleutospo-
ram subæquante.

Hab. in foliis nec non in caulibus Silphii terebenthina-
cei, integrifolii, perfoliati et trifoliati, in Carolina infe-
riori et Illinois Americæ borealis.

308. **Puccinia Viguiereæ** Peck in Bull. Torr. Bot. Club vol. XII, n. 4. 2
p. 35. — Soris numerosis, prominulis, amphigenis, nigrescentibus;
teleutosporis ovatis vel late ellipticis, obtusis, leniter septo con-
strictis, pedicello hyalino teleutosporarum longitudinem superante
præditis, 40-50 ≈ 28-30.

Hab. in foliis Viguiereæ, New Mexico (Jones). — *Puccinie*
Helianthi Schwein. et *P. variolanti* Harkn. proxima at teleuto-
sporis latioribus distincta.

309. **Puccinia Heliopsidis** Schwein. Syn. Carol. pag. 72, n. 493. — 24
Majuscula, irregularis, aggregata, epidermide cincta, spadicea; te-
leutosporis ovatis, elongatis, loculis æqualibus, longe pedicellatis.

Hab. in foliis subsiccis Heliopsidis et Vernoniæ, in Ca-
rolina Amer. bor.

310. **Puccinia africana** Cooke in Grevillea VIII, p. 74. — Pustulis 24
compactis, minimis, in soris circinantibus; teleutosporis clavatis v.
fusiformibus, constrictis, fuscis, 50 ≈ 15, episporio supra incrassa-
to; pedicellis hyalinis, persistentibus.

Hab. in foliis Spilanthes africanæ, Natal Afr. austr. —
Uredosporæ adhuc ignotæ.

311. **Puccinia Xanthii** Schwein. Syn. Carol. pag. 500, Burrill Paras. 24
Fungi of Illinois p. 184. — Hypophylla; soris parvis, in maculis
plerumque inæqualibus, flavescentibus, subinde confluentibus, centro

purpureis vel brunneis insidentibus gregariisve, minutis, confertis, subinde circinatis, atro-brunneis; teleutosporis oblongis, leniter constrictis, apice incrassatulo, rotundato vel acutiusculo, 36-50 = 15-21, levibus, pedicello subcolorato, teleutosporam dimidiam subsequante.

Hab. in foliis *Xanthii strumarii* et *Ambrosiæ trifidæ*, in Carolina inf. et sup., Illinois, New York et Pennsylvania Americæ borealis.

12. **Puccinia Helichrysi** Rabenh. Krypt. Fl. I, pag. 26, Winter Die Pilze pag. 225, non Kalchbr. et Cooke. — Teleutosporis obovatis, obtusis, apiculatis, medio sensim constrictis, longiuscule pedicellatis, dilute brunneis in soros punctiformes, atro-brunneos congestis. 2456

Hab. in foliis *Helichrysi chrysanthi*, in Germania.

13. **Puccinia investita** Schwein. Syn. North Amer. Fungi n. 2932. Peck 25 Rep. p. 117. — Hypophylla; maculis flavis vel nullis; soris minutis, subrotundis, sparsis vel gregariis, atro-brunneis vel atris; teleutosporis oblongis, fuscis, leniter constrictis, obtusis vel acutiusculis, 40-50 = 20, pedicello hyalino, teleutospora dimidio brevior. 2457

Hab. in foliis caulibusque *Gnaphalii polycephali* nonnullorumque aliorum, plurimis Americæ borealis locis. — Adest sæpe socium *Æcidium gnaphaliatum* Schwein.

14. **Puccinia Triptilii** Mont. in Corda Icones Fungorum VI, p. 3, t. I, f. 10, Mont. Syll. Crypt. n. 1160, — Hypophylla, subgregaria; soris hemisphæricis, fuscis; teleutosporis septatis, bicellulosis, medio (ad septum) constrictis, fuscis, nucleis cavis subplicatis, pedicellis longissimis, tenuibus, albis. 2458

Hab. in foliis *Triptilii cordifolii*, in Chile Americæ australis (BERTERO).

15. **Puccinia Wettsteinii** De-Toni, *Puccinia Jurinæ* Wettst. in Hedwigia 1887, pag. 116 vix Cooke. — Soris follicolis gregariis, 9,5-1,5 mm. diam. magnis, orbicularibus, convexis, cauliculis confluentibus, 4-20 mm. longis, latis, omnibus pulverulentis, atro-fuscis, initio epidermide tectis, mox erumpentibus liberisque; teleutosporis obovatis vel ovato-oblongis, apice rotundatis, 35-52 = 22-27, medio parum vel non constrictis, episporio fusco, levi, apice incrassato septoque crasso fusco instructis, pedicello 70-80 μ . longo, tenui, hyalino fultis. 2459

Hab. in foliis caulibusque vivis *Jurinæ macrocephalæ*, in Persia.

316. **Puccinia Jurineæ** Cooke in Grevillea IX, p. 14 vix Wetts. — Epiphylla; soris discoideis, atro-fuscis, sparsis; teleutosporis ellipticis, constrictis, læte brunneis, $50 \approx 30$, episporio levi; pedicellis gracilibus, hyalinis, elongatis, 80μ . longis.

Hab. in foliis Jurineæ ad Beg Dagħ. — Videtur eadem ac *Puccinia pulvinata* Rabenh.

317. **Puccinia vomica** Thüm. Pilzfl. Sibir. n. 701. — Soris hypophyllis, solitariis, maximis, vomiceformibus, oblongis vel orbiculatis, valde elevatis convexisve, epidermide lacerata subtectis, pro parte liberatis, duris, spadiceis; teleutosporis valde irregularibus, clavatis, vertice plerumque truncatis, raro subrotundato-truncatis sed semper maxime incrassatis, medio paullulum constrictulis, basi in pedicellum angustatis, fuscis, episporio levi, tenui (excl. vertice), $40-56 \approx 16-22$, pedicello longo, arcuato, sursum sensim dilatato, achroo, $20-45$ plerumque $38 \approx 2,5-10$.

Hab. in foliis vivis Saussureæ speciei indeterminatæ, in silvis alpinis montis Kerlygan Sibiricæ asiaticæ — A *Puccinia Saussureæ* Thüm. characteribus notatis valde differt.

318. **Puccinia Potentillæ** Schwein. Syn. Amer. bor. p. 297, n. 2945 nec *Phragmidium Potentillæ* auct. — Soris minutis, hypophyllis, macula fere evanida; teleutosporis fuscis, demum nigris, prorumpentibus, breviter pedicellatis.

Hab. in foliis exoletis Potentillæ canadensis, pr. Bethlehem in Pennsylvania Americæ borealis.

319. **Puccinia Helenii** Schwein. Syn. Fung. Amer. bor. p. 296, n. 2928. — Maculis flavo-lutescentibus, expansis; soris pulvinatis, sparsis et invicem approximatis, convexis, primo brunneis, demum eleganter castaneis; teleutosporis compactis, majusculis.

Hab. in foliis Helenii autumnalis rarius, pr. Bethlehem in Pennsylvania Americæ borealis.

320. **Puccinia Saussureæ** Thüm. in Bull. Soc. Nat. Mosc. 1878, p. 214, n. 160. — Soris amphigenis, magnis, orbiculatis, liberis, inquinantibus, atro-fuscis, sine ordine dispositis et sine maculis; teleutosporis clavatis, vertice rotundatis, basi vix in pedicellum angustatis, fuscis, medio leniter v. non constrictis, episporio tenui, levi, $38-44 \mu$. longis, loculo superiori $24-27 \mu$. crasso, loculo inferiori $20-22 \mu$. crasso: sæpe in loculis utrisque nucleus magnus, pallidus adest; pedicello brevissimo, hyalino, caduco.

Hab. in foliis vivis Saussureæ glomeratæ, pr. lacum

Tagarskoje et pr. Minussinsk Sibiriae asiaticæ (N. MARTIANOFF).

— A *Puccinia Cirsii* DC. valde diversa.

321. **Puccinia Serratulæ** Thüm. Pilzfl. Sibir. n. 700. — Soris spar- 2465
sis, hypo-, raro etiam epiphyllis, magnis, verruciformibus, gibboso-
prominentibus, induratis, non pulveraceis, saturate spadiceis, in ma-
cula irregulari, straminea; teleutosporis longe clavatis, vertice sub-
acutatis, basi in pedicellum angustatis, medio constrictis, episporio
levi, tenui sed vertice maxime incrassato, pallide fuscidulis, 38-50
(sine pedicello), $\approx 15-16$; pedicello hyalino, subrecto, sursum sensim
dilatato, 30 μ . long., basi 5 μ . crasso.

Hab. ad folia viva *Serratulæ* speciei indeterminatæ, in pra-
tis humidis prope fluv. Irba Sibiriae asiaticæ. — A *Puccinia*
Cirsii DC. et *P. obtegente* Tul. characteribus notatis toto cælo
diversa. Fortasse *Ecidium Cirsii* DC. f. *Serratulæ* Thüm. in
Bull. Soc. Natur. Moscou 1878, p. 213, huc pertinet.

322. **Puccinia Centaureæ-asperæ** Cast. Observ. I, p. 18, Cat. p. 198. 2466
— Maculis nullis; soris atris, numerosis, subrotundis, amphigenis
caulinisque prominentibus; teleutosporis ovatis, obtusis, haud con-
strictis.

Hab. in foliis caulibusque *Pygmononis Acarnæ*, *Centaureæ asperæ* et *calcitrapæ*, *Cirsii tenuiflori* et *laucolati*, in Gallia. — A *P. Asteris* et *Tanacetii* defectu con-
strictionis teleutosporarum differre videtur. «An satis?».

323. **Puccinia Verruca** Thüm. in Revue Mycologique I, p. 9. — So- 2467
ris maximis, verruciformibus, hypophyllis, hemisphaericis, eximie fir-
mis, liberis, solitariis, semper fere marginalibus. brunneis; teleu-
tosporis fasciculatis, longe claviformibus, inæquilateralibus, medio
constrictis, loculo superiori vertice inæquali obtuso, 25 $\approx$ 14, locu-
lo inferiori in pedicellum angustato, 30-34 $\approx$ 8-9, episporio tenui
levi, dilute fuscis; pedicello longissimo, curvato, hyalino, 62 $\approx$ 8.

Hab. ad folia viva *Centaureæ napifoliæ*, in Ægypto su-
periori (Dr. KECK).

324. **Puccinia sclerotioides** Dur. in Fl. d'Algér. I, p. 320. — Cau- 2468
licola; soris primo fusco-badiis, tandem nigris, inæqualibus, in tu-
bercule sclerotiformum concretis, subgelatinosis, plane nudis, sæpe
confluentibus; teleutosporis stipite subbrevioribus, arcte cohærenti-
bus, medio constrictis, ovoideis, loculis abbreviatis, subhemisphaeri-
cis, episporio tenui.

Hab. ad caules vetustissimos humi jacentes jamque semiputri-
dos *Cirsii gigantei*, in præruptis prope Birmadreis in Algeria.

— Habitu *Sclerotium* vel *Sphaeriam* caulicolam refert. A *Pucciniis* aliis in *Cirsio* vigentibus characteribus allatis dignoscenda dicitur.

325. **Puccinia subsecta** Rostr. in Thümen Myc. univ. n. 438. — Maculis supra lutescentibus, violaceo-cinctis; soris hypophyllis, sparsis, tectis, orbicularibus, planis, atro-fuscis; teleutosporis ellipsoideis, levibus, episporio vertice conoideo-incrassato, utrinque obtusis, ad septum parum constrictis, 40-50 $\approx$ 18-22, pedicello crassissimo, 12-16 μ . crasso, teleutosporam æquante longiorive, dilute fuscis.

Hab. in foliis vivis *Cirsii heterophylli*, ad Jonstrup in ins. Fionia Daniæ nec non ad Tammela Fennia rarius.

326. **Puccinia Andersoni** B. et Br. Ann. N. H. n. 1464. — Maculis epiphyllis, orbiculatis, margine brunneo cinctis; soris hypophyllis minutis, confertis; teleutosporis oblongis, medio constrictis, obtuse apiculatis, *P. Tanacetii* similibus, 40-45 $\approx$ 18-20, levibus, pedicello breviusculo, hyalino fultis.

Hab. in foliis *Cirsii heterophylli*, in Britannia.

327. **Puccinia melanosora** Speg. Fungi Argentini I, pag. 170, n. 35. — Amphigena et caulicola, macula nulla vel pallide flavescente; soris minutis, rotundatis vel elongatis (cauliculis) primo epidermide tectis, dein ea fissa cinctis, atris; teleutosporis elliptico-ovatis, episporio tenui vix apice incrassato, vertice plus minus obtuse rotundatis, loculis subæqualibus, ad septum vix constrictis, granuloso-farctis, subinde 1-guttulatis, 42-47 $\approx$ 25-30, levibus, intense fulvo-ochraceis; pedicello hyalino, brevi et crasso, 10-12 $\approx$ 5-7, fultis.

Hab. in foliis caulibusque *Acicarphe tribuloidis*, in Republica Argentina America australis.

328. **Puccinia Pycnanthemi** Schwein. Syn. Amer. bor. Fung. p. 295, n. 2920. — Maculis purpureis, minutis, persistentibus; soris parvis, fuscis; teleutosporis laxis, longe pedicellatis.

Hab. in *Pycnanthemo incano*, ad Bethlehem in Pennsylvania America borealis.

329. **Puccinia Loti** Kirchn. in Lotos 1856, pag. 181. — Soris hypophyllis, rotundatis; teleutosporis violaceis, episporio atro-brunneo præditis, globosis, pedicello brevissimo, sordide brunneo fultis.

Hab. in foliis *Loti corniculati* var. *villosi* pr. Kaplitz Bohemiae. — Species dubia.

330. **Puccinia Rhododendri** Fuck. Symb. myc. p. 51 (excl. fung. uredosporifero qui ad *Chrysomyxam* pertinet) Winter Die Pilze p. 225.

— Hypophylla; soris sparsis, orbicularibus, convexis, erumpentibus, atro-fuscis; teleutosporis ovatis, medio parum constrictis, brevissime pedicellatis, $26 \approx 18$, fuscis.

Hab. in foliis siccis Rhododendri ferruginei, in Tyrolia.

331. **Puccinia Echinopis** Haszl. Banat. Gomb. p. 43. — Teleutospo- 2475
ris ellipsoideis, medio valde constrictis, apice rotundatis, crasse truncatis, levibus, fuliginis, pedicello brevioribus fultis.

Hab. in Echinope banatico, in Hungaria.

332. **Puccinia pulvinata** Rabenh. in Hedwigia 1871, p. 20 nec *Puc-* 2476
cinia pulvinulata Rudolphi. — Soris exacte pulvinatis, 2-4 mm. latis, sparsis, sæpius aggregatis, haud confluentibus, atro-fuscis; teleutosporis oblongis, utroque polo late rotundatis, locali superiori et inferiori plerumque magnitudine aequalibus, $51-68 \approx 35-38$, ad septum vix constrictis, episporio crasso, late brunneo, levi; pedicello sublongo, hyalino, apice (sub insertione) 10 μ . crasso.

Hab. in Echinope, inter Kerkuk et Assyriam somalensem. — Forma **Jurineæ**. In *Jurinea cataonica* pr. Bagdagh. — «Hæc forma videtur cum *P. Wellsteini* De-Toni et *P. Jurineæ* Cooke comparanda, species vero cum *P. Echinopis* Haszl.»

333. **Puccinia maculosa** Schwein. in Burrill Paras. Fungi of Illinois 2477
p. 188. — Amphigena; soris sparsis vel regulariter circinatim dispositis, cinnamomeo-brunneis; teleutosporis clavato-oblongis, valde constrictis, loculo superiori latiori, apice incrassato, rotundato vel varie acutato, $30-45 \approx 15-18$, levibus, fragilibus, episporio tenui donatis; pedicello plerumque teleutospora breviori.

Hab. in foliis Cynthiæ virginicæ, in America boreali.

334. **Puccinia Urospermi** Thüm. in Myc. univ. n. 1127. — Soris am- 2478
phigenis, gregariis, interdum confluentibus, mediis, primo epidermide tectis, dein liberatis, atro-fuscis, subinquantibus; teleutosporis aut ellipticis aut ovoideo-globosis aut subglobosulis, medio non v. vix constrictis, vertice basique rotundatis, episporio levi, tenui, æquali, obscure fuscis, diaphanis, $32-38 \approx 24-28$, sessilibus vel brevissime pedicellatis.

Hab. ad folia viva Urospermi Deleschampsii, pr. Licata in ins. Sicilia (V. BELTRANI). — *P. Hieracii* Mart. teleutosporis minoribus modo ut 27-29 μ . long., 18-20 μ . crass., dilutioribus, *P. Tragopogonis* Corda teleutosporis episporio verruculoso-spinuloso valde differunt.

335. **Puccinia Pseudo-Sphæria** Mont. Syll. Crypt. n. 1154. — Granu- 2479
losa; soris minutis, hemisphæricis, confertis, raro confluentibus, ru-

fo-fuscis, demum epidermide rupta, apice denudatis; teleutosporis brunneis, oblongo-piriformibus, medio septatis, subconstrictis, loculis inæqualibus, supremo majore, pedicello filiformi suffultis.

Hab. ad folia Sonchi radicati, in insulis Canariis (WEBB).

336. **Puccinia minussensis** Thüm. in Bull. Soc. Natur. Moscou 1878, p. 214. — Soris minutis, dense gregariis, hypophyllis, liberis, fuscis, orbiculatis, sæpe epidermide cinctis, sine macula; teleutosporis ovoideis, vertice rotundatis non incrassatis, medio septatis et plerumque non constrictis, fuscis, sæpe irregularibus, episporio tenuissimo, levi, basi in pedicellum caducum, brevissimum, hyalinum subangustatis, $26-30 \approx 16-20$.

Hab. ad folia viva Mulgedii sibirici, pr. Minussinsk Sibiriae asiat. (N. MARTIANOFF). — «An, suadente Winter, cum *Puccinia Hieracii* conjugenda?»

337. **Puccinia Kurdistanii** Cooke in Grevillea IV, p. 116. — Hypophylla; soris in maculis suborbicularibus, aggregatis; teleutosporis $50 \approx 25$, elongato-ellipticis, leniter constrictis, fuscis, breviter pedicellatis.

Hab. in foliis Taraxaci glauci, Kurdistan. — Sori ut in *P. glomerata* dispositi.

338. **Puccinia Hieracii-murorum** Cast. Obs. I, p. 19, Cat. pl. Mars. p. 198. — Maculis fusciscentibus, subrotundis; soris irregularibus, violaceo-nigris, margine epidermide rupta cinctis, amphigenis; teleutosporis aliis breviter, aliis longissime pedicellatis, ovatis, obtusis, subconstrictis.

Hab. in foliis Hieracii murorum, in Gallia. — «A *P. Hieracii* Mart. haud distincta mihi esse videtur».

339. **Puccinia argentina** Speg. Fungi Argentinii pugillus I, n. 32, F. Patag. n. 78. — Hypophylla, rarius epiphylla vel caulicola, macula, raro contraposita, albo-cinerea, glaucescente; soris hemisphaericis, creberrimis, congestis, ellipticis vel elongatis epidermide semper tectis (?). $4-8 \approx 2-4$ mm., cinnamomeis; teleutosporis elliptico-ovatis, apapophysatis, elongatis, crassiuscule tunicatis, apice rotundato-subtruncatis vel obtuse rotundatis, $45-65 \approx 18-25$, loculis subæqualibus, granuloso-farctis, pallide fulvis, pedicello crassiusculo, $20-30 \approx 5-7$, hyalino fultis.

Hab. in foliis caulibusque Hieracii? ejusdam et Picrosiae longifoliae, in Rep. Argentina et Patagonia Americae australis.

340. **Puccinia cladophila** Peck in Botanical Gazette 1879, pag. 127. — Soris numerosis, cauliculis, orbicularibus, ellipticis vel oblon-

gis, subinde confluentibus, epidermide lacerata cinctis, atro-brunneis; teleutosporis subellipticis, constrictulis, obtusis, 30-36 $\approx$ 20-23, pedicello brevissimo fultis.

Hab. in caulibus *Stephanomeriæ minoris*, Colorado Americæ borealis.

341. **Puccinia solida** B. et C. Fungi of Cuba n. 594, non Schwein. — 2485

Soris circa unum majorem annulatis, ferrugineis; teleutosporis pallidissimis, compactis, elongatis, utrinque attenuatis apice obtusiusculis.

Hab. in foliis nonnullarum Compositarum, in insula Cuba.

342. **Puccinia microsperma** B. et C. North Amer. Fungi n. 557 (1873), 2486

Puccinia Lobeliæ Gerard in Peck 26 Rep. pag. 77 (1875). — Plerumque hypophylla; maculis roseis; soris minutis, sparsis v. confluentibus, cinnamomeo-brunneis; teleutosporis brevibus subfusiformibus, leniter medio constrictis, facile in duos loculos disjunctibus, 30-39 $\approx$ 15-18, levibus, pallidis; pedicello brevi vel obsoleto, valde fragili.

Hab. in foliis *Lobeliæ puberulæ* et syphiliticæ, in Carolina inferiori et pr. Poughkeepsie nec non Illinois Amer. bor.

343. **Puccinia mesomegala** Berk. et Curt. North American Fungi 2487

n. 544, *Puccinia mesomegalis* B. et C. in Peck 25 Rep. St. Mus. p. 111. — Epiphylla vel amphigena; maculis orbicularibus vel ellipticis, subinde saturate marginatis, pallidis; soris circinantibus, epidermide rupta cinctis, medio majoribus, ferrugineis; teleutosporis oblongis, obtusis quandoque apiculo minuto auctis, levibus, 25-33 $\approx$ 15-19.

Hab. in foliis *Clintoniæ borealis*, N. Hampshire aliisque Amer. bor. locis (SPRAGUE).

344. **Puccinia Campanumæ** Pat. in Revue Mycologique 1886 october, 2488

p. 182. — Maculis hypophyllis, brunneis, subinde flavo marginatis; subiculo compacto, carnoso, crasso, epidermide haud cincto; teleutosporis oblongis, 33-46 $\approx$ 15-17, ad septum constrictis, levibus, brunneis, apice rostro rotundato auctis, pedicello hyalino, 50-66 $\approx$ 4-6 fultis.

Hab. in foliis *Campanumæ*, Yunnan in regione sinensi Asiæ (DELAVAY).

345. **Puccinia Ledi** Berk. et Curt. North American Fungi n. 552. — 2489

Maculis nullis; soris epiphyllis, minutis, pallidis, sæpe hysteriiformibus, irregularibus, congestis, epidermide tectis; teleutosporis ob-

longis, linearibus, subinde binis, pallidis; pedicellis elongatis, crassis, flexuosis.

Hab. in foliis Ledi latifolii, New Hampshire in America boreali (SPRAGUE).

346. **Puccinia Momordicæ** Kalchbr. et Cooke in Grev. XI, p. 24. — Soris hypophyllis, sparsis, minutis, apertis, brunneis, folio absque macula insidentibus; teleutosporis ovatis, obtusis, medio haud constrictis, 35-40 $\approx$ 18-25, sordide brunneis, breviter pedicellatis, levibus vel reticulatis.

Hab. in foliis vivis Momordicæ cordifoliæ, ad Port Natal Africae.

347. **Puccinia Jasmini** DC. Fl. Franç. II, p. 219, Duby Botan. Gall. II, p. 888. — Maculis supra luteis; soris rufo-fuscis, minutis, semiglobosis, compactis, epidermide sæpe cinctis, in greges late effusos paginam totam interdum occupantes confluentibus, hypophyllis at interdum cauliculis; pedicello albido, filiformi, longissimo, rigidulo; teleutosporis levibus, subconstrictis, loculo inferiori turbinato, superiori ovato-rotundato, obtuso.

Hab. in foliis caulibusque Jasmini fruticantis, in Gallia et Algeria. — Adsunt subinde teleutosporæ biseptatæ.

348. **Puccinia exhauriens** Thüm. in Flora 1876, p. 425, Myc. Univ. n. 1034. — Soris hypophyllis, minutis, rotundatis, planis, sparsis, dein confluentibus, in macula non limitata, expallida, straminea, brunneis; teleutosporis valde variis, clavatis, ellipsoideo-clavatis aut fere ovatis, medio constrictis, episporio tenui, levi, vertice subincrassato, loculo inferiore subattenuato, loculo superiore oblongo-ovato, 40-50 $\approx$ 20-22, dilute griseis subdiaphanis; pedicello brevissimo, hyalino.

Hab. in foliis vivis Jasmini tortuosi prope Somerset East Africae australis (MAC OWAN et TUCK). — *Puccinia Jasmini* DC. in *Jasmino fruticante*, folia fere ex toto occupans, teleutosporis ovatis, episporio crassissimo, pedicello longo, brunneis, toto caelo diversa est.

349. **Puccinia Tabernæmontanæ** B. et Br. Fungi of Ceylon n. 817: non Cooke. — Maculis flavis; soris minimis, hypophyllis, peritheciiformibus; teleutosporis obovatis, obtusissimis, brevibus, 40 μ . longis, levibus; pedicello brevi.

Hab. in foliis Tabernæmontanæ dichotomæ, Peradeniya in insula Ceylon.

350. **Puccinia Alyxiæ** Cooke et Masee in Grevillea XVI, p. 2. —

Hypophylla; soris discoideis, compactis, atro-brunneis, (1-2 mm. diam.), epidermide rupta cinctis; teleutosporis subpiriformibus, medio constrictis, uniseptatis, flavidis, 50-70 $\approx$ 20-25 μ ., episporio crasso, levi, ad apicem hyalino-apiculato; pedicello crassiusculo, elongato, hyalino.

Hab. in foliis *Alyxiæ buxifoliæ*, Brighton, Victoria (F. CAMPBELL).

351. **Puccinia Vincæ** Cast. Observ. I, p. 21, Cat. pag. 202 non Berk. 2495
— Soris numerosis, rufo-subfuscis, ovatis rotundatisve, epidermide disrupta cinctis et etiam subtectis; teleutosporis fere ovoideis, breviter pedicellatis.

Hab. in foliis *Vincæ* majoris, prope Marseille Gallia. — «Forte a *Puccinia Berkeleyi* Pass. haud distincta».

352. **Puccinia Balansæ** Speg. F. Guaran. pug. I, n. 110. — Maculis 2496
nullis vel epiphyllis, subparvis, indeterminatis, fuscescentibus; soris hypophyllis, minutis, compactis, in pulvinulos orbiculares (1-4 mm. diam.) confluentibus, prominulis, duriusculis, intense fuligineo-cinnamomeis; teleutosporis elliptico-obovatis, 24-26 $\approx$ 12-14, antice rotundato-obtusatis ibique episporio modice incrassato, medio 1-septatis, non vel vix constrictis, levissimis, granulosa faretis, pallide fulvis, pedicello longissimo, gracili, 120-150 $\approx$ 1-2, hyalino fultis.

Hab. in foliis vivis *Echitis fusiformis*, in silvis prope Guarapí Americæ australis.

353. **Puccinia Cynoctoni** Lév. in Ann. Scienc. Nat. 1846, p. 270. — 2497
Soris hypophyllis, gregariis, pulvinatis, fusco-nigricantibus, in macula pallida, brunnea, orbiculari insidentibus, convexis, punctiformibus; teleutosporis obtusis, levibus, pellucidis, pedicello longiusculo fultis.

Hab. in foliis *Cynoctoni pachyphylli*, in Chili Americæ australis.

354. **Puccinia Gonolobi** Rav. in Berk. et Curt. North Amer. Fungi 2498
n. 554, *Puccinia Cynanchi* Schwein. mscr. — Hypophylla; maculis flavis, soris circinantibus; teleutosporis brevibus, utrinque obtusis, medio constrictis; pedicellis basi sæpe incrassatis, obliquis.

Hab. in foliis *Gonolobi*, Santee Canal et Surinam.

355. **Puccinia Araujæ** Lév. in Ann. Scienc. Nat. Ser. III, 3, p. 69, 2499
Puccinia Schnyderi Speg. Fungi Argentini pugillus II, n. 35. — Hypophylla; maculis nullis vel epiphyllis, fulvo-fuscescentibus, parvulis, orbicularibus; soris sparsis, 2-5-confluenti-gregariis. he-

misphæricis, compactis, fulvo-fuligineis, 1-2 mm. diam.; teleutosporis elliptico-subfusoides, quandoque inæquilateralibus, medio septatis, non vel vix constrictis, episporio ubique tenni, 38-42 $\approx$ 14-16, pallide melleis; pedicello hyalino, cylindraceo, 40-50 $\approx$ 5.

Hab. ad folia viva Araujæ albentis, in Brasilia et in Republica Argentina Americæ australis nec non in foliis Sarcostemmatidis Swartziani, in insula Cuba.

356. **Puccinia Haleniz** Arth. et Holw. in Rep. Bot. Work in Minnesota for 1886, Bull. 3, p. 30. — Soris irregulariter confluentibus, in greges indeterminatos dispositis, cauliculis vel epiphyllis, atris, nitidis, solidis, subtiliter papillosis, diu epidermide tectis; teleutosporis linearibus vel lineari-cuneatis, 42-52 $\approx$ 8-9, episporio tenui donatis, levibus brunneis, apice obscuriori, plerumque oblique truncato vel irregulariter acuminato, pedicello brevissimo, colorato fultis.

Hab. in foliis caulibusque Haleniz deflexæ, ad lacum Vermillon Americæ borealis.

357. **Puccinia plumbaria** Peck in Botanical Gazette VI, pag. 228, Burrill Fung. of Illinois p. 191, *Puccinia Wilcoxiana* Thüm. in Myc. Univ. XXI, n. 32. — Amphigena; soris sparsis, foliiculis v. cauliculis, plus minus magnis, subinde confluentibus, epidermide plumbei coloris, dein nigrescente tectis, demum nudis et tum sordide rufo-brunneis et pulverulentis; teleutosporis irregularibus, latis, ovatis vel ellipticis, subconstrictis, apice more incrassatulis apiculatisque, 32-50 $\approx$ 21-25, levibus vel subtilissime rugulosis; pedicello brevissimo, hyalino, fragili, subinde lateraliter inserto.

Hab. in foliis vivis caulibusque Collomiz gracilis, Phlogis longifoliz et Giliz, in America boreali.

358. **Puccinia patagonica** Speg. Fungi Patagonici pag. 27, n. 80. — Soris tumidulis, irregulariter rotundato-elongatis, 1-5 mm. longis, 1-2 mm. latis crassisque, caules folia nec non inflorescentias ambientibus, primo epidermide tectis, dein nudis, compactis, duris, fere sclerotioideis, obscure castaneis vel fusco-rubiginosis; teleutosporis obovatis vel subclavatis, medio leniter constrictis, apice versiformibus (truncatis, rotundatis umbonatisve) ac crassissime tunicatis, deorsum cuneatis basique truncatis, 28-35 $\approx$ 12-15, levibus, pallide fulvis, pedicello hyalino, gracili, 25-35 $\approx$ 5, suffultis.

Hab. in foliis caulibusque Collomiz ejusdam, in Patagonia Americæ australis. — A *P. Giliz* Farlow toto cælo diversa.

359. **Puccinia crassipes** B. et C. North American Fungi n. 553. —

Hypophylla; maculis obsoletis; teleutosporis (pedicellis æquicrassis) brevibus, obtusis, medio constrictis, uninucleatis.

Hab. in foliis *Ipomeæ trichocarpæ*, Santee Canal et Aiken Amer. borealis. — Teleutosporarum forma a *P. Convolvuli* satis distincta.

360. **Puccinia holosericea** Cooke in Grevillea X, p. 126. — Hypo- 2504
phylla; soris (5-8) in macula pallida insidentibus, compactis; teleutosporis sublanceolatis, pallidis, lateraliter compressis, $45 \approx 15$, pedicello abbreviato fultis.

Hab. in foliis *Ipomeæ holosericeæ*, ad Inanda Africae (Wood).

361. **Puccinia Dichondræ** Mont. in Gay Fl. Chil. vol. VIII, p. 46, 2505
vix Berk. — Maculis nullis; soris hypophyllis, punctiformibus, minutissimis, 70-100 μ . diam., erumpenti-superficialibus, subpulverulentis, densiuscule gregariis et sæpe totum folium occupantibus, intense cinnamomeis, pilis velatis ac difficile conspiciendis; teleutosporis clavulatis, medio constricto-1-septatis, episporio tenui, apice incrassato ac in mucronem hyalinum producto, 30-40 $\approx$ 12-18, protoplasmate granuloso, loculis 1-guttulatis, pallide fulvis, pedicello filiformi, 20 $\approx$ 4, hyalino fultis.

Hab. in foliis *Dichondræ repentis* et *sericeæ*, in Chile (Gay), in aridis prope el Parque de Palermo et prope el Médano blanco (Tuyú) in Republ. Argentina et Patagonia (Spegazzini).

362. **Puccinia Berkeleyana** De-Toni, *Puccinia Dichondræ* Berk. Au- 2506
stralian Fungi n. 190 vix Mont. — Soris minutis, hypophyllis, rarius epiphyllis, sparsis, æcidiiiformibus; teleutosporis 12-13 μ . long., breviter pedicellatis, ultimo loculo obtuse apiculato.

Hab. in foliis *Dichondræ*, in Australia.

363. **Puccinia Lithospermi** Trel. in Journal of Mycology vol. I, 2507
(1885), pag. 2. — Soris amphigenis, rotundatis, atris, mox nudis, sparsis, 0,3 mm. diam.; teleutosporis elongatis, superne plerumque attenuatis, valde constrictis, sursum saturate rufo-brunneis, deorsum pallidioribus, 32-45 $\approx$ 20-23, episporio tenui, vertice incrassato, subinde apiculo aucto; pedicello valido, teleutosporam subæquante.

Hab. in foliis *Lithospermi canescentis*, Manhattan Kansas Americæ borealis.

364. **Puccinia Nierembergiæ** Lév. in Ann. Scienc. Nat. 1846, p. 271. 2508
— Soris hypophyllis et epiphyllis, sparsis, applanatis, nigris, epi-

dermide lacerata cinctis; teleutosporis subglobosis, opacis, sub-
 atris, levibus, non constrictis, pedicello brevi, crasso suffultis.

Hab. in foliis Nierembergiæ, in Perù.

365. **Puccinia Solani** Cooke in Grevillea 1878, p. 61. — Soris atris, ²
 minimis, linearibus, subtus tomento insidentibus; teleutosporis el-
 lipticis, leniter constrictis, levibus, fuscis, 35-60 $\approx$ 18-20; pedicello
 gracili, elongato, hyalino.

Hab. in caulibus, foliis petiolisque Solani et Chamæsara-
 chæ nanæ, socio *Æcidio Solani*, Sutlej Valley Indiæ (COOKE),
 in California Americæ borealis (HARKNESS).

366. **Puccinia pampeana** Speg. Fungi argentini pugillus II, p. 14. — ²
 Hypophylla vel caulicola, maculis nullis vel matrice tumefacta
 et pallescente; soris sparsis, 0,5-1 mm. latis, versiformibus, fusco-
 purpurascentibus, carnosio-compactiusculis; teleutosporis elliptico-
 ovoideis, medio septatis et vix constrictis, episporio levi, tenui
 apice parum incrassato donatis, 35-40 $\approx$ 18-20, fuligineo-lutescen-
 tibus, granuloso-fartis, pedicello cylindraceo, 40-50 $\approx$ 5-6, hyali-
 no suffultis.

Hab. in foliis caulibusque vivis Salpichræ rhomboi-
 deæ, in pratis secus Rio de la Plata in Repub. Argentina et
 prope Bahía Blanca Patagoniæ. — Sec. cl. Spegazzini huc spectat
 ut status microuredosporicus *Uredinula pampeana* Speg. (Tuber-
 culina).

367. **Puccinia Atropæ** Mont. Canar. p. 88, Syll. n. 1153. — Soris ²
 subrotundis, ovatis oblongisque, confluentibus, fusco-nigris, demum
 erumpentibus, epidermide cinctis; teleutosporis oblongis, crassis
 crasseque marginatis (episporio crasso), medio subconstricto-septa-
 tis, pedicello brevissimo fultis.

Hab. sub epidermide ramorum Atropæ aristatæ, in insulis
 Canariis (DESPRÉAUX).

368. **Puccinia Veronicæ-Anagallidis** Oudem. Contrib. fl. myc. p. 12 ²⁵
 — Amphigena, præsertim vero paginam inferiorem foliorum oc-
 cupans; soris semiglobosis, solidiusculis, superficie pulverulentis,
 dense sparsis, fuscis, erumpentibus annuloque epidermoidali basi
 cinctis; teleutosporis e loculis duobus semiglobosis, æqualibus, non-
 numquam e partibus oblongis, inæqualibus compositis, utrinque ro-
 tundatis, medio modice constrictis, vertice ne vestigia quidem epi-
 sporii densati monstrantibus, levissimis, 35-47 $\approx$ 22-23, fuscis, pe-
 dicello 70 $\approx$ 4,5, hyalino fultis.

Hab. in foliis Veronicæ Anagallidis, pr. Wageningen Ne-

erlandiæ (J. D. Kobus). — A *P. Veronicæ* differt forma teleutosporarum magis condensata et absentia apiculi.

69. **Puccinia Seymeriæ** Burrill Paras. Fungi of Illinois p. 188. — 2513

Hypophylla, etiam caulicola et calycicola; maculis determinatis, obscure coloratis; soris latiusculis, in orbes confertos subconfluentibus, sordide brunneis; teleutosporis ellipsoideis vel ovatis, leniter constrictis, apicibus obtuse rotundatis, episporio firmo instructis, 30-36 $\approx$ 15-21, levibus, brunneis; pedicello hyalino, lato, persistenti, teleutosporâ circiter duplo longiore.

Hab. in foliis, caulibus calycibusque *Seymeriæ* microphyllæ, Illinois in America boreali. — *P. Veronicæ* (Schum.) proxima.

70. **Puccinia Pentastemonum** Lév. in Ann. Scienc. nat. 1846, p. 271. 2514

— Soris hypophyllis, gregariis vel confluentibus, fuscis, epidermide cinctis, rotundatis, dense congestis expansisque, pulverulentis; teleutosporis ovatis, vix constrictis, levibus, subopacis, pedicello longissimo, tenui, hyalino suffultis.

Hab. in foliis *Pentastemonis*, in horto botanico parisiensi Galliæ. — «An a *Puccinia Pentastemonis* Peck distincta?».

71. **Puccinia Pentastemonis** Peck in Bull. Torr. Bot. Club Vol. XII, 2515

n. 4, p. 35. — Maculis nullis; soris amphigenis, inæqualibus, prominulis, nigris; teleutosporis ellipticis vel oblongo-ellipticis, 30-50 $\approx$ 20-28; pedicello hyalino, vulgo teleutosporâ longiori.

Hab. in foliis vivis *Pentastemonis* linarioidis, Arizona in America boreali (Jones). — «An huc *Æcidium Pentastemonis* Schwein.?».

72. **Puccinia Clintonii** Peck in 28 Rep. St. Mus. p. 61. — Maculis 2516

obliteratis; soris amphigenis, congestis vel sparsis; teleutosporis oblongis, 27-35 μ . longis, leniter medio constrictis.

Hab. in foliis *Pedicularis canadensis*, Goat Island Americæ borealis (CLINTON).

73. **Puccinia Pedicularis** Thüm. in Bull. Soc. Nat. Mosc. p. 216, 2517

n. 170. — Soris epiphyllis, maximis, gregariis, liberis, disciformibus, inquinantibus, epidermide expallescendo cinctis, castaneo-fuscis, sine macula; teleutosporis plus minusve clavatis, vertice subobtusatis, basi angustatis, medio constrictis, homogeneis, pallide fuscis, episporio tenui, æquali, subundulato, pedicellis brevibus, conicis, sursum sensim acutatis, hyalinis, 30-33 $\approx$ 14-16, paraphysibus nullis.

Hab. ad folia viva *Pedicularis* speciei indeterminatæ, in alpinis montis «Borus».

374. **Puccinia Thwaitesii** Berk. Fungi of Ceylon n. 818. — Maculis flavis, hypophyllis; soris innumeris, minutissimis, brunneis, secus plagas orbiculares dispositis; teleutosporis 36-38 μ . longis, constrictis, pedicello elongato, 15 μ . longo suffultis.

Hab. in foliis *Justiciæ Gendarussæ*, pr. Peradenyia Ceylon.

375. **Puccinia bonariensis** Speg. Fungi Argentini I, n. 33. — Hypophylla, macula in epiphylllo parvula, flavescens; soris secus orbem circa unum centralem majorem dispositis, 1-2 mm. diam., pallide rubiginosis, subinde pruinulosis, compactis; teleutosporis elliptico-ovatis, ad septum plus minus constrictis, episporio tenui, vix apice incrassato, quandoque vertice appendiculum subglobosum vel elongatum, 10-12 μ . longum gerentibus, loculis subæqualibus granuloso-farctis, pallidissime chlorino-rubiginosis, 45-50 $\approx$ 20-25, pedicello 15-25 $\approx$ 5-8, hyalino fultis.

Hab. ad folia viva *Labiatae* ejusdam, prope la Boca del Riachuelo in Republica Argentina Amer. australis.

376. **Puccinia nigrescens** Peck in Botan. Gazette 1878, pag. 35 nec Kirchn. — Maculis nullis; soris subprominentibus, cauliculis, oblongis, atro-brunneis aut atris; teleutosporis ellipticis vel oblongis, obtuse acutiusculis, leniter medio constrictis, 38-45 $\approx$ 20-25, levibus; pedicello teleutosporâ 2-4-plo longiore, hyalino.

Hab. in caulibus ramisque *Salviæ lanceolatae*, in America boreali. — Adest quoque species homonyma ex Bohemia h. e. *Puccinia nigrescens* Kirchn. in Lotos 1856, pag. 181, cujus diagnosi brevis et imperfecta est.

377. **Puccinia Phlomidis** Thüm. in Bull. Soc. Nat. Mosc. 1878, p. 216. — Soris epiphyllis, dense gregariis, parvulis, primum epidermide tectis, dein liberis, cuticula disrupta cinctis, fuscis, sine macula; teleutosporis plus minusve ellipsoideis vel late ovatis, utrinque rotundatis, loculis sæpe nucleatis, fusciculis, medio vix constrictis, subsessilibus vel cum pedicello brevissimo, hyalino, episporio tenui levi, æquali, 30-35 $\approx$ 20-22, paraphysibus nullis.

Hab. ad folia viva *Phlomidis tuberosæ*, pr. Minussinsk Sibiriae asiaticæ.

378. **Puccinia pallidissima** Speg. Fungi Argentini Pug. IV, n. 65. — Maculis nullis v. pallescentibus, indeterminatis, amphigenis; soris hypophyllis, minutis, circa centralem majorem circinatis dispositis, 2-7 mm. latis, compactis, pallide fulvo-fuscis; teleutosporis elongato-clavulatis v. obovato-clavatis, 35-45 $\approx$ 10-12, sursum obtuse rotundatis v. late subtruncatis medio leniter constricto-uniseptatis,

pallidissime fulvo-hyalino episporio tenui-membranaceo, levissimo, pedicello gracili, hyalino, $49 \approx 4-5$ donatis.

Hab. ad folia viva *Stachydis arvensis*, in montuosis Sierra Chica prope S. José, Córdoba in Rep. Argentina (Dr. Hieronymus.) — Species a *P. Stachydis* DC. nonnihil recedens sed species *Pucciniarum* in *Labiatis* vigentes fere omnes valde affines.

379. **Puccinia Physostegiae** P. et C. in 29 Rep. St. Mus. p. 50. — 2523

Maculis nullis; soris sparsis, epiphyllis, parvis, rotundatis, epidermide lacerata cinctis, atro-brunneis; teleutosporis ellipticis, vix constrictis, $35-40 \approx 20-25$, pedicello brevi, gracili suffultis.

Hab. in foliis *Physostegiae virginianæ*, ad Strawberry Island (CLINTON).

380. **Puccinia Teucrii** Biv. Bernh. Stirp. Sicul. (1815) cum icone nec 2524

Fuck. *Puccinia Beltriana* Thüm. in Myc. univ. n. 734. — Soris hypophyllis, plus minusve orbiculatis, convexis, granulosis, induratis, semper tectis, sine macula, fuscis, in pagina superiore maculam concavam, orbiculatam, magnam, pallide fuscam formantibus; teleutosporis longe clavatis medio paullum constrictis, epidermide subtenui levi, vertice non vel vix incrassato, pedicellatis, dilute ochraceo-fuscis, lumine vix obscuriore, $36-44 \approx 16-18$; pedicellis longis, tenuibus, flexuosis, hyalinis, $60-80 \approx 4$, paraphysibus nullis.

Hab. in foliis vivis *Teucrii fruticantis*, Licata in ins. Sicilia (V. BELTRANI). — Differt a *P. annulari* Wint., sporis brevioribus obscurioribus, minus constrictis, vertice vix incrassatis, pedicellis brevioribus et soris minoribus.

381. **Puccinia Lantanæ** Farlow Not. p. 83, Ellis North Amer. Fungi 2525

n. 1052. — Soris rotundis, nudis, mox pulvinatis, in greges irregulares congestis; teleutosporis in soro germinantibus, ovatis, obtusis, leniter ad septum constrictis, apice acutiusculo vel submucronulato, $26-38 \approx 19-26$, purpureo-brunneo, episporio tenui, levi, pedicello gracili fultis.

Hab. in foliis *Lantanæ odoratæ*, in ins. Bermuda (FARLOW). — Teleutosporis immixtæ sunt sporæ continuæ, pedicellatæ, obovatæ vel irregulariter ellipticæ, $23-27 \approx 15,5-20$; sori a *Tuberculina persicina* (Ditm.) Sacc. infecti sunt, quæ colorem purpurascentem præbet.

382. **Puccinia elongata** Speg. Fungi Argentini I, n. 31. — Soris elon- 2526

gatis, 2-3 mm. longis, $500-800 \mu$. latis, erumpentibus, epidermide fissa cinctis, atro-cinnamomeis, compactiusculis; teleutosporis apographysatis, elongatis, cylindraceo-clavatis, episporio crasso, præ-

cipue apicem versus ubi sæpius in cornum producto, 1-septato-constrictis, loculis granuloso-fartis, 1-guttulatis, superiori minore, 60-65 $\approx$ 12, pedicello 60-70 $\approx$ 3-5, hyalino fultis.

Hab. ad caules *Verbenæ litoralis*, prope la Boca del Riachuelo in Republica Argentina Americæ australis.

383. **Puccinia Dayi** Clinton in Peck 28 Rep. St. Mus. p. 60. — Maculis suborbicularibus, brunneis; soris prominentibus, sparsis vel confluentibus, brunneis; teleutosporis oblongo-clavatis, leniter ad septum constrictis, 36-58 μ . longis, pedicello leniter colorato, teleutosporam dimidiam æquante fultis.

Hab. in foliis *Lysimachiae ciliatæ*, Buffalo in Amer. bor. — *P. Gerardii* Peck similis, a qua colore obscuriori maculæ et sori distinguitur. — «An huc pertinet *Æcidium Lysimachiae*?»

384. **Puccinia? Dubyi** Müll. in Huet de Pavillon Descript. plant. mouv. des Pyrénées in Ann. Scienc. Nat. 1853, pag. 256. — Amphigena vel raro epiphylla, maculis nullis; soris rufo-fuscis, minutis, solitariis seu seriatim confluentibus, orbiculatis vel ovatis, planiusculis vel convexusculis, epidermide bullata, mox rupta cinctis; pedicello subnullo vel brevissimo; teleutosporis ellipticis vel ovoides, minutissimis, medio leviter constrictis, loculo superiore globoso interdum depresso, inferiore globoso obtuso vel in pedicellum circiter octuplo eo breviorum attenuato.

Hab. in foliis *Androsaces Laggeri*, in M. Oo Pyrenæorum. (Huet de Pavillon).

385. **Puccinia sclerotioidea** Cooke in Grevillea VIII, p. 34 nec *Puccinia sclerotioidea* Mont. — Amphigena; soris atro-purpureis, epidermide cinctis, compactis, durissimis; teleutosporis clavatis, constrictis, læte brunneis, episporio supra incrassato, 45 $\approx$ 15, pedicello persistenti, hyalino instructis.

Hab. in foliis forte *Statice*, in Columbia britannica (Dr. Lyell).

386. **Puccinia Montagnei** De-Toni, *Puccinia Herniarie* Mont. in Ann. Scienc. Nat. 1856, p. 347 non Unger vix Kirchn. — Hypophylla; soris raris, rotundatis, depressis, fuscis, epidermide lacerata cinctis; teleutosporis oblongis, medio constricto-bilocularibus, brunneis, loculis subæqualibus, crasse limbatis, sursum apiculo hyalino auctis, 50 $\approx$ 15, pedicello 90-100 μ . longo fultis.

Hab. in foliis *Herniarie latifoliæ*, ad pagum Lanne in Montibus Pyrenæis (Castagne). — Pustulæ 1 mm. circ. diam., convexæ, rarissimæ subtus vix extantes.

37. *Puccinia dissiliens* Cooke in Grevillea III, p. 75. — Hypophyl- 2531
la, sparsa; soris discoideis, convexis, compactis, sordide brunneis;
teleutosporis e loculis 2 subconicis facile secedentibus inferiorique
pedicello persistente fulto constitutis, ad septum constrictis, brun-
neis, pedicello longo, hyalino fultis.

Hab. in foliis Rumicis, Himalaya Asiæ.

38. *Puccinia ornata* Arth. et Holway in Rep. Bot. Work in Min- 2532
nesota for 1886, Bull. III, p. 30. — Soris hypophyllis, papillifor-
mibus, prominulis, in macula læte rufo-purpurea, 5-10 mm. diam.
circinatum dispositis vel sæpius gregem verruciformem in ejus cen-
tro efficientibus, brunneis; teleutosporis elongato-ovatis vel oblon-
gis, 33-50 $\approx$ 15-22, levibus, brunneis, subinde medio constrictis,
episporio tenuiusculo donatis, vertice obtusis vel rotundatis, basi
rotundatis vel subinde attenuatis; pedicello crasso, leniter colo-
rato, teleutospora usque ad duplo longiore.

Hab. in foliis Rumicis britannici (R. orbiculati), pr.
lacum Vermilion Amer. bor.

39. *Puccinia Buchanani* De-Toni, *Puccinia Oxyriæ* Buch. White 2533
in Grevillea XI, p. 15, non Fuckel. — Teleutosporis pedicello bre-
vi, hyalino incluso 60 μ . longis, loculis subglobosis, levibus.

Hab. in foliis Oxyriæ reniformis, prope Skye Britannia.

40. *Puccinia sepulta* B. et C. North Pacif. Exped. n. 132. — Ma- 2534
culis orbicularibus, supra bullatis, brunneis, subtus concavis; soris
congestis in massam uniformem, partim e pilis matricis celatis;
teleutosporis obtusis, pedicellatis.

Hab. in foliis Fici?, Nicaragua Americæ centralis.

** Teleutosporæ episporio verrucoso vel ruguloso donatæ.

41. *Puccinia Ranunculi* Seymour in Burrill Paras. Fungi of Illinois 2535
p. 172. — Amphigena at plerumque epiphylla; soris irregulariter
consociatis, sæpe confertis at parum confluentibus, areas latas oc-
cupantibus, subelevatis, circularibus, pulverulentis, fragmentis epi-
dermidis laceratæ tectis, æcidiiformibus, cinnamomeo-brunneis; te-
leutosporis late ellipticis, vix vel non constrictis, apicibus ro-
tundatis, raro apiculatis, 22-39 $\approx$ 18-24, subtiliter crassiusculeque
tuberculatis, pedicello hyalino, brevi, fragili, subinde plus minus
lateraliter suffultis.

Hab. in foliis Ranunculi repentis, prope Chicago Illinois
Amer. bor. (J. C. ARTHUR).

42. *Puccinia gibberulosa* Schroet. Entwick. einger Rostp. p. 62. — 2536

Soris teleutosporiferis obscure castaneo-brunneis, 1-2 mm. latis explanatis, pulverulentis, confluentibus; teleutosporis 35-45 $\approx$ 19-22 medio subconstrictis, vertice rotundatis v. subexplanatis, raro apiculo brunneo, minuto auctis, episporio subundulato, æqualiter palideque castaneo-brunneo, subtiliter foveolato præditis, pedicello brevi, hyalino, mox deciduo fultis.

Hab. in foliis *Ranunculi* cujusdam alpini, in Montibus Pyrenæis Galliæ.

394. **Puccinia Cruciferarum** Rad. in Linnæa IV, p. 391 non Cooke Winter Die Pilze p. 177, *Puccinia Cardamines* Niessl Beitr. p. 9 — Soris majusculis, rotundato-pulvinatis, mox denudatis, sparsis vel aggregatis, 1-8 mm. latis, longissime sæpe confluentibus; teleutosporis oblongis, apice incrassatis vel plerumque papilla lata hyalina instructis, medio constrictis, 24-35 $\approx$ 10-17, verrucosis, dilute brunneis, pedicello longiusculo, hyalino, deciduo fultis.

Hab. in foliis *Cardamines resedifoliæ* et *alpinæ* nec non *Hutchinsii* brevicaulis et *alpinæ*, in Alpibus Tyrolensibus et Salisburgensibus nec non in Transylvania.

395. **Puccinia hysteriiformis** Peck in Botan. Gazette 1881, p. 276. — Maculis obsoletis; soris sparsis, latiusculis, oblongis, primo tectis, epidermide longitudinaliter rupta subdenudatis, atris; teleutosporis oblongis v. oblongo-clavatis, maculatis vel punctulatis, ad septum constrictis, 40-46 $\approx$ 20; pedicello plerumque teleutospora longiore.

Hab. in foliis *Arenariæ vernæ*, Utah Amer. bor. (JONES).

396. **Puccinia fragilis** Tracy et Gall. in Journ. of Mycology 1888, p. 20. — Amphigena; soris sparsis, diu epidermide demum irregulariter rupta tectis; teleutosporis late ovoideis, 30-34 $\approx$ 21-33, obscure brunneis, rugulosis, vertice rotundatis, obtusis, haud incrassatis, medio leniter constrictis, pedicello teleutospora dimidio brevior, hyalino, deciduo fultis.

Hab. in foliis *Arenariæ pungentis*, Reno, Nevada Americæ borealis (TRACY et EVANS).

397. **Puccinia Heteropteridis** Thüm. in Myc. Univ. n. 839, Spegazz. F. Arg. II, p. 12. — Macula nulla; soris epiphyllis, rarius amphigenis, sparsis vel gregariis et confluentibus, 1,5-2 mm. latis, primo tectis, dein epidermide disrumpenti cinctis, elevatis, orbiculatis, subhemisphaericis vel tuberculiformibus, primo luteo-fuscis, dein spadiceis demumque atris; teleutosporis ellipsoideis, vertice interdum subobtusato-acute, minime incrassato, medio septatis, sub-

pellucidis, episporio ubique minute tuberculato, tenui, pulchre spadiceis, 50-53 $\approx$ 25-28 pedicello longo, tenuissimo, flexuoso, sursum subdilatato, hyalinis v. apice sensim dilute fuligineis, 70-110 $\approx$ 4-10, basi incrassata atque mucō concolore vestita; paraphysibus nullis.

Hab. ad folia viva *Heteropteridis angustifoliæ* et glabræ, in Uruguay et Rep. Argentina Amer. austr.

98. **Puccinia Glycyrrhizæ** Rabenh. in Klotzsch Herb. myc. n. 1396. 2541
Bot. Zeit. 1850, pag. 438. — A *P. Leguminosarum* differt teleutosporis majoribus, verrucosis, subumbonatis.

Hab. in foliis *Glycyrrhizæ*, in Italia.

99. **Puccinia apophysata** Rabenh. in Flora 1850, p. 629. — Soris 2542
atro-brunneis, congestis; teleutosporis oblongis, utrinque rotundatis, medio constrictulis, verrucosis, brunneis; pedicello hyalino, apophysi crassiuscula, hyalina aucto.

Hab. in foliis *Ammi majoris* et *Smyrni*, prope Ancona, Chieti et Bitonto Italiæ. — « Cum *Puccinia Smyrni* Biv. Bernh. comparanda ».

100. **Puccinia Opoponacis** Ces. in Bull. Club Alp. ital. 1873, p. 150. — 2543
Soris spadiceis, difformibus, applanatis; teleutosporis cinnamomeis, brevissime pedicellatis, curtis, utrinque rotundatis, sæpius irregularibus, obiter constrictis, episporio scabriusculo, 40 $\approx$ 24.

Hab. in foliis *Opoponacis* in Italia.

101. **Puccinia Pringlei** Peck in Botanical Gazette 1881, p. 275. — 2544
Maculis parvis, suborbicularibus, purpurascentibus, hypophyllis; soris epiphyllis, raro hypophyllis, majusculis, compactiusculis, totam maculam occupantibus, atro-brunneis; teleutosporis oblongis vel subellipticis, leniter ad septum constrictis, obtusis vel subacutis, apice pallidioribus, 49-50 $\approx$ 20-24, verruculosis; pedicello hyalino, teleutosporâ dimidio brevior.

Hab. in foliis vivis *Viburni pauciflori*, Canada Amer. bor. (PRINGLE). — Maculæ 1-2 mm. latæ, sori plerumque singuli in quaque macula.

102. **Puccinia Linkii** Klotzsch in Linnæa 1833, pag. 490, t. XII. — 2545
Maculis orbicularibus, fusco-purpureis, subtus pallide purpureis; soris magnis, pulvinatis, rotundis, epidermide tectis; teleutosporis fuscescentibus, aculeatis, granuloso-farctis.

Hab. in foliis petiolisque *Viburni* in America boreali.

103. **Puccinia Achilleæ** Cooke in Grevillea IX, p. 13. — Epiphylla; 2546
soris discoideis, erumpentibus, purpureo-brunneis; teleutosporis

elongato-ellipticis, brunneis, constrictis, $50 \approx 25$, episporio leniter granulato; pedicellis hyalinis, elongatis, robustis.

Hab. in foliis *Achilleæ albicaulis*, Kurdistan. — *Uredo*-*sporæ* nondum visæ.

404. **Puccinia rugosa** Speg. Fungi Guaranitici I, n. 118. — Maculis nullis vel vix manifestis, amphigenis, indeterminatis, pallidiusculis; soris epiphyllis, sparsis vel hinc inde 2-3 aggregatis, 0,5-1,5 mm. diam., primo tectis, dein erumpenti-nudis, pulverulentis, compactiusculis, sordide cinnamomeis; teleutosporis ellipticis vel obovatis, $26-42 \approx 16-20$, apice sæpius late rotundatis, episporio ubique æqualiter crassiusculo, dense minuteque ruguloso, protoplasmate nubiloso-granuloso, vivide fulvo-cinnamomeis; pedicellis hyalino, vix evoluto, $5 \approx 5$ vel fragilissimo ac mox evanido.

Hab. ad folia viva *Compositæ* (*Verbesinæ*?) cujusdam, in silvis pr. Paraguari Americæ australis.

405. **Puccinia Hydrophylli** Peck et C. in 30 Rep. St. Mus. p. 54. — Maculis flavis vel virescenti-flavis; soris parvis, congestis, subinde confluentibus, atro-brunneis; teleutosporis ellipticis, rugosis, leniter constrictis, $25 \approx 17-20$, pedicello brevissimo, hyalino suffultis.

Hab. in pagina superiori foliorum vivorum *Hydrophylli virginiani*, Buffalo Amer. bor. (CLINTON). — *Puccinix Menthe* proxima.

406. **Puccinia paradoxopoda** Speg. Fungi Argentini Pug. IX, n. 66. — Soris maximis, ramulos foliaque fere tota ambientibus, erumpenti-superficialibus, crasse pulvinatis, compactis sed teneris, atro-cinnamomeis; teleutosporis ellipticis v. obovatis, sursum plus minusve rotundatis, medio 1-septato-constrictulis, intense cinnamomeis, episporio ubique fere subæquali, longitudinaliter ruguloso-striato, $65-70 \approx 35$, pedicello maximo, inflato, hyalino, utrinque abrupte attenuato, inferne sæpe incurvo v. gyroso-contorto, $100-120 \approx 30$ suffultis.

Hab. in foliis ramulisque junioribus *Grabowskiæ obtusæ*, in montuosis provinciæ la Rioja in Rep. Argentina (Dr. Hieronymus).

— Species pulcherrima inter omnes adhuc cognitatas distinctissima.

407. **Puccinia globosipes** Peck in Bull. Torr. Bot. Club vol. XII n. 4, p. 34, t. XLIX, f. 9-10. — Maculis nullis; soris minutis, rotundatis, prominulis, nigris; teleutosporis late ellipticis, rugulosis non constrictis, opacis, $50-67 \approx 40-50$, pedicello subgloboso, inflato hyalino, teleutosporæ longitudinem subæquante fultis.

Hab. in foliis vivis *Lycii californici*, California (M. E.

JONES). — « Cum *Puccinia Lycii* Kalchbr. et *P. afra* Wint. comparanda ».

408. *Puccinia acrophila* Peck in Botanical Gazette 1881, pag. 227. 2551
— Maculis brunneis, subinde purpureo-tinctis; soris sparsis aut confertis, rufo-brunneis; teleutosporis obovatis vel ellipsoideis, medio constrictis, $26-32 \approx 20$, rugulosis aut verruculosi, pedicello brevi, hyalino instructis.

Hab. in foliis caulibusque *Synthyris pinnatifidæ*, Utah in Amer. bor. (JONES). — Sori plerumque apices segmentorum folii incolunt, unde nomen hujus speciei.

409. *Puccinia appendiculata* Wint. in Flora 1884, n. 14. — Soris hy- 2552
pophyllis, minutis at plerumque dense stipatis confluentibusque, laxis pulverulentis, atro-fuscis, macula nulla; teleutosporis ellipticis v. elliptico-oblongis, medio haud vel vix constrictis, amœne spadiceis, $44-52 \approx 26-32$, apice incrassatis, rotundatis, pallidioribus, episporio crasso verrucis majusculis, sparsis obsito, pedicello $60-70 \approx 7-9$, hyalino, appendiculis brevibus, apice lobatis incisisque obsito suffultis.

Hab. in foliis vivis Bignoniaceæ cujusdam, Mexico (E. KERBER).

410. *Puccinia Mertensiae* Peck in Botanical Gazette 1881, p. 227. 2553
— Maculis nullis; soris amphigenis, rufescenti-brunneis, sparsis vel confertis; teleutosporis ellipticis, obtusis, leniter ad septum constrictis, $26-35 \approx 20-23$, rugosis vel verruculosi, pedicello brevi, hyalino suffultis.

Hab. in foliis vivis *Mertensiae sibiricæ*, Colorado et Utah in America boreali.

B. In Monocotyledoneis vigentes.

* Teleutosporæ episporio levi donatæ vel quoad episporium dubiæ.

411. *Puccinia Sagittariæ* Rabenh. Krypt. Fl. I, pag. 23, Winter Die 2554
Pilze p. 225. — Teleutosporis subclavatis, 2-3-locularibus, intense brunneis, glomerulos irregulares, rotundatos v. elongatos, subconvexos efficientibus; pedicello flavescenti-hyalino.

Hab. in foliis *Sagittariæ sagittifoliæ*, in Germania.

412. *Puccinia Sisyrinchii* Mont Syll. Crypt. n. 1157. — Amphigena; 2555
soris minutis, rotundis, convexis, sparsis aut gregariis spadiceis, epidermide breviter cinctis; teleutosporis polymorphis, episporio stratoso crasso, pedicello hyalino, mediocri.

Hab. in foliis *Sisyrinchii* cujusdam, in Chile (BERTERO).

413. **Puccinia Gladioli** Cast. Obs. II, p. 17, Cat. pl. Mars. pag. 199.

— Hypophylla; maculis distinctis, fuscis, late effusis, oblongis, nervis foliorum sæpe limitantibus; soris confluentibus, totam maculam obtegentibus, epidermide evanescente; teleutosporis ovato-oblongis, $38 \approx 20$, episporio apice obtusiusculo incrassato, non constrictis, cinnamomeis levibus longiusculo, hyalino pedicellatis.

Hab. in foliis *Gladioli* segetum, *Ecklonii* et communis, in Gallia, Algeria et Caffraria.

414. **Puccinia splendens** Vize in *Grevillea* 1878, p. 11. — Amphigena; soris magnis densas maculas fibra cinctas formantibus; teleutosporis brunneis, medio vix constrictis, obtusis, $50 \approx 35$.

Hab. in foliis *Allii*, in California Americæ borealis.

415. **Puccinia Hemerocallidis** Thüm. Pilzfl. Sibir. n. 512. — Soris amphigenis, parvulis, gregariis, epidermide primo longe diu tectis, postremo erumpentibus liberisve et cuticula arida basi cinctis, spadiceis; teleutosporis longe clavatis, medio constrictis, vertice late obtusatis incrassatisve et modo raro elongato-obtusiusculis, loculo inferiori in pedicellum angustato, dilute fuscidulo, loculo superiori fusco episporio tenui, levi, $60-64 \approx 20-15$; pedicello hyalino, interdum subarcuato, $20-26 \approx 6$.

Hab. in foliis vivis *Hemerocallidis* flavæ, in pratis pr. Minussinsk Sibiriae asiaticæ.

416. **Puccinia perforans** Mont. Syll. Crypt. n. 1156. — Hypophylla, sparsa; soris erumpentibus, sparsis, planiusculis, ambitu epidermide velatis, quasi seriatis, subtus circumscissis tandemque deciduis, folium perforatum relinquentibus; teleutosporis erectis, oblongo-obovatis, truncatis, breviter pedicellatis.

Hab. in foliis *Luzuriagæ* radicans in Chili (GAY).

417. **Puccinia nodosa** Ell. et Harkn. New Calif. Fungi p. 7. — Soris linearibus, 1-3 mm. longis, solitariis vel gregariis; teleutosporis late oblongis vel suborbicularibus, constrictis, septo vix distincto, $36-42 \approx 22-28$; pedicello valido, teleutosporam æquante, hyalino, deciduo.

Hab. in foliis vivis *Brodiaëæ capitataë*, pr. Antioch in California Americæ borealis.

418. **Puccinia pachyderma** Wettst. in *Hedwigia* 1887, p. 115. — Soris oblongis, convexis, fuscis, epidermidem rumpentibus, pulverulentis; teleutosporis obovatis vel ellipticis, $37-47 \approx 27-30$, medio haud constrictis, pallide fuscis, episporio valde incrassato, ubique æqui-

crasso, 5-6 μ . cr., ambitu leviter undulato donatis, pedicello hyalino, tenui fultis,

Hab. in foliis vivis *Gageæ caucasicæ* et *pusillæ*, in Persia.

419. **Puccinia Metanarthecii** Pat. in Revue mycol. 1886, p. 80. — 2562

Soris numerosis, hypophyllis, sparsis, rotundatis vel linearibus, atris v. brunneolis, epidermide tectis eaque disrupta cupulatum cinctis; teleutosporis 45-60 $\approx$ 16-18, rufescentibus, loculis cuneiformibus, ad septum plus minus constrictis, inferiori episporio tenui, superiori truncato vel apice rotundato, episporio vertice valde incrassato, pedicello usque ad 30 μ . longo, subhyalino fultis.

Hab. in foliis *Metanarthecii* luteo-viridis, pr. Niigata in Japonia orientali (FAURE).

420. **Puccinia Zygaeni** Trel. in Journal of Mycology I, p. 15. — Soris 2563

parvis, rotundatis, amphigenis; teleutosporis succineo-brunneis, apice saturatioribus, oblongis vel subinde clavatis, vertice incrassatis, rotundatis vel truncatis, raro acutis, 33-56 $\approx$ 16-20, plerumque 43 $\approx$ 17, pedicello hyalino, tenui suffultis.

Hab. in foliis *Zygaeni* glauci, in America boreali.

421. **Puccinia atro-puncta** Peck et C. in Botan. Gazette 1879, p. 171. 2564

— Maculis minutissimis, flavescentibus, medio plerumque brunneis; soris numerosis, parvis, leniter prominulis, atris; teleutosporis oblongo-clavatis, obtusis, medio constrictis, 40-50 $\approx$ 20-23, pedicello plerumque teleutospora breviori instructis.

Hab. in foliis vivis *Veratri Woodii*, Allenton et Jefferson C. Missouri in America boreali. — A *Puccinia Veratri* colore sororum et forma teleutosporarum distincta.

422. **Puccinia Rostkowiæ** Speg. Fungi Fuegiani p. 49, n. 135. — So- 2565

ris in macula fuscescente ac pallescenti-areolata insidentibus, culmos sæpe totos ambientibus, longitudinalibus vel transversis sæpeque confluentibus, dein epidermide coriacea atque crassiuscula hinc inde frustulatim eroso-evanescente tectis, vix prominulis, pallidissime fuscescentibus, magnitudinem ludentibus; teleutosporis ellipticis vel ovato-subclavulatis, 30-35 $\approx$ 16-20, antice rotundatis v. obtuse acutatis, modice tunicatis, medio parce constrictis, inferne subcoarctato-truncatis abrupteque in pedicellum hyalinum, 40 $\approx$ 5 productis, levissimis, pallide fulvescentibus, paraphysibus filiformibus, æquilongis, hyalinis, septatis parce obvallatis.

Hab. ad culmos vivos *Rostkowiæ grandifloræ*, in pratis uliginosis Staten Island Patagoniæ. — Species pulchella distinctissima sed difficillime conspicienda vel rarissima.

423. **Puccinia Eriophori** Thüm. Pilzfl. Sibir. n. 695. — Soris epiphyllis, gregariis, submagnis, planis, longitudinaliter dispositis, subpulveraceis, primo tectis sed demum liberis, saturate brunneis; teleutosporis longe clavatis, vertice basique angustatis, medio constrictis, episporio levi, subcrasso, vertice eximie crassissimo, loculis duobus sæpe cum nucleis magnis, 50-55 $\approx$ 22-24, fuscis; pedicello æquilongo, subrecto vel arcuatulo, sursum sensim dilatato, 50-60 $\approx$ 10, dilute fuscidulo; paraphysibus nullis.

Hab. ad folia emortua Eriophori latifolii, in humidis pr. Ssamodourowka Sibiriae asiaticæ.

424. **Puccinia Fuirenæ** Cooke in Grevillea VI, pag. 137, Rav. Fung. Amer. N. 54. — Soris ellipticis, atro-brunneis, compactis; teleutosporis lanceolatis ad 15 μ . latis, obtusis, rubro-brunneis; pedicellis incrassatis, hyaliinis.

Hab. in culmis Fuirenæ squamosæ, pr. Aiken in Carolina inf. Americæ borealis.

425. **Puccinia conclusa** Thüm. Contr. Flor. Lusit. p. 10, n. 51. — Soris amphigenis, gregariis, maximis, semper epidermide tectis, subpunctato-elevatis, ellipticis vel sæpe confluentibus, nitide fusco-plumbeis, fusco subcinctis; teleutosporis clavatis, medio incrassatis, sessilibus, vertice rotundatis, basi angustatis vel in pedicellum acutatis, episporio levi, tenui, intus homogeneis, 60 $\approx$ 20, dilute fuscidulis; paraphysibus nullis.

Hab. ad folia caulesque viva aridave Cyperi longi, pr. Coimbra Lusitaniæ (MESNIER).

426. **Puccinia Punctum** Link in Corda Icones I, p. 6, t. II, f. 97. — Soris oblongis, punctiformibus, minutis, confertis, amphigenis, rufo-fuscis, dein nigricantibus, epidermide cinctis; teleutosporis claviformibus, valde constrictis, loculo superiori minori, aureo, inferiori obovato-attenuato, luteo, pedicello plus minus evoluto, hyalino, continuo fultis.

Hab. in foliis Caricis et Cyperi, in Germania. — «Forte ad *P. Caricis* referenda. Sec. Lambotte viget etiam in foliis caulibusque Liliacearum et Iridearum in Belgio «An?»».

427. **Puccinia Campulosæ** Thüm. in B. Torrey B. Cl. 1878. — Soris amphigenis, oblongis, liberis, pulvinatis, aterrimis; teleutosporis ovatis, utrinque obtuso-rotundatis, medio vix vel non constrictis, longe pedicellatis, fuscis, 36-40 μ . longo; paraphysibus solitariis, hyalinis, teleutosporam fere æquantibus.

Hab. in foliis vivis Campulosæ monostachyæ, (Ctenii

americani) in America septentr., sine loco (Dr. C. Кеек). — A *P. graminis* Pers. toto cœlo diversa.

428. **Puccinia deformata** B. et C. Fungi of Ceylon n. 596. — Soris 2571
gregariis, demum confluentibus; teleutosporis ellipticis oblongisque,
obtusis, quandoque subapiculatis, e pedicello longo, laterali, obliquo
oriundis.

Hab. in *Olyra latifolia*, in insula Ceylon.

429. **Puccinia corticioides** B. et Br. Fungi of Challenger Exped. 2572
p. 52, n. 269. — Soris confluentibus, armeniicis; teleutosporis 20-
25 μ . longis, primo globosis, dein pellucidis, subellipticis, centro
demum contractis; pedicello 18-20 μ . longo.

Hab. in culmis Graminaceæ cujusdam, forte *Arundina-*
riæ, Kobê, Nippon. — Demum crustas flavescenti-armoniicas ef-
format, quæ formam *Corticii* exhibent.

430. **Puccinia Ellisiana** Thüm. in Bull. New-York Torrey Botan. 2573
Club. VI, p. 215. — Soris hypophyllis, gregariis, plus minusve
lineariformibus, seriatis, elevatis, atro-fuscis, liberis; teleutospo-
ris ellipsoideis v. subclavato-ellipticis, septatis, medio vix constri-
ctis, vertice rotundatis, incrassatis, apice rotundatis, a pedicello
separatis, episporio dissepimentoque crasso, obscuriore, 30-40 $\approx$
18-23 fuscis; pedicello subrecto, æquali, 18-22 μ . longo, pallidis-
sime fusco; paraphysibus nullis.

Hab. in foliis aridis *Andropogonis virginiani* Newfield,
N. J. Americæ borealis. — An, suadente cl. Farlow, a *Puccinia*
Andropogonis Schwein. distincta?

431. **Puccinia paliformis** Fuck. Symb. myc. p. 59, Winter Die Pilze 2574
p. 224. — Soris minutis, sparsis, orbicularibus, convexis, atro-fu-
scis; teleutosporis oblongis 23-52 $\approx$ 10-16, loculo superiori cum
appendiculo paliformi, obtuso acuminatove, magnitudine loculi ter-
minalis cum pedicello teleutosporam dimidiam æquanti, internodiis
constrictis, fuscis.

Hab. in foliis *Kœleriae cristatæ*, in Jura.

432. **Puccinia striatula** Peck in litt. *P. linearis* Peck in 25 Rep. 2575
New York State Museum p. 121, nec auctorum. — Amphigena;
soris angustissimis, profunde immersis, oblongis vel linearibus, pa-
rallelis, confertis, diu epidermide tectis, atris; teleutosporis oblon-
gis, leniter basim versus angustatis, non constrictis, obtusissimis
aut truncatis, 45 $\approx$ 60-15, pedicello brevissimo, colorato fultis.

Hab. in vaginis folisque vivis et emortuis *Calamagrosti-*
dis canadensis, Copake, New York et Watkins Amer. bor.

433. **Puccinia Zizaniæ** Schwein. Syn. Fung. Amer. bor. pag. 296, 257
n. 2915. — Emaculata, minuta, primum tecta, demum lineatim
prorumpens epidermide circa soros persistente; soris elongatis, ab-
breviatis, atris, luce obversis fuscescentibus; teleutosporis laxis,
breviter pedicellatis, minutissimis.

Hab. in foliis dejectis Zizaniæ, prope Philadelphia Americæ
borealis.

434. **Puccinia Trabutii** Roum. et Sacc. in Michelia II, p. 307 et in 257
Revue Mycologique 1880, p. 188. — Soris erumpentibus, compa-
ctis, 5-6 cm. longis, atro-cinnamomeis; teleutosporis oblongo-di-
dymis, utrinque rotundatis, 55-50 $\approx$ 25, vertice vix incrassatis, me-
dio modice constrictis, guttulatis, cinnamomeis; pedicello filiformi
prælongo, 110-120 $\approx$ 5, hyalino; uredosporis non visis.

Hab. in culmis Phragmitis giganteæ, prope nodos, in Al-
geria (TRABUT). — Toto habitu et loco a *Pucc. Phragmitis* et
Pucc. Magnusiana distinguenda.

435. **Puccinia triarticulata** Berk. et Curt. North Pacif. Exped. n. 130. 257
— Soris oblongis, epidermide rimosa arcte inclusis; teleutosporis
elongatis, triarticulatis, breviter pedicellatis.

Hab. in foliis Elymi mollis, in fretu Behring Amer. bor.

** Teleutosporæ episporio verrucoso v. reticulato donatæ.

436. **Puccinia Schroeteri** Passer. in N. Giorn. botan. ital. VII, p. 255, 257
Winter Die Pilze p. 172. — Soris macula fusco-violacea cinctis,
magnis, oblongis, solitariis v. pauci approximatis, epidermide tectis
v. cinctis; teleutosporis subellipticis, ex aureo castaneo-fuscis, 38-60
 $\approx$ 24-27, obscure reticulatis, utrinque rotundatis vel basi interdum
attenuatis, ad septum non vel vix constrictis, pedicello brevissimo,
crasso, hyalino, deciduo suffultis.

Hab. in foliis Narcissi poetici et speciei cujusdam indeter-
minatæ pr. Firenze Italiæ et in Germania.

437. **Puccinia Prostii** Moug. in Duby Botan. Gall. II, p. 891, Erb. 2580
critt. ital. Ser. II, n. 196. — Maculis nullis; soris oblongis subcon-
vexis, fuscis, amphigenis, sparsis confertisque, epidermide tectis, de-
mum eâ rimose rupta obvelatis; teleutosporis ellipsoideis, 1-septatis,
vix constrictis, 60-66 $\approx$ 34-36, ubique longiuscule hyalino-aculeatis,
cinnamomeis, pedicello hyalino suffultis.

Hab. in foliis Tulipæ silvestris et Celsianæ in agro ve-
neto Italiæ (G. BIZZOZERO) et in Gallia (PROST).

438. **Puccinia Ornithogali** Hæzsl. Magyar. Krypt. Virany, 1878, p. 12. 2581

— Soris oblongis vel linearibus, diu epidermide tectis; teleutosporis elliptice utrinque rotundatis, brunneo-atris, loculis æqualibus subinde verrucosulis, 50 μ . longis, pedicello tenuissimo, cylindraceo, hyalino, vix 20 μ . longo fultis.

Hab. in Ornithogalo Borschiano, pr. Budapest Hungariæ.

439. **Puccinia Scillæ** Link Cent. Ung. Pilze V, n. 417. — Soris te- 2582
leutosporiferis amphigenis, densis vel plus minus sparsis, epidermide diu tectis, denique vertice foramine minuto vel rima hiacentibus; teleutosporis medio non vel vix constrictis, vertice rotundatis vel attenuatis, non incrassatis, papilla plerumque hyalina, minuta apice auctis, deorsum in pedicellum contractis, verrucosis, subfuscis, 38-58 $\approx$ 24-28, pedicello plerumque brevi, crasso hyalino fultis.

Hab. in foliis Scillæ bifoliæ, ad Magyar-Ovarinum Hungariæ.

440. **Puccinia anachoreta** Ell. et Harkn. New Calif. Fungi p. 14. — 2583
Soris solitariis, ellipticis, 1-2 mm. longis, in maculis irregularibus, pallidis insidentibus; teleutosporis breviter oblongis, constrictis, 28-42 $\approx$ 20-24, subtiliter papillatis; pedicello teleutosporam subæquante, hyalino, deciduo.

Hab. in foliis vivis Calochorti nudi in California Americæ borealis.

441. **Puccinia phyllocladia** Cooke in Grevillea X, p. 125. — Epiphylla 2584
et caulina; soris suborbicularibus, demum confluentibus, pulverulentis, maculam pallidam efficientibus; teleutosporis globosis, nec constrictis, 30 $\approx$ 28, castaneis, vix granulatis; pedicello elongato, hyalino, 60 μ . longo.

Hab. in caulibus foliisque Asparagi falcati, ad Inanda, Natal in Africa (Wood). — A *Puccinia Asparagi* omnino diversa.

442. **Puccinia vexans** Farlow Not. Ell. Am. Fungi n. 1051, p. 82, *Uromyces Brandegei* Peck in Bot. Gazette IV, p. 127. — Maculis nullis; soris sparsis, raro leniter confluentibus, prominentibus, orbicularibus, ellipticis aut oblongis atris; teleutosporis subglobosis v. lato ellipticis 30-38 $\approx$ 19-24, levibus vel superne rugulosis; pedicello hyalino, plerumque teleutosporam æquante aut eâ longiore. 2585

Hab. in foliis Boutelouæ curtipendulæ, Colorado Amer. borealis (BRANDEGEE). — Teleutosporæ (?) uniloculares obscure brunneæ, fere æquimagnæ, obovatæ, superne distincte papillatæ v. rugulosæ. «An huc *Uredo Boutelouæ* Arthur?».

443. **Puccinia sparsa** Cooke Handbook n. 1481. — Maculis obso- 2586

letis; soris amphigenis, paucis, sparsis, bullatis, diu epidermide tectis, inæqualibus, oblongis; teleutosporis ovatis, leniter constrictis, sordide brunneis, subtiliter tuberculatis, pedicello brevissimo, deciduo suffultis.

Hab. in foliis *Tragopogonis pratensis*, in Britannia. — *A Puccinia Tragopogonis* Corda Icon. distincta.

Species in matrice ignota indicatæ.

444. **Puccinia plagiopus** Mont. Cuba p. 294, t. 11, f. 1, Syll. crypt. 25
n. 1152. — Maculis nullis; soris hypophyllis, minutis, fuscis, ex ambitu soluto pili-squamiformi, in processus vero subulatos erecto-incurvos mutato exeuntibus; teleutosporis oblongis, æqualibus, medio subconstrictis tandem fuscis, episporio crasso verrucoso, pedicello hyalino, excentrico fultis.

Hab. in foliis coriaceis ignotis prope S. Marcos insulæ Cubæ (RAMON DE LA SAGRA).

445. **Puccinia striata** Cooke in Grevillea 1878, p. 3. — Epiphylla; 25
soris bullatis, pulverulentis, ovatis, purpureo-brunneis; teleutosporis biglobosis, constrictis, asperulis, verrucis in lineas parallelas dispositis, pedicello subobsoleto instructis.

Hab. in planta aquatica ignota in Africa (?).

446. **Puccinia suffulta** B. et C. North Amer. Fungi n. 556. — Ma- 25
culis pallidis, orbicularibus; soris minutis; teleutosporis loculo infero clavato et in pedicellum angustato supero, obovato subinde apice papillato, episporio 3 stratis constituto tectis.

Hab. in foliis plantæ indeterminatæ ad Cotoosa Springs, in Amer. boreali (RAVENEL).

447. **Puccinia congesta** B. et Br. Ceylon Fungi n. 815. — Maculis 25
flavis, effusis, hypophyllis, late confluentibus; soris congestis; teleutosporis longe pedicellatis, fortiter constrictis, 50 μ . longis, ferrugineis; pedicello usque ad 110 μ . longo.

Hab. in foliis ignotis ad Habgalla in insula Ceylon.

448. **Puccinia Doehmia** B. et C. North Pacif. Exped. n. 131. — So- 25
ris oblongis; teleutosporis brevibus, obtusissimis, fuscis, pedicello hyalino, laterali suffultis.

Hab. in foliis herbarum, in Nicaragua Americæ.

Species valde incertæ vel tantum nomine notæ.

449. **Puccinia Holbolli** (Hornem.) Rostrup Svampe fran Finmarken 25
p. 230 (nomen). Cfr. «Flora danica».

Hab. in foliis *Erysimi hieracifolii*, Kaafjord Firmarkiae.

150. **Puccinia Brassicæ** Mont. in Ann. Scienc. Nat. 1836, pag. 30, 2593
t. XII, f. 4.

Hab. in Brassica, prope Lyon Galliae. — Ab ipso Montagne
in Sylloge Cryptogamarum omissa.

151. **Puccinia Ervi** Opiz Seznam p. 139. 2594

Hab. in Ervo in Bohemia.

152. **Puccinia cylindrica** Opiz Beitr. p. 29. 2595

Hab. in Bohemia.

153. **Puccinia tumida** Grev. Fl. Edinb. p. 430. 2596

Hab. in Scotia. — A cl. Cooke in «Handbook» omissa.

154. **Puccinia Chrysophylli** Grev. in Sm. Engl. Fl. V, p. 367. 2597

Hab. in Anglia. — A cl. Cooke in «Handbook» omissa.

155. **Puccinia tenuistipes** Opiz Szenam p. 139, an Rostrup. 2598

Hab. in Bohemia.

UROPYXIS Schroet. in Hedwigia 1875, p. 165 (Etym. *oura* cauda et
pyxis). — Teleutosporæ uniseptatæ, tegumento amplo, medio con-
stricto, hyalino, haud diffuente obvolatæ; loculi singuli ad pa-
rietes laterales poros singulos symmetricè dispositos gerentes. Ure-
dosporæ ovatæ, subtiliter echinulatæ vel subleves. — Genus inter
Pucciniam et *Gymnosporangium* medium.

1. **Uropyxis Amorphæ** (Curt.) Schroet. in Hedwigia 1875, pag. 165, 2599

Puccinia Amorphæ Curt. North Americ. Fungi n. 555, Burrill
Paras. Fung. Illin. p. 176. — Soris uredosporiferis plerumque epi-
phyllis, parvis, paucis; paraphysibus stipatis, clavatis, brunneis cin-
ctis; uredosporis ovatis, 18-21 $\approx$ 12-15, subtiliter echinulatis; so-
ris teleutosporiferis amphigenis, minutis, sparsis vel circinato-con-
fluentibus, paraphysibus analogis instructis; maculis flavis; teleu-
tosporis brevibus, obtusis, medio constrictis, episporio separabili
echinulato involutis, 42-45 $\approx$ 24-30, pedicello fragili, hyalino auctis.

Hab. in foliis *Amorphæ fruticosæ* et canescentis, in
Carolina infer. et Illinois, Minnesota, Wisconsin Americæ borealis
(RAVENEL).

2. **Uropyxis Petalostemonis** (Farlow) De-Toni, *Puccinia Petaloste-* 2600

monis Farlow in Journ. of Mycology I, pag. 15. — Soris uredo-
sporiferis rotundatis, brunneis, epidermide rupta pseudoperidii ad
instar inflata cinctis; uredosporis ovoideis, 22 $\approx$ 20, sublevibus vel
granulatis, pallide brunneis; soris teleutosporiferis similibus, atris;
teleutosporis brunneis, late ellipticis, leniter constrictis, episporio

tenui, apice non incrassato, tunica gelatinosa cinctis, $33 \approx 20$; paraphysibus apice plerumque incurvis, pallide flavis.

Hab. in foliis *Petalostemonis*, in America boreali.

DIORCHIDIUM Kalchbr. in Grevillea XI, p. 26 (Etym. a *dis* duo et *orchis* testiculus). — Teleutosporæ echinatae v. leves, brunneae v. fuscescentes, didymae testiculiformes loculis septo verticali connatis; pedicello communi in septum producto uredosporae ovatae, brunneolae.

1. **Diorchidium Woodii** Kalchbr. et Cooke l. c. p. 26. — Soris hypophyllis, sparsis, liberis, planis, atris; teleutosporis binis, juxta se positis, ovatis, $20-24 \approx 16-18$, eximie echinulatis, brunneis; pedicello sursum incrassato, teleutospora duplo longiore.

Hab. in foliis vivis Milletiae caffrae, ad P. Natal Africae.

2. **Diorchidium binatum** (Berk. et Curt.) De-Toni, *Triphragmium binatum* Berk. et Curt. N. Pac. exp. n. 129. — Teleutosporis fuscis, bicellulosis, spinis emarginatis asperis; dissepimento verticali; membrana exteriori deglubente.

Hab. in foliis plantae ignotae sociâ *Lecytheâ peziziformi*, Nicaragua.

3. **Diorchidium Tracyi** De-Toni, *Puccinia vertisepta* Tracy et Gall. in Journ. of Mycol. 1888, p. 21. — Soris utriusque formae amphigenis, prominulis, atris, rotundatis; uredosporis ovatis, pallide brunneis, $23-25 \approx 20-22$, episporio crasso, ruguloso; teleutosporis globoso-compressis, septo verticali instructis, $34-35 \approx 28-30$, episporio crasso, grosse tuberculato, apice incrassato; pedicello longissimo, incurvo, hyalino.

Hab. in foliis *Salviae ballotiflorae*, New Mexico Amer. bor.

4. **Diorchidium pallidum** Wint. in Grev. XV, p. 86. — Soris hypophyllis, sparsis gregariisve, macula indeterminata irregulari, mox parva, mox late effusa luteola insidentibus, minutissimis, punctiformibus; uredosporiferis rotundatis seu irregulariter parumque oblongatis, epidermide inflata, demum fissa longe velatis, fuscidulis; teleutosporiferis punctiformibus, hemisphaerico-pulvinatis, ceraceis, compactiusculis; uredosporis subglobosis v. ovoideis, dense echinulatis, luteolis, $18-20 \mu$. diam. vel usque 27μ . longis, $18-20 \mu$. cr.; teleutosporis ovato-cuneatis vel subellipticis, apicem versus parum attenuatis rotundatisque basi plerumque truncatis vel late rotundatis, luteolohyalinis, $28-29 \approx 12-14$, pedicello praelongo, lato, hyalino, persistente fultis.

Hab. in foliis vivis languidisque plantæ ejusdam scadentis, in pr. S. Francisco Brasilæ (ULÆ).

1. **Diorchidium leve** Sacc. et Bizz. in *Michelia* II, pag. 648. — Soris 2605 sparsis gregariisve, amphigenis, epidermide dein fissa velatis, atrocinnamomeis, exiguis, fere punctiformibus, 250 μ . d.; teleutosporis transverse ellipsoideis, apice truncato-emarginatis, longitudinaliter 1-septatis, tunica superne crassiore, cinnamomeis, levibus, 30-36 = 22-25; pedicello filiformi, hyalino, e septi basi oriente, 100-120 = 6.

Hab. in foliis languidis *Manisuris granularis* (e Graminaceis) in Brasilia. — A *Diorchidio Woodii*, *D. Tracyi* et *D. binato* præcipue teleutosporis levissimis nec asperis, recedit, a *D. pallida* teleut. majoribus, cinnamomeis etc.

GYMNOSPORANGIUM Hedwig f. in DC. Fl. Franç. II, p. 216 (1805), Schroet. Pilzfl. Schles. p. 356 (Etym. a *gymnos* nudus et *sporangium*), *Puccinia* Micheli Nova plantarum Genera (1729) nec Persoon, *Podisoma* Link Sp. II, p. 127. — Teleutosporæ in stratum magnum, a substrato discretum, gelatinosum confluentes, rarius stratum parvum, explanatum, convexum efformantes, transverse uniseptatæ, rarissime biseptatæ, loculis singulis poris germinationis plurimis (2 v. 4) præditis. — In speciebus adhuc cognitis extant spermogonia et æcidia in una, teleutosporæ in altera matrice. Uredosporæ haud evolutæ. — De hoc genere cfr. Farlowi et Thaxteri eximias monographias.

1. **Gymnosporangium clavariiforme** (Jacq.) Rees in Winter Die Pilze 2606 p. 233, Schroet. Pilz. Schles. p. 357, Kienitz-Gerloff in Botanische Zeitung 1888, t. VII, p. 389, *Tremella clavariiformis* Jacq. Collect. bot. II, p. 174, *Tr. digitata* Villars Hist. pl. Damph. III, p. 1007, *Tremella ligularis* Bull. Champ. p. 223, *Tremella juniperina* Wahlb. Fl. Suec. p. 994, *Æcidium Oxyacanthæ* Pers. Syn. p. 206, *Æcidium laceratum* Sow. Engl. Fung. t. 318, *Ræstelia lacerata* Mer. Fl. Par. p. 113, *Cæoma cylindrites* Link Sp. II, pag. 64, p. p., *Ræstelia carpophila* Bagnis in Thümen Myc. Univ. n. 1326, *Lycoperdon penicillatum* Müll. in Fl. Dan. t. 839, *Æcidium penicillatum* Pers. in Gmel. Syst. II, p. 1472, Winter Die Pilze p. 266, *Ræstelia penicillata* Fr. S. V. S. p. 510, *Ceratitium penicillatum* Rabenh. in Botan. Zeit. 1871, p. 452, *Ræstelia Oxyacanthæ* Link in Berl. Magaz. 1815, p. 29, *Podisoma Juniperi-communis* Fr. Syst. Myc. III, p. 508, *Æcidium Mali* Schum. Pl. Saell. p. 222? — Spermogoniis epiphyllis vel fructicolis, subiculis incras-

satis, subcroccis (iisdem ac pseudoperidiis) insidentibus, verruciformibus, erumpentibus; sporulis flavis, oblongatis; pseudoperidiis hypophyllis vel fructicolis, aggregatis, maculæ aurantiaco-luteæ insidentibus, juvenilibus lageniformibus, circ. 2,5 mm. longis, albidis demum cylindræis et in filamenta reflexa usque ad basim fissis; æcidiosporis verrucosis, 22-45 $\approx$ 19-35, catenulatis, angulato-subsphæroideis, flavidis; soris gregariis v. sparsis, cartilagineo-pulposis, verticalibus, cylindræis vel elongato-clavatis, compressis, apice sæpe semel bisve furcato-divisis subinde curvatis vel flexuosis, aurantiaco-luteis; teleutosporis oblongato-fusoides, uniseptatis, ad septum haud constrictis, flavidis, longissime pedicellatis, 70-120 $\approx$ 14-20, 4 poris in quoque loculo instructis lanocarpæ.

Hab. æcidia et spermogonia in foliis fructibusque Cratægi Oxyacanthæ, punctatæ, Cruris galli, coccineæ, cordatæ, monogynæ, pyracanthæ, lobatæ, nigræ, melanocarpæ, nec non Piri Mali, angustifolii et Sorbi Ariæ; teleutosporæ in Junipero communi, in Italia, Dalmatia, Gallia, Belgio, Fennia, Hungaria, Britannia, Germania, Austria, America boreali. — Cl. Cæsted, jam anno 1867, experimentis demonstravit nexus metageneticos; Râthay vero in dubium posuit an etiam sporæ *G. juniperini* in Piro Malo æcidium proferant. Dubium est etiam an hunc pertineat *Æcidium penicillatum* Müll. in Sorbo Aria.

2. **Gymnosporangium juniperinum** (L.) Fr. Syst. Myc. III, p. 506, Winter Die Pilze p. 234, Schroet. Pilz. Schles. p. 358, *Tremella juniperina* L. Sp. plant. p. 1625, *Tremella auriformis* Hoffm. Veget. crypt. I, p. 31, t. 6, f. 4, *Tremella conica* Hedw. f. in DC. Encycl. VIII, p. 38, *Gymnosporangium aurantiacum* Chev. Fl. Paris. I, p. 424, *Gymnosporangium conicum* Reess Rostp. p. 74 *Podisoma foliicolum* Berk. in Sm. Engl. Fl. V, pag. 362, *Æcidium cornutum* Gmel. in L. Syst. nat. II, p. 1472, *Lycoperdon corniferum* Müll. in Fl. Dan. t. 838, *Cæoma cylindrites* Link Sp. II, p. 64 p. p., *Centridium Sorbi* Chev. Fl. Paris I, p. 383, *Ræstelia cornuta* Fr. S. V. S. p. 510, *Ceratitium cornutum* Rabenh. in Bot. Zeit. 1851, p. 452, *Podisoma Juniperi* Link. Sp. II, p. 127, *Lycoperdon corniculatum* Ehrenb. Pl. crypt. exs. dec. 20. — Spermogoniis epiphyllis, in parvos greges dispositis, maculæ flavæ vel aurantiacæ, majusculæ, rotundatæ impositis, conoideo-prominulis, aurantiaco-rufescentibus; pseudoperidiis hypophyllis, aggregatis, maculæ crocæ insidentibus, in tubulum cylindrico-elongatum, longissimum (usque ad 8 mm. longo, 1 circ. mm.

lato), porrectis, incurvis, albidis, demum flavescentibus v. rufescentibus, margine patulo, denticulato; æcidiosporis catenulatis, angulato-sphæroideis, fusciscenti-flavidis, $20-28 \approx 10-24$, subtiliter verrucosis, 6 poros gerentibus; soris teleutosporiferis simplicibus v. cæspitosis, gelatinoso-pulposis, primitus hemisphæricis v. conoideis, fulvis, dein jove favente, extumescens, orbiculatis, piriformibus etc., aureis tandemque plicato-collabentibus; teleutosporis ellipsoideis v. oblongatis, utrinque attenuatis, $40-75 \approx 17-27$, ad septum haud constrictis, fusciculis longissime pedicellatis.

Hab. æcidia et spermogonia in foliis Sorbi Aucupariæ, hybridæ et torminalis nec non Aroniæ rotundifoliæ et Amelanchieris canadensis; teleutosporæ in Junipero communi et nana in Italia, Austria, Helvetia, Germania, Britannia, Belgio, Fennia et America boreali. — Extant quoque teleutosporæ flavæ, circ. $66 \approx 17$, episporio tenui instructæ. — Nexus primo declaravit cl. Ærsted anno 1866.

3. **Gymnosporangium Sabinæ** (Dicks.) Wint. Die Pilze p. 232, Schroet. 2608
 Pilz. Schles. p. 357, *Tremella Sabinæ* Dicks. Pl. crypt. brit. I, p. 14, *Tremella digitata* Hoffm. Veget. Crypt. I, p. 53, t. 7, f. 2, *Tremella fusca* DC. Encycl. VIII, p. 39, *Clavaria resinosorum* Gmel. in L. Syst. nat. II, p. 1443, *Puccinia Juniperi* Pers. Disp. p. 38, *Puccinia cristata* Schmid. Icon. III, p. 254, t. 66, *Lycoperdon cancellatum* Jacq. Fl. austr. I, p. 15, t. 17, *Ræstelia cancellata* Rebent. Fl. Neom. p. 350, *Cœoma Ræstelites* Link in L. Sp. plant. VI, 2, p. 64, *Gymnosporangium fuscum* Ærst. non Gasp. — Spermogoniis aurantiaco-rufis, demum atris, conoideo-prominulis, in parvos greges congestis, maculis flavis vel rufescentibus, majusculis, rotundatis impositis, epiphyllis, rarius fructiculis vel ramicolis; sporulis minutis, aurantio-pallidis; æcidiis contrapositionis, bullas crassas, convexas, tuberculiformes efformantibus: flavescentibus numerosis, ventricosus, 2 mm. longis, 1-1,5 mm. latis; pseudoperidiis apice clausis, latere subcancellatis, dilute brunneis; æcidiosporis catenulatis, $22-44 \approx 17-26$, brunneis rotundato-polygoniis, verruculosus; soris teleutosporiferis irregulariter conoideis v. cylindraceis, obtusis, subinde compressis v. subramosis, flavo-rufescentibus, gelatinosis, 8-10 mm. longis; teleutosporis ellipsoideis, $38-50 \approx 23-26$, medio vix v. non constrictis, castaneo-brunneis, in quodque loculo 4 poris instructis.

Hab. spermogonia et æcidia in foliis, ramis fructibusque Piri communis, tomentosæ et Michauxi; teleutosporæ in Juni-

pero Sabina, in Vogesis, Gallia, Germania, Austria, Britannia, Helvetia et America boreali. — Rees in Abh. Nat. Ges. zu Halle descripsit teleutosporas fusiformes, flavescentes, $55 \approx 18$. Cl. Ærsted (1865) experimentis demonstravit metagenesin inter duas formas (æcidium et teleutosporas).

4. **Gymnosporangium biseptatum** Ellis in Bull. Torr. bot. Club 1874, 20 p. 46, *Ræstelia botryapiles* Schwein. Syn. N. Am. Fungi p. 291, n. 2902, *Ræstelia Ellisii* Peck in Bull. Torrey bot. Club VI, n. 2? (ex ipso Peck). — Maculis epiphyllis, flavis, rubris brunneisve, projectionibus subicularibus cæspitosis v. sparsis, ovatis, subviridibus subflavisve, pseudoperidiis hypophyllis, cylindraceis, singulis v. paucis in singulis projectionum apicibus sitis, laciniis subspadiceis, linearibus, subflexuosis, levibus apice persistenter cohærentibus: æcidiosporis subglobosis, scabriusculis, subbrunneis, $15-18 \mu$. diam; soris teleutosporiferis erumpentibus, velutinis, subrufescenti-castaneis dein tremelloideo-gelatinosis, magnitudine pisi, haud distincte foliaceis ut in *G. Juniperi*; teleutosporis longe pedicellatis, plerumque biseptatis.

Hab. æcidia in foliis *Amelanchieris canadensis*; teleutosporæ in ramulis, qui tunc turgescunt, *Cupressi thuyoidis*, in America boreali. — Var. **follicolum** Farl. Gymnosp. p. 20. In foliis *Thujæ occidentalis* in America boreali.

5. **Gymnosporangium macropus** Link Sp. II, p. 127, Burrill Parasitic Fungi of Illinois p. 210, Farlow Gymn. U. S. p. 13, *Podisoma macropus* Wymann in Lond. Journ. bot. 1845 p. 315, t. 12, f. 6, *Gymnosporangium Juniperi-virginianæ* Schwein. Syn. Carol. p. 74, n. 504, *Podisoma Juniperi-virginianæ* Fr. Syst. Myc. III. p. 507, *Gymnosporangium virginianum* Spreng. Syst. IV, p. 562, *Æcidium pyratum* Schwein. Syn. N. Am. Fungi n. 2896, *Puccinia? macropus* Lév. in Ann. Scienc. Nat. 1845 p. 68. — Soris teleutosporiferis in cæspites globosos congestis, basi annulo epidermoidali cinctis, aurantiaco-flavis, cylindraceis, acuminatis, $1-2,5$ cm. longis, demum elongatis; teleutosporis ovato-acutis, ad septum plerumque constrictis, vertice apiculo auctis, $46-60 \approx 15-20$; pseudoperidiis hypophyllis, creberrimis, subconcentricis, parum tantum elevatis, margine eleganter multifido-fimbriato, fimbriis rectis, nullo modo revolutis, divergentibus, pallidis, maculis epiphyllis, orbiculatis, rubris, ambitu ochraceis, centro nigrescentibus; æcidiosporis fuscis.

Hab. æcidia in foliis *Piri coronariæ*; teleut. in foliis ramulisque *Juniperi virginianæ*, in America boreali.

6. **Gymnosporangium clavipes** Cooke et Peck in Journ. Quekett 2511
 Micr. Club 1871, p. 258, Grevillea III, p. 189, *Gymnosporangium fuscum* Gasp. in Rend. Acad. Scienc. Nat. 1848 n. 41, non alior. *Tremella mesenteriformis* Brot. Fl. Lusit. II, p. 443, *Rustelia aurantiaca* Peck in 25 Rep. p. 91, t. I, f. 10-12. — Pseudoperidiis profunde immersis, cylindraceis, fragilibus, mox laceratis, evanescentibus, albis; æcidiosporis subglobosis, aurantiaco-lateritiis, 25 μ . circ. diam., episporio crasso, hyalino tectis; soris plerumque parvis subrotundisque, subinde confluentibus, convexis, erumpentibus, aurantiacis; teleutosporis ellipticis, obtusis, 37-45 μ . longis, pedicello longo, hyalino, apice incrassatulo fultis.

Hab. æcidia in fructibus *Amelanchieris canadensis* et *Cratægi* specierum nonnullarum; teleutosporæ in ramulis vivis foliisque *Juniperi virginanæ* et *phœniceæ* in America boreali et Lusitania. — Cfr. Thaxter in Proc. Amer. Acad. 1886, pag. 264.

7. **Gymnosporangium speciosum** Peck in Botanical Gazette 1879, 2612
 pag. 217. — Erumpens; massas tuberculiformes vel oblongas, lateraliter compressas efformans, aurantiacum; teleutosporis magnis, ellipticis vel oblongis, 1-2-septatis, sæpe profunde ad septum contractis, 50-75 $\approx$ 20-27, pedicello 7-8 μ . crasso fultis.

Hab. in cortice *Juniperi occidentalis*, Colorado Amer. bor. (BRANDEGEE).

8. **Gymnosporangium? guaraniticum** Speg. Fungi Guaranitici I, n. 106. 2613
 — Dense gregarium, verrucas plus minus evolutas, 0,3-5 mm., magnitudine, scruposas late ramulos foliaque ambientes efficiens, primo clausum dein irregulariter deliscenti-perforatum, sordide virescenti-v. olivaceo-fuscum, epidermide tectum, intus irregulariter lacunoso-confluens, pulpa viscoso-mucedinea, aurantio-fulvescente ac pallide succinea, longe ac cirrose per ostiola protrudente fartum; teleutosporis muco fasciculatim immersis, elliptico-elongatis vel elongato-biconicis, 12-15, rarius 20 $\approx$ 3-3,5, medio haud contractis, 1-pseudoseptatis, apice acutiuscule rotundatis, deorsum attenuato-truncatis, hyalinis, pedicello filiformi, 50-80 $\approx$ 1, concolore vel vix ima basi fusciscente suffultis.

Hab. ad ramulos nec non folia viva *Cupaniæ* speciei cujusdam, in silvis prope Guarapí Americæ australis. — «Forte huc pertinet ut status æcidiosporus *Ceratitium? guaraniticum* Speg. F. Guaranit. I, n. 157, in foliis vivis *Salviæ*, sociâ *Tuberculinâ guaranitica* Speg. l. c. n. 158».

3. Phragmosporæ Sacc. et DE-TONI.

PHRAGMIDIUM Link Sp. II, p. 84 (1824) (Etym. a *phragmos* septum).

Hamaspora Körn. in Hedwigia 1877, p. 22 p. parte. — Spermogonia explanata, orbicularia; æcidia (*Cæoma*) in acervos rotundatos, late expansos confluentesque disposita; æcidiosporæ catenulatæ; uredosporæ singulæ, ad apices hypharum evolutæ; teleutosporæ transverse 3-pluriseptatæ, superiori loculo 1 poro prædito, ceteris loculis 4 poris instructis. — Genus Rosaceas tantum incolens.

Sectio I. EUPHRAGMIDIUM. Teleutosporarum pedicellus rectus. — Cfr. *P. Tormentillæ*, *P. Rubi*, *P. Rubi-idei*.

A. Pedicellus teleutosporarum ubique æquicrassus. — Species præcipue in Rosa, Potentilla, Poterio etc. vigentes.

1. **Phragmidium Fragariastris** (DC.) Schroet. Pilz. Schles. pag. 351, 2 *Puccinia Fragariastris* DC. Fl. Franç. VI, p. 55, *Puccinia Fragariæ* DC. Encycl. VIII, p. 244, *Phragmidium Fragariæ* Wint. Die Pilze pag. 228 p. p., *Phragmidium granulatum* et *brevipes* Fuck. Symb. myc. p. 46. — Æcidiis in greges rotundatos at plerumque longe lateque expansos, aurantiaco-rufos dispositis, sæpe confluentibus; æcidiosporis in series congestis, globosis, ellipticis vel polyhedricis, 17-26 $\approx$ 12-20, episporio hyalino, verruculoso, contentu aurantiaco-rufescente, paraphysibus clavatis intermixtis; soris uredosporiferis aurantiacis, minutis, rotundatis, raro oblongis, sparsis, mox nudis, paraphysibus clavatis; uredosporis globosis, ellipticis aut ovoideis, 16-24 $\approx$ 12-20, aculeato-verrucosis, aurantiaco-flavis; soris teleutosporiferis castaneo vel atro-brunneis, sparsis, minutis, rotundatis; teleutosporis cylindraceis, sursum deorsumque rotundatis, 2-4-septatis, 45-70 $\approx$ 22-39, rufescentibus, sparse et præcipue superne hyalino-tuberculatis, subinde apiculatis, pedicello tereti, hyalino, 20-30 $\approx$ 10-12 fultis.

Hab. in foliis caulibusque Potentillæ albæ, Fragariastris, micranthæ, in Italia, Helvetia, Austria, Germania, Gallia, Belgio et America boreali. — Huc pertinet, teste Burrill Paras. Fungi of Illinois p. 265. *P. triarticulatum* B. et C.

2. **Phragmidium Sanguisorbæ** (DC.) Schroet. Pilz. Schles. p. 352, *Puccinia Sanguisorbæ* DC. Fl. Franç. VI, p. 54, *Phragmidium Fragariæ* Wint. Die Pilze p. 228 p. p., *Cæoma Poterii* Schlecht. Fl. Berol. II, p. 125, *Erysibe Poterii* Wallr. Fl. Crypt. Germ. II,

n. 1613, *Phragmidium Poterii* Fuck. Symb. myc., *Uredo Poterii* Rabenh. Handb. p. 67, *Phragmidium mucronatum* var. *Sanguisorbæ* Wallr. l. c. p. 188, *Aregma acuminatum* Fr. Syst. Myc. III, p. 497, Cooke M. F. III, f. 32, *Lecythea Poterii* Lév. Cfr. Cooke M. F. t. III, f. 31, *Phragmidium acuminatum* Fr. Cooke Cfr. Handb. n. 1457. — *Æcidii*s et soris uredosporiferis fere ut in *P. Fragariastri*; soris teleutosporiferis hypophyllis, punctiformibus, atris; teleutosporis 3-4- (rarius 2-) septatis, 44-55 $\approx$ 20-22, cylindraceis apiceque rotundatis, 4-septatis, 66-70 μ . longis, plerumque apice acuminatis, obscure brunneis, levibus v. sparse verrucis obtusis instructis, pedicello usque ad 22 μ . longo, gracili fultis.

Hab. in foliis caulibusque *Poterii Sanguisorbæ* (*Sanguisorbæ minoris*) in Italia, Gallia, Belgio, Britannia, Germania.

3. *Phragmidium Potentillæ* (Pers.) Karst. Fung. Fenn. n. 94 et 593, 2616 Wint. Die Pilze p. 229, Schroet. Pilz. Schles. p. 352, *Uredo Potentillarum* DC. Fler. Franç. VI, p. 80 pr. p., *Lecythea Potentillarum* Lév. in Ann. Sc. Nat. VIII, p. 374, *Uredo globoso-aurantiaca* Bon. Con. u. Crypt. p. 31 pr. p. *Uredo obtusa* Strauss in Wett. Ann. II, p. 107, p. p., *Puccinia Potentillæ* Pers. Syn. Fung. p. 229, *Aregma obtusatum* Fr. Syst. Myc. III, p. 497, *Phragmidium obtusum* Schm. et Kunz. Exs. n. 312, Link Spec. Plant. II, p. 84, *P. apiculatum* Rabenh. Krypt. Fl. p. 32. — *Æcidii*s fere ut in *P. Fragariastri*; *æcidiosporis* in series breves congestis, globosis, ovatis vel ellipsoideis, 17-24 $\approx$ 14-19, aculeolatis; soris uredosporiferis suborbicularibus, sparsis vel gregariis, subinde confluentibus, subaurantiacis, minutis; uredosporis sphæroideis v. ovoideis vel sphæroideo-ellipsoideis, flavescens, aculeolatis, 17-24 $\approx$ 14-20, paraphysibus sursum dilatatis immixtis; soris teleutosporiferis hypophyllis, orbiculatis, subpulvinatis, atris, minutis; teleutosporis oblongatis, vulgo rectis, 2-6-septatis, plerumque 3-5-septatis, ad septa vix vel non constrictis, antice obtusissimis obtusaque apiculatis, deorsum leviter attenuatis, levibus, flavo-fuscis, 50-90 $\approx$ 20-26; pedicello duplo triplove longiori, 100-150 μ . longo, subæquali vel deorsum leviter incrassato et transverse ruguloso, hyalino.

Hab. in foliis *Potentillæ* argenteæ, strigosæ, bifurcæ, fragarioidis, multifidæ, pensylvanicæ, subacaulis, dasyphyllæ, latifoliæ, canescentis, *Weinmanniæ*, *arenariæ*, *vernæ*, *opacæ*, *aureæ*, *supinæ*, *rectæ*,

alpestris, cinereæ, in Italia, Gallia, Britannia, Austria, Germania, Fennia, Sibiria asiatica et America boreali.

4. **Phragmidium Tormentillæ** Fuck. Symb. pag. 46, Corda Ic. IV, pag. 21, tab. V, fig. 72, Schroet. Pilz. Schles. p. 352, *Phragmidium obtusum* (Strauss) Wint. Pilze pag. 229, *Uredo obtusa* Strauss in Wett. Ann. II, p. 107, p. p. — *Æcidii*s ut in *P. Fragariastris*; soris uredosporiferis minutis, punctiformibus, aurantiorufis, pulverulentis, hypophyllis, mox nudis, sparsis; uredosporis globosis vel ovatis aut obovatis, 15-23 $\approx$ 14-20, sublevibus vel punctulato-aculeolatis, aurantiaco-flavis; soris teleutosporiferis minutis, orbicularibus, hemisphæricis, punctiformibus, hypophyllis, epidermide lacerata cinctis, castaneo-brunneis, sparsis; teleutosporis cylindraceo-oblongis, basi plerumque clavato-angustatis, apice plerumque obtusiusculis, 2-9-septatis (plerumque 4-7-septatis), 100-160 $\approx$ 16-28, levibus, aureo-fulvis, pedicello usque ad 100 μ . longo, hyalino, recto curvatove, æquali fultis.

Hab. in foliis *Potentillæ* mixtæ, rectæ, procumbentis, silvestris et *Tormentillæ*, in Italia, Austria, Germania, Belgio.

5. **Phragmidium speciosum** Fr. Syst. Myc. III, p. 496 (*Aregma*), Burrill Paras. Fungi of Illinois p. 206, *Seiridium marginatum* Schwein. nec Nees. — Soris erumpentibus, longe lateque effusis, mollibus, dense confertis, atris; teleutosporis 5-10 locularibus, moniliformi-cylindraceis, 60-90 $\approx$ 30, atris; pedicello sexies et ultra longiore, inferne hyalino, superne colorato.

Hab. in ramis emortuis, raro in petiolis, quæ bullata efficit, *Rosæ corymbiferæ*, in America boreali. — Maxime spectabile, est quasi *Xenodochus* teleutosporis longissime pedicellatis. Plagulae 1-2,5 cm. longæ latæque, 2 mm. et ultra crassæ. Sec. Burrill loco citato sori griseo-atrici, crustiformes.

B. Pedicellus teleutosporarum deorsum claviformi-incrassatus. — Species præcipue in *Rubis* vigentes.

6. **Phragmidium violaceum** (Schultz.) Wint. Die Pilze p. 231, Schroet. Pilz. Schles. p. 353, *Puccinia violacea* Schultz. Prodr. Fl. Starg. p. 459, *Phragmidium asperum* Wallr. Fl. Crypt. germ. II, p. 188, *Uredo Vepris* Rob. in Desm. Fl. Crypt. I, n. 2122. — *Æcidii*s in greges rotundatos, sæpe lineari v. orbiculariter dispositos, usque 1 cm. longos, aurantiaco-rufos, zona violacea limitatos congestis, paraphysibus sparsis; æcidiosporis breviter catenulatis, globosis vel

ellipticis, 12-30 $\approx$ 17-24, aurantiaco-pallidis, aculeolatis; soris uredosporiferis rotundatis, sæpe confluentibus, chromo-flavis, pulverulentis; uredosporis globosis, ellipticis vel ovoideis, 17-32 $\approx$ 15-24, aurantiaco-flavis, verrucoso-aculeolatis; soris teleutosporiferis crassiusculis, atris, firmulis, 2 mm. usque latis, sparsis, magnis; teleutosporis subcylindræis, apiculatis, 2-4-septatis (plerumque tri-septatis), 70-100 $\approx$ 25-35, opace brunneis, verrucis hyalinis, hemisphæricis, explanatis, irregularibus obsitis; pedicello inferne claviformi-incrassato, 95-120 μ . long., circ. 15 μ . crasso.

Hab. in foliis Rubi fruticosi, thyrsoidis, villicaulis, hirti, sancti, in Italia, Gallia, Austria, Helvetia, Germania, Belgio, Lusitania. — Maculæ magnæ, tum centro brunneæ margineque purpureo-violaceæ, tum ex toto purpureo-violaceæ. — «Forte specimina in *Rubo fruticoso* ad *Phragmidium Rubi* (Pers.) pertinent».

7. **Phragmidium Rubi** (Pers.) Wint. Die Pilze p. 230, Schroet. Pilz. 2620 Schles. p. 353, *Puccinia Rubi* Pers. Syn. Fung. p. 230, *Phragmidium incrassatum* Link Sp. II, p. 85, *Uredo Ruborum* DC. Fl. Fr. II, p. 234 p. p., *Phragmidium cylindricum* Bonord. Coniom. p. 60 c. ic., *Uredo Rubi-fruticosi* Pers. l. c. p. 213, *Uredo bulbosa* Strauss Wett. Ann. II, p. 108, *Aregma bulbosum* Fr. Syst. Myc. III, p. 497, *Phragmidium bulbosum* Schlecht. Fl. Berol. II, p. 140, *Phragmidium levigatum* Rabenh. in Flora 1880, p. 631, *Lecythea Ruborum* Lév., *Erysibe Ruborum* Wallr. Fl. Crypt. Germ. II, n. 1626, *Phragmidium granulatum* Rabenh. in Fl. 1850, p. 631, Herb. myc. n. 1288. — *Æcidiis* hypophyllis, aggregatis, sæpe confluentibus, elongatis, nervisequiis, aurantiacis; *æcidiosporis* angulato-sphæroideis, 18-22 μ . diam.; soris uredosporiferis sparsis vel aggregatis, suborbicularibus, flavis, minutis; uredosporis ellipsoideis vel angulato-subsphæroideis, sublevibus vel subtiliter aculeolatis, flavis, 17-32 $\approx$ 12-20; soris teleutosporiferis hypophyllis, orbicularibus, fusco-atris vel subatris, minutis; teleutosporis oblongatis, utrinque rotundatis, 2-7-septatis, plerumque 4-6-septatis, sparsim verrucosis, loculo terminali apiculo conoideo ornato, fusco-atris, subimpellucidis, 70-110 $\approx$ 25-35; pedicello infra incrassato, basi attenuato, latere impresso, albo-hyalino, recto vel curvato, 40-100 μ . longo, usque ad 15 μ . crasso.

Hab. in foliis Rubi fruticosi, villosi, cæsii, saxatilis, arctici et rarius *Fragariæ* vescae, in Italia, Belgio, Austria, Helvetia, Germania, Gallia, Britannia, Lapponia, Fennia et

America boreali. — Maculæ flavescentes vel brunneolæ, sæpe confluentes, rarius obsoletæ. Adest quoque in eadem matrice e Slavonia *Phragmidium fructigenum* Schulz. Œsterr. botan. Zeitschrift. 1875, pag. 319. — ***Phrag. microsorum** Sacc. M. V. n. 848 et in Michelia: soris minutis, gregariis, hypophyllis; teleutosporis oblongis cylindraceisve, 70-90 $\approx$ 25-28, 3-4-septatis, superne asperulis, vertice mucronatis, fusco-cinnamomeis, pedicellis obclavatis teleutosporas subæquantibus; uredosporis globosis, muriculatis, flavis; paraphysibus intermixtis uncinatis, hyalinis. In foliis Rubi cæsii, in silva Montello Italiæ borealis et in Helvetia.

8. **Phragmidium Barnardii** Plowr. et Wint. in Rev. Myc. 1886, p. 208. ²

— Soris uredosporiferis valde sparsis, hypophyllis, in foliorum pagina superiori maculas minutas, irregulares, rufas, sæpe area angustissima, indeterminata, flavida cinctas, circ. 0,5-1 mm. latas efficientibus, initio ab epidermide velatis, demum nudis, pulverulentis, flavidis; uredosporis globosis vel ellipsoideis, interdum ovoideis vel subpiriformibus, episporio subcrasso, hyalino, verruculoso præditi, guttulis oleosis, flavidis repletis, 17-18 μ . diam. aut 23-25 $\approx$ 16-18, paraphysibus clavatis, incurvis, hyalinis; soris teleutosporiferis sparsis, gregariis, hypophyllis, minutissimis, haud raro confluentibus, macula nulla, pulverulentis; teleutosporis cylindraceis, æqualibus, vertice rotundatis et hic sæpe parum incrassatis, interdum immo apiculo conoideo, brevi, hyalino auctis, 6-9-septatis, ad septa constrictis, levibus, 60-115 $\approx$ 23-27, luteo-fuscidulis, pedicello prælongo, cylindraceo vel parum inflato, hyalino, levi, usque 140 μ . longo, 10-18 μ . crasso suffultis.

Hab. in foliis vivis Rubi parvifolii, prope Melbourne Australiæ (BARNARD).

9. **Phragmidium subcorticium** (Schrank) Winter Die Pilze pag. 228, ²⁶
Schroet. Pilz. Schles. p. 353, *Lycoperdon subcorticium* Schrank in Hoppe's Bot. Taschb. 1793, pag. 68, *Uredo Rosæ* Pers. Disp. p. 13, *Puccinia mucronata* var. *Rosæ* Pers. l. c., *Uredo Rosacentifoliæ* Pers. Syn. Fung. p. 215, *Cecoma Rosæ* Schlecht. Flor. Ber. II, p. 120, *Lecythæa Rosæ* Lév., *Uredo pinguis* DC. Fl. Franc. II, p. 235, *Uredo elevata* Schum. Pl. Saell, II, p. 229, *Erysibe Rosæ* Wallr. Fl. Crypt. Germ. II, n. 1525, *Cecoma Rosæ* Schlecht. Fl. Berol. II, p. 120, *Uredo miniata* Pers. Syn. p. 216, *Epîtea miniata* Fr. Summ. Veg. p. 512, *Colcosporium miniatum* Bon. Con. p. 20, *Erannium miniatum* Bon. l. c. p. 17, *Puccinia mucronata* Schum. Enum. Saell, II, p. 235, *Phragmidium incrassatum*

a. *Rosarum* Rab. Krypt. Flor. I, p. 32, *Ph. oblongum* Bon. Con. u. Crypt. p. 60, *Ph. Rosarum* Fuck. Symb. myc. pag. 47, *Ph. mucronatum* Cooke Brit. Fungi II, pag. 490. — *Æcidii*s hypophyllis, effusis, forma variis, in nervis, petiolis caulibusque sæpe confluentibus, miniato-aureis, expallentibus, magnis; *æcidiosporis* angulato-sphæroideis vel angulato-ellipsoideis, episporio hyalino, protoplasmate aurantiaco fœtis, 17-28 $\approx$ 12-20, aculeolatis; soris uredosporiferis mox nudis, hypophyllis, sparsis vel confertis, maculæ expallenti insidentibus, orbicularibus, flavidis, exiguis; uredosporis forma variis, sphæroideis, ovoideis, angulato-sphæroideis, 17-32 $\approx$ 12-24, subtiliter aculeolatis; soris teleutosporiferis hypophyllis, sparsis, gregariis vel aggregatis, orbicularibus, atris, minutis; teleutosporis oblongatis, antice crassioribus, obtusis, apiculo conico, albo ornatis, basi leviter attenuatis, 3-8-septatis, punctato-verrucosis, obscure fuscis, subimpellucidis, 75-100 $\approx$ 26-30; pedicello teleutospora longiori, 100-120 μ . longo, in medio abrupte incrassato (usque ad 22 μ . cr.), basi obtuso, latere impresso, hyalino.

Hab. in foliis *Rosæ* centifoliæ, cinnamomeæ, pimpinellifoliæ, tomentosæ, caninæ, coriifoliæ, rubiginosæ, gallicæ, volvatæ, blandæ, albæ, arvensis, turbinatæ, rubrifoliæ, collinæ, arvensis, dahuricæ, in Italia, Austria, Helvetia, Germania, Lusitania, Belgio, Gallia, Fennia, Britannia, America boreali, Sibiria asiatica et Africa australi.

10. *Phragmidium tuberculatum* J. Müller Rostp. der Rosa und Rubus 2623
in Berichte der Deutschen Botan. Gesellsch. 1886, III, 10, p. 391, Schroet. Pilz. Schles. p. 354. — *Spermogoniis* plerumque epiphyllis, *æcidii*s contrappositis, secus orbes dispositis; sporulis ellipsoideis, 2-3 $\approx$ 1,6; *æcidii*s greges orbiculares, 1 mm. latos, plerumque hypophyllos, formantibus paraphysibus sursum incrassatis immixtis; *æcidiosporis* catenulatis, ellipticis, raro globosis, plerumque 30 $\approx$ 20, verrucosis, episporio crassissimo; soris uredosporiferis et teleutosporiferis minutissimis; uredosporis 21-24 $\approx$ 16-19, grosse aculeolatis, aurantiaco-rufescentibus; teleutosporis 2-5-(plerumque 4-) septatis, apice subhemisphærice rotundatis, 54-81 $\approx$ 27-35, verrucula conica auctis, verrucosis, obscure brunneis, pedicello basi claviformi-incrassato fultis.

Hab. in foliis *Rosæ* caninæ, in Silesia Germaniæ.

11. *Phragmidium fusiforme* Schroet. Brand. und Rostpilze Schles. 2624
p. 24, Pilz. Schles. p. 354, *Phragmidium Rose-alpinæ* (DC.) Wint. Die Pilze p. 227, Massal. Ured. Veron. p. 50, t. III, f. XX,

1-4, *Uredo pinguis* var. *Rosæ-alpinæ* DC. Fl. Franç. II, p. 235. — *Æcidii* in foliis partim punctiformibus, circiter 150 μ . diam., partim majusculis rotundatis, valde convexis, in petiolis ramisque late expansis, pulvinatis; paraphysibus clavatis, hyalinis; *æcidiosporis* polygoniis, ellipticis vel ovatis, raro sphæroideis, 17-28 = 14-20, aurantiaco-flavis, breviter aculeolatis, episporio hyalino; soris uredosporiferis minutis, rotundatis, punctiformibus, flavescentibus, maculis parvis, flavis, irregularibus, sine ordine gregarii-insidentibus; uredosporis globosis v. ellipticis, 14-22 μ . diam., flavis, subtiliter aculeolatis; soris teleutosporiferis minutissimis, sparsis, adpressis, sæpe confluentibus, atris; teleutosporis 6-12, (plerumque 10-11-) septatis, cylindraceo-fusoideis, apice mucrone hyalino, 10 μ . longo auctis, hyalino-asperulis, 90-110 = 19-30, obscure brunneis, pedicello obclavato, teleutosporam subæquante, usque ad 20 μ . deorsum crasso, subhyalino fultis.

Hab. in foliis, ramis petiolisque *Rosæ alpinæ* et hujus hybridorum, in Italia, Gallia, Germania.

12. **Phragmidium bullatum** Westend. Bull. de Brux. 4 not. n. 44, Kickx Fl. Flandr. II, p. 69. — Epicaulinum; soris elongatis, pulvinatis, diu tectis, epidermide bullata dein irregulariter fissa erumpentibus; teleutosporis cylindraceis, 5-7-septatis, apice mucronatis, episporio ruguloso; pedicello hyalino, brevi, basi incrassatulo.

Hab. in ramulis *Rosæ caninæ*, in Belgio et Britannia. — A *Phragmidio specioso* Fr., quod etiam caules *Rosæ* incolat, toto cælo diversum dicitur. «An revera a præcedentibus distinctum?»

13. **Phragmidium Rubi-idæi** (DC.) Karst. Myc. Fenn. n. 4 et in Winter Die Pilze p. 231, Schroet. Pilz. Schles. p. 355, *Æcidium columellatum* Schum. Enum. plant. Saell. II, p. 226, *Lecythea gyrosa* Lév. Cfr. Cooke M. F. t. VIII, f. 162-164, *Aregma gracile* Sm. Engl. Fl. V, p. 358, Cooke l. c., t. III, f. 43, *Uredo gyrosa* Reb. Fl. neom. p. 356, t. III, f. 13, *Uredo Rubi-idæi* Pers. Obs. myc. II, p. 24, *Cavoma gyrosum* Schlecht. Flor. Ber. p. 121, *Erysibe gyrosa* Wallr. Fl. Crypt. Germ. II, n. 1163, *Puccinia Rubi-idæi* DC. Flor. Franç. V, p. 54, *Puccinia gracilis* Grev. Fl. Ed. p. 428, *Phragmidium gracile* Cooke Brit. Fung. II, p. 491, *Phragmidium intermedium* Eysenh. in Linnæa III, p. 109, Schroet. Brand. u. Rostp. p. 24, *Phragmidium effusum* Auersw. in Rab. Herb. myc. 1391, Fuck. Symb. myc. p. 47, *Phragmidium fructigenum* Schulz. in Œst. bot. Zeitschr. 1875, p. 319? — *Æcidii* plerumque hypophyllis, raro petiolicolis vel cauliculis, in greges orbiculares medio profunde im-

pressos, chromo-flavos dispositis, in caulibus petiolisque pulvinulos oblongos efformantibus; æcidiosporis breviter catenulatis, globosis vel ellipticis, 20-28 μ . diam., aculeolatis, aurantiaco-flavis, paraphysibus clavatis, subconcoloribus; soris uredosporiferis epiphyllis, sparsis vel circinatim dispositis, suborbicularibus, flavis, minutis; uredosporis sphaeroideis, ellipticis v. ovoideis, 16-22 μ . diam., aculeatis, aurantiaco-flavescentibus; soris teleutosporiferis hypophyllis, orbicularibus, sparsis, atris, minutis; teleutosporis oblongatis vel elongatis, utrinque rotundatis aut loculo terminali conoideo-attenuato, vertice apiculatis, verrucosis, 5-10-septatis, (plerumque 6-8-septatis) atris, impellucidis, 90-140 $\approx$ 20-35; pedicello infra leviter incrassato, 17-20 μ . cr. latereque impresso, hyalino, recto v. curvato, 110-160 μ . longo.

Hab. in foliis, petiolis, fructibus caulibusque Rubi-idaei, odorati et strigosi, in Italia, Gallia, Belgio, Britannia, Arduennis, Austria, Helvetia, Germania, Fennia, Lapponia et America boreali.

4. **Phragmidium gracile** (Farl.) Arthur Prelim. List of Iowa Ure- 2627
dineæ p. 161, n. 68 nec Cooke, *Phragmidium incrassatum* Link var. *gracile* Farl. in Ellis North Amer. Fungi n. 282. — Æcidiis rotundatis, minutis, sparsis, epiphyllis, mox nudis, flavis; æcidiosporis breviter catenulatis, rotundatis, oblongis, ellipticis ovalibusve subinde spathulatis, 16-24 $\approx$ 12-29, episporio crasso, inæquali, echinulato, paraphysibus gracilibus, claviformibus, incurvis, hyalinis; soris teleutosporiferis parvis, rotundatis, hypophyllis, sparsis vel laxe gregariis confluentibusque, atris; teleutosporis cylindraceis, verrucosis, obscure opaceque brunneis, 3-8-plerumque 6-8-septatis, 75-100 $\approx$ 30, apice abrupte in apiculum obtusum, hyalinum attenuatis; pedicello hyalino, crasso, deorsum inflato, teleutosporâ sesquilingiore.

Hab. in foliis Rubi strigosi, Decorah aliisque Americæ borealis locis. — Characteribus teleutosporarum ab affini *Phr. Rubi-idaei* distinctum videtur.

5. **Phragmidium? deglubens** (Berk. et Curt.) De-Toni, *Triphragmium* 2628
deglubens Berk. et Curt. North Americ. Fungi n. 559. — Soris sparsis, nigris, epidermide cinctis; teleutosporis ellipticis, pedicello crassiusculo, brevi fultis, horizontaliter biseptatis; membrana exteriori echinulata, deglubente.

Hab. in foliis plantæ cujusdam e Leguminosis (?), Texas Americæ borealis (WRIGHT). — «An, errore matricis, revera *Phragmidium?*»

16. **Phragmidium devastator** Sorok. Mat. fl. as. p. 21, t. I, f. 13-16, Lagerheim in Botan. Notiser 1887, pag. 67. — Uredosporis polygoniis e roseo rufis, breviter pedicellatis, paraphysibus acuminatis immixtis; teleutosporis brunneo-cinnamomeis, papilla acuminata auctis, 3-4-septatis, plerumque $44 \approx 20$, pedicello longo, basi incrassato fultis.

Hab. ad apices ramulorum et in foliis Rosarum, in Asia centrali.

Sectio II. HAMASPORA Körn. Teleutosporarum pedicellus incurvus, elongatus.

17. **Phragmidium longissimum** Thüm. in Flora 1875, p. 379, Mycoth. univ. n. 542, *Uredo lucida* Thüm. in Flora 1876, p. 570, Myc. univ. n. 1349. — Soris uredosporiferis hypophyllis, sparsis v. subgregariis vel etiam raro confluentibus, lucido-aurantiacis, liberis; uredosporis globosis vel ovoideo-globosis, levibus, reticulatis, 16μ . diam., dilute flavidis, episporio crasso; soris teleutosporiferis hypophyllis, gregariis, pallide-ochraceis, cirrosis; teleutosporis longissimis, lineari-lanceolatis, 4-septatis, ad septa incrassatis, flavidis, apice acuto, hyalino, $200-240 \approx 13-14$; pedicello longissimo, hyalino, curvato, usque ad 100μ . longo.

Hab. in foliis vivis Rubi rigidi, Promont. Bonæ Spei in Africa australi (P. MAC OWAN).

18. **Phragmidium Ellisii** (Berk.) Körn. in Hedwigia 1877, p. 22 (sub *Hamaspora*), *Gymnosporangium Ellisii* Berk. North Amer. Fungi n. 560 (sub *Podisomate*), *Ræstelia transformans* Ellis in Bull. Torr. Bot. Club V, p. 3, North Amer. Fungi n. 1088. — Filiforme, sparsum vel 2-3-gregarium, 2-5 mm. altum, siccum albidum, udum pallide aurantiacum; pseudoperidiis maculæ violacæ insidentibus, hypophyllis, læte aurantiacis, majusculis, solitariis; æcidiosporis angulatis, $16-20 \mu$. latis, inæqualibus, flavescentibus; teleutosporis 1-2-septatis, longissimis, fusiformibus, 95μ . long.; pedicello flexuoso, longissimo.

Hab. æcidia in fructibus foliisque Piri arbutifoliæ, teleutosporæ in Cupresso thujoide, Newfield N. Jersey Americæ borealis. — Maculæ æcidiis contrapositæ purpurascentes.

XENODOCHUS Schlecht. in Linnæa 1826, p. 237 (Etym. *xenodochos* h. e. hospite suo (Uredine) exceptus). *Phragmidiopsis* Wint. Die Pilze p. 227 ut subgenus *Phragmidii*. — Æcidiosporæ catenula-

tæ; uredosporæ nullæ; teleutosporæ moniliformi-septatæ, loculis facile secedentibus, breviter pedicellatæ.

1. **Xenodochus carbonarius** Schlecht. in Linnæa 1826, p. 237, *Toru-* 2632
la carbonaria Corda Icon. Fung. III, p. 5, t. I, f. 15, *Phragmi-*
dium (*Phragmidiopsis*) *carbonarium* Wint. Die Pilze p. 227,
Schroet. Pilz. Schles. p. 355. — *Æcidii* in pulvinos læte minia-
tos, (in petiolis) pustulas elongatas, (in laminis foliorum) soros
rotundatos efformantes congestis; æcidiosporis breviter catenula-
tis (3-4), globosis, ellipticis v. ovatis, 16-28 $\approx$ 15-20, episporio cras-
so, hyalino, contextu aurantiaco-rufescente, verrucosis; paraphy-
sibus clavatis, subconcoloribus; soris teleutosporiferis crassiusculis,
pulvinatis vel pustuliformibus, rotundatis vel irregularibus, sæpe
confluentibus, atro-carbonaceis; teleutosporis submoniliformibus,
usque ad 22-locularibus, ad septa constrictis, loculis globoso-com-
pressis, terminali subverrucoso, ceteris levibus, loculis singulis 15-
30 μ . diam., omnibus insimul usque ad 300 μ . longis, episporio
obscure brunneo; pedicello brevissimo, persistenti, hyalino.

Hab. in caulibus, petiolis foliisque Sanguisorbæ officina-
lis et carneæ, in Germania, Arduennis, Belgio, Britannia, Bohe-
mia, Sibiria asiatica.

COLEOSPORIUM Lév, in Ann. Scienc. Nat. 1847, p. 373 (Etym. *co-*
leos vagina et *spora*), *Peridermii* sp. auct. — Uredosporæ pri-
mum in series moniliformes consociatæ, aurantiacæ vel flavæ, echi-
nulatæ; teleutosporæ transverse 3-pluriseptatæ, in stratum planum,
submucosum, aurantiacum v. flavum arcte coalitæ, jamque in planta
viva rite evolutæ; sporidiola majuscula, in quoque sterigmate singula.

Sectio I. EUCOLEOSPORIUM Winter. *Æcidia*, uredosporæ et teleutosporæ
evolutæ.

1. **Coleosporium Senecionis** (Pers.) Fries Summa Veg. Scand. p. 512, 2633
Winter Die Pilze p. 248, Schroet. Die Pilze Schles. p. 368, *Uredo*
farinosa var. *Senecionis* Pers. Syn. Fung. p. 218, *Cvoma Sen-*
cionis Schlecht. Fl. Berol. II, p. 119, *Lycoperdon Pini* Willd. in
Röm. et Ust. Mag. 1788, IV, p. 16, *Æcidium Pini* Pers. in Gmel.
Syst. p. 1473, *Peridermium Pini* Wallr. Fl. Crypt. Germ. p. 262,
Trichobasis Senecionis Berk. in Cooke F. Br. exs. ed. II, n. 53,
Peridermium oblongisporum Fuck. Symb. p. 42, *Erysibe Sen-*
cionis Wallr. Fl. Crypt. Germ. II, p. 1609, *Uredo Pini* Spr. Syst.
IV, p. 574, *Peridermium acicola* et *corticola* Rabenh. D. K. Fl.

p. 21, *Cavoma pineum* Link Sp. II, p. 66. — Spermogoniis sparsis, conoideo-planis, aurantiaco-rufis, sporulis albis, majusculis; æcidiiis biformibus, aliis in acubus solitariis vel parce gregariis, pseudoperidiis usque ad 2,5 mm. longis, cylindraceis vel lateraliter compressis, apice irregulariter laciniatis, aliis in caulibus ramisque amplioribus, sæpe 6 mm. et ultra latis, sacculiformibus, demum lace-ratis, numerose aggregatis, pseudoperidiis albidis; æcidiosporis cate-nulatis, rotundatis, ovoideis v. oblongis, plerumque polygoniis usque ad 40 μ . longis, 17-28 μ . latis, verrucosis, subaurantiacis; soris uredosporiferis flavo-rufis, mox expallentibus, pulverulentis; ure-dosporis breviter catenulatis, mox sejungentibus, ellipticis ovoideis vel subcylindraceis, 20-40 $\approx$ 14-26, verrucosis, aurantiacis; soris te-leutosporiferis crustiformibus ceraceis, leniter convexis, primo fla-vo-rufis, dein sanguineis; teleutosporis cylindraceis vel cylindra-ceo-clavatis, usque ad 110 μ . longis, 17-35 μ . latis, apice expla-natis, plerumque 4-locularibus, læte aurantiaco-rufis.

Hab. spermogonia et æcidia in acubus ramisque Pini silve-stris, maritimæ, insignis, Mughi, Strobi, uncinatæ, ni-gricantis; uredosporæ et teleutosporæ in foliis Senecionis vulgaris, viscosi, silvatici, vernalis, Jacobeæ, nemo-rensis, palustris, fluviatilis, Doricæ, pulchri, sarrace-nici, octoglossi, in Gallia, Italia, Belgio, Britannia, Lusitania, Bohemia, Neerlandia, Helvetia, Hungaria, Transylvania, pr. Ekate-rinburg Rossicæ, in America boreali et Sibiria asiatica. — Var. **minus** B. et C. North Amer. Fungi n. 376: pseudoperidiis subcy-lindricis, brevibus, nec inflatis, ambientibus, innumeris. In Ephedra antisiphilitica et in Abiete, Texas et New York Ame-ricæ borealis.

Sectio II. HEMICOLEOSPORIUM Winter. Æcidia ignota; uredo- et teleuto-sporæ in eadem matrice evolutæ.

2. **Coleosporium Sonchi** (Pers.). Lév. in Ann. Scienc. Nat. 1487, p. 373, 26 Tul. in Ann. Sc. Nat. 1854, t. 8, f. 1-3, Schroet. Pilz. pag. 368, *Uredo Sonchi-arvensis* Pes. Syn. Fung. p. 217, *Uredo tubercu-losa*, *Sonchi-fulva*, *Tussilaginis* Schum. Pl. Saell. II, p. 229, *Ure-do Petasitidis* DC. Fl. Fr. II, p. 236, *Coleosporium Petasitidis* et *Tussilaginis* Lév. loc. cit. *Uredo farinosa* var. *Senecionis* Alb. et Schwein. Consp. p. 124, p. p., *Uredo Cacaliæ-suaveolentis* Schum. et Kunze Exsicc. n. 93, *Uredo Inulæ* Kunze in Klotzsch-Rabenh. Herb. myc. I, n. 589, *Cavoma compransor* Schlecht. Fl. Berol.

II. p. 119, *Uredo Elephantopodis* Schwein. Syn. Carol. p. 70, n. 467, *Coleosporium Elephantopodis* (Schwein.) Thüm. *Ceoma nitidum* Link Sp. II, pag. 19, *Coleosporium Synantherarum* Fr. Summa Veg. Scand. p. 512, *Coleosporium Compositarum* Lév. pro parte *Coleosporium Inulæ* Rabenh. in Bot. Zeit. 1851, p. 455, *Eranium aureum* et *aurantiacum* Bonord. Coniom. p. 12, p. p. — Soris uredosporiferis flavo-rufis, mox expallentibus, pulverulentis, rotundato-ellipticis vel irregularibus, sæpe confluentibus, sparsis v. in parvos greges congestis; uredosporis in eodem soro difformibus, breviter catenulatis, mox sejungentibus, ovoideis vel cylindraceis, rarius oblongo-clavatis, sæpe angulatis, plerumque 20-26 $\approx$ 14-18, verrucosis, aurantiaco-flavis; soris teleutosporiferis minutis, rotundatis vel oblongis, plerumque irregulariter explanato-convexis, flavo-rufis, demum subsanguineis, sparsis vel aggregatis sæpeque confluentibus; teleutosporis cylindraceis vel claviformibus, plerumque 4-locularibus, apice explanatis, usque ad 70 μ . longis, plerumque 20-22 μ . latis, læte aurantiacis.

Hab. in foliis Asteris sagittifolii (?), Elephantopodis caroliniani, Silphii integrifolii, terebinthinacei, Sonchi oleracei, asperi, arvensis, palustris, fallacis, Mulgedii sibirici, Adenostyles Alliarie, alpinæ, albifrontis, Tussilaginis Farfaræ, Petasitidis officinalis, albæ, nivæ, spurie, Inulæ salicinæ, Helenii, ensifoliæ, hirtæ, Vaillantii, viscosæ, in Italia, Gallia, Belgio, Britannia, Austria, Helvetia, Fennia, Hungaria, Neerlandia, Germania, Amer. boreali et Sibiria asiatica. — *Forma **Carpesii** Sacc. In Carpesio in Italia bor. — Var. **Telekiæ** Thüm. F. austr. n. 850: uredosporis in soris fulvis vel aurantiacis, dein expallescentibus, in pagina foliorum inferiore; teleutosporis oblongo-ovatis, papillatis, similibus illis *Coleosporii Sonchi*, in soris compactis, minoribus, rubiginosis dispositis. Ad folia viva Telekiæ speciosæ, Transylvania in monte Valyé mare.

3. **Coleosporium?** **Cacaliæ** Magnin Misc. mycol. in Ann. Soc. Lyon. 2637
1873, p. 6. non *Uredo Cacaliæ* DC. — Hypophyllum, soris primo rotundatis, convexis, pulvinatis, dein apertis, subpulverulentis, dein ochraceo-rufescentibus, planiusculis expansisque subpolygonis; uredosporis cylindraceis; teleutosporis cylindraceo-elongatis.

Hab. in foliis Cacaliæ atriplicifoliæ, in Gallia.

4. **Coleosporium Campanulæ** (Pers.) Lév. in Ann. Scienc. nat. 1847, 2636
Winter Die Pilze p. 246, Schroet. Pilz. Schles. pag. 369, *Uredo*

Campanulæ Pers. Syn. Fung. p. 217, *Coleosporium Campanulacearum* Fr. S. V. S. p. 512. — Soris uredosporiferis hypophyllis, sparsis, rotundatis, pulverulentis, flavido-rufis, mox expallentibus; uredosporis breviter catenulatis, sphæroideis vel ovoideis, subinde angulatis aut ellipsoideis, 17-35 μ 12-28, echinulatis, flavo-aurantiacis; soris teleutosporiferis hypophyllis, crustiformibus, gregariis, sæpe confluentibus, irregularibus, primo flavescentibus, dein spadiceis vel sanguineis, demum nigrescentibus, leniter convexis; teleutosporis cylindræis vel clavatis, plerumque 4-locularibus, usque ad 100 μ . longis, 18-30 μ . latis, levibus, aurantiacis.

Hab. in foliis *Campanulæ* specierum plurimarum, *Speculariæ Speculi*, *Phyteumatis spicati*, *Jasiones montanæ*, *Lobeliæ ocymoidis*, *Adenophoræ marsupifloræ*, *latifoliæ* et *tricuspidatæ*, in Italia, Belgio, Britannia, Austria, Helvetia, Germania, Fennia, Hungaria et Sibiria asiatica.

5. **Coleosporium Euphrasiæ** (Schum.) Wint. Die Pilze p. 246, Linh. F. Hung. n. 339, Schroet. Pilz. Schles. p. 370, *Uredo Euphrasiæ* Schum. Pl. Saell. II, p. 230, *Uredo Melampyri* Rebert. Fl. Neom. p. 355, *Uredo confluens* var. *Rhinanthi* Alb. et Schwein. Consp. pag. 122, *Uredo tremellosa* var. *Ringentium* Strauss in Wett. Ann. II, p. 90, *Uredo Rhinanthacearum* DC. in Encycl. VIII, p. 229, *Coleosporium Rhinanthacearum* Lév. Cfr. Tul. in Ann. Scienc. Nat. 1854, pag. 190, t. VII, f. 11, *Coleosporium Melampyri* Karst. Myc. Fenn. p. 62, *Coleosporium flavum* Bon. Coniom. p. 20, *Erannium aureum* Bonord. Coniom. p. 17 pro parte, *Erysibe Rhinanthacearum* Wallr. Fl. Crypt. Germ. II, n. 1630, pp. — Soris uredosporiferis hypophyllis, raro epiphyllis, sparsis vel gregariis, subinde confluentibus, rotundatis, ellipsoideis, oblongatis vel elongatis, flavis, expallentibus; uredosporis catenulatis, inæqualibus, angulato-sphæroideis vel angulato-subellipsoideis, verrucosis, flavidis, 20-35 μ 12-20 v. 18-24 μ . diam.; soris teleutosporis hypophyllis, aggregatis, confluentibus, aurantio-luteis, demum rufo-sanguineis, soris uredineis commixtis; teleutosporis oblongato-vel elongato-cuneatis, 3-septatis, ope mucis hyalini coalitis, usque ad 110 μ . longis, 20-27 μ . latis.

Hab. in foliis caulibusque *Melampyri*, *Euphrasiæ*, *Odontites*, *Rhinanthi*, *Alectorolophi*, *Pedicularis*, in Italia, Belgio, Gallia, Britannia, Helvetia, Austria, Germania, Fennia, Bohemia, Lapponia, Hungaria, Neerlandia.

6. **Coleosporium Pulsatillæ** (Strauss) Fr. Summa p. 512, Winter Die

Pilze p. 248, *Uredo tremellosa* var. *Pulsatillæ* Strauss in Wett. Ann. II, pag. 89, *Uredo Pulsatillæ* Duby Bot. Gall. I, pag. 895, *Erysibe Pulsatillæ* Wallr. Fl. Crypt. Germ. II, n. 1635, *Uredo Delphinii* Wallr. mscr. — Soris utriusque formæ minutis, plerumque ellipticis vel irregularibus, sparsis, aurantiaco-flavis, maculis pallidis, flavescentibus; uredosporis rotundatis ellipticis vel oblongis, 17-38 μ 14-22, verruculosi, aurantiaco-flavescentibus; teleutosporis cylindraceo-clavatis, plerumque 4-ocularibus, usque ad 180 μ . longis, 18-20 μ . latis.

Hab. in foliis *Anemones Pulsatillæ* et *A. pratensis*, in Austria, Germania et Sibiria asiatica.

7. **Coleosporium Cerinthes** Schroet. Pilz. Schles. pag. 370. — Soris 2639 uredosporiferis minutis, rotundatis, flavo-rufis, mox expallescentibus; uredosporis globosis, ellipticis vel ovoideis, 20-24 μ 18-20, episorio hyalino, granulato; teleutosporis in soros explanatos, flavo-rufescentes congestis.

Hab. in foliis *Cerinthes minoris*, in Silesia Germaniæ (R. UECHTRITZ). — Ulterius inquirendum.

8. **Coleosporium Ipomœæ** (Schwein.) Burrill Paras. Fungi of Illinois 2640 pag. 217, *Uredo Ipomœæ* Schwein. in Rav. F. Amer. n. 488. — Hypophyllum; maculis flavescentibus vel nullis; soris utriusque formæ minutis, sparsis vel irregulariter gregariis, circularibus, teleutosporiferis convexis, saturate rufo-aurantiacis; uredosporis irregulariter ovoideis, 26 μ 18 μ . echinatis; teleutosporis oblongis v. subclavatis, conspicue 4-6-septatis, circ. 26 μ 10, loculis transverse latioribus.

Hab. in foliis *Ipomœæ Nil, lacunosæ, panduratae*, in Illinois et Carolina inf. Americæ borealis.

Species minus notæ vel ulterius inquirendæ.

9. **Coleosporium apocynaceum** Cooke in Rav. Fung. Amer. n. 44, et in 2641 Hedwigia March. 1878, pag. 38. — Hypophyllum, flavum; soris sparsis, orbicularibus, epidermide tectis; teleutosporis (?) subglobosis, asperulis, in hyphis clavatis enatis dein constrictis, demum concatenatis, 30-35 μ 25, aurantiacis.

Hab. in foliis *Amsoniæ ciliatæ*, Aiken Carolinæ inferioris. «An huc *Uredo Amsoniæ*?».

10. **Coleosporium Vernoniæ** B. et C. North Americ. Fungi n. 569. 2642 — Maculis pallidis; soris teleutosporiferis parvis, sparsis, melleis; sporis ex obovato subfusiformibus, quadrilocularibus.

Hab. in foliis *Vernoniæ fasciculatæ* et verisimiliter *Rubi villosi* in Carolina inf. et Alabama Americæ borealis (BEAUMONT). — Teleutospore iis *Bactridii* similes. Teste Burrill *Parasitic Fungi of Illinois* p. 217 ad *C. Sonchi* pertinet.

11. **Coleosporium Solidaginis** (Schwein.) Thüm. in Bull. Torrey botan. Club VI, 1878, p. 216, *Uredo Solidaginis* Schwein. Syn. fung. Carol. p. 70, n. 472, *Cæoma asteratum* Schwz. Syn. N. Amer. Fungi p. 292, n. 2870, p. p. — Soris teleutosporiferis (?) hypo-, raro etiam epiphyllis, gregariis, pulveraceis, minutis, tandem confluentibus, inquinantibus, applanatis, fulvis; teleutosporis (?) in catenulas conjunctis, catenulis erectis, loculis (sporis?) plus minus ellipticis vel globoso-ellipsoideis, 24-30 $\approx$ 20, episporio distincto, crasso, granuloso-verruculoso, 2-3 μ . crasso, hyaliuo, nucleo flavo, utrinque rotundatis vel ad umbilicum applanatis.

Hab. in foliis *Solidaginis giganteæ*, *latifoliæ*, *albisimæ*, *neurifoliæ*, *canadensis*, *puberulæ*, *sempervirentis*, in America boreali (ENGELMANN, RAVENEL, ELLIS, PECK). — «Forte, suadentibus Winter et Burrill, cum *C. Sonchi* conjungenda species».

12. **Coleosporium detergibile** Thüm. in Flora 1875. — Soris hypophyllis, minutis, sparsis, pallide flavis, dein expallescentibus; teleutosporis plerumque reniformibus, irregularibus, episporio crasso, echinulato, 22-30 $\approx$ 14-19, flavescentibus.

Hab. in foliis *Psilostomæ ciliatæ*, ad Caput Bonæ Spei Africæ australis.

13. **Coleosporium Fuchsiae** Cooke in Grevillea XIV, p. 129. — Epiphyllum, maculis parvulis, ochraceo-fuscis, angulatis vel confluentibus; soris gregariis, erumpentibus, demum epidermide ruptâ cinctis; sporis (uredosporis?) ovalibus 30-40 $\approx$ 20-22, verrucosis, aurantio-fuscis.

Hab. in foliis vivis *Fuchsiae excorticatæ*, in Nova Zelandia (KIRK).

14. **Coleosporium guaraniticum** Speg. Fungi Guaranitici I, n. 125. — Maculis nullis vel epiphyllis, indeterminatis, expallentibus; soris hypophyllis, solitariis vel hinc inde irregulariter aggregatis, orbicularibus aut subellipticis, minutis, 200-450 μ . diam., primo epidermide tectis, dein lacero-erumpentibus, subpulverulentis, pallide fulvis vel albo-subaurantiacis; uredosporis ellipticis vel sphæroideo-angulatis, 20-25 $\approx$ 13-15, hyalinis, protoplasmate granuloso, chlorino vel dilute melleo faretis, catenulatis, episporio subcras-

siusculo, latere altero dense grosseque granuloso-verrucoso, altero levi.

Hab. in foliis vivis *Ipomœæ gossypoidis*, in pratis uliginosis pr. Paraguari Americæ australis. — Species pulchella primo visa pro *Cystopodis* specie quadam facillime sumenda. « Uredosporæ quasi *Hemilejæ* ».

15. **Coleosporium? pallidulum** Speg. Fungi Guaranitici I, n. 126. — 2647

— Maculis amphigenis, irregularibus, angulosis, brunneis, subarescentibus, magnitudine ludentibus, 1–5 mm. diam.; soris hypophyllis, minutis, 100–150 μ . diam., pallide aureis v. albo-melleis, subhemisphæricis, in maculis dense aggregatis, primo tectis, dein erumpentibus; uredosporis elongato-ellipticis, 15–20 (rarius 25) $\approx$ 9–15, e mutua pressione irregularibus, sæpius utrinque subtruncatis, medio 1-septatis, non vel vix constrictis, loculis sæpe valde inæqualibus, hyalinis, nubiloso-farctis, episporio tenui, levi, dense congestis (catenulatis?).

Hab. ad folia viva *Malvaceæ* cujusdam in arvis pr. Guarapi Americæ australis. — Species sporis bilocularibus (an binis ægre secedentibus?) dubiosa, habitu externo *Æcidium* vel *Æcidium* parvulum mox in mentem revocans.

16. **Coleosporium? paraguayense** Speg. Fungi Guaranitici I, n. 127. 2648

— Maculis nullis vel vix manifestis, pallescentibus, irregularibus, indeterminatis, epiphyllis; soris hypophyllis, hinc inde plus minusque laxè gregariis, subminutis, 250–350 μ . diam., pallide melleis vel albo-fulvis, prominulis, pulverulentis; uredosporis globosis vel subellipticis, e mutua pressione obtuse angulosis, 15 μ . diam., episporio subtenui, ubique æquicrasso ac dense majusculæque verrucoso-ruguloso, subhyalino, protoplasmate oleoso-nubiloso, flavido, dense congestis, prima ætate catenulatis.

Hab. ad folia viva *Compositæ* (*Verbesinæ*?) cujusdam, in silvaticis prope Guarapi Americæ australis. — Habitus *Uredinis* cujusdam; uredosporæ etiam *Uredini* similes at prima ætate catenulatæ.

17. **Coleosporium Saussureæ** Thüm. Pilzfl. Sibir. n. 718. — Soris 2649

uredosporiferis (?) hypophyllis, irregularibus, induratis, applanatis, confluentibus, magnis, aurantiacis, demum pulveraceis roseisque; uredosporis (?) irregulariter globosis v. ovoideis, compressis, breviter catenulatis, hyalinis vel pallidissime flavidis, episporio tuberculato, tenui, 18–24 μ . diam.

Hab. ad folia viva *Saussureæ* speciei indeterminatæ, in silvis alpinis montis Kerlygan Sibiriae asiaticæ.

18. **Coleosporium Viburni** Arthur Prelim. List of Jowa Uredineæ 20
p. 163, n. 178. — Soris irregularibus primo pustuliformibus, dein explanatis, sparsis, hypophyllis vel gregariis, subinde in orbes coactis, aurantiaco-flavis; uredosporis subglobosis vel irregulariter oblongis, subtiliter crasseque verrucosis, 20-30 $\approx$ 18-25, pallide flavis; teleutosporis non visis.

Hab. in foliis *Viburni Lentaginis*, Charles City Jowa in America boreali.

19. **Coleosporium Safianoffianum** Thüm. Pilzfl. Sibir. n. 538. — Soris 20
uredosporiferis (?) amphigenis sed plerumque hypophyllis, densissime gregariis, numerosissimis, submagnis, concavo-elevatis vel hemisphærico-verruciformibus, aurantiacis, subfirmis, postremo pertusis et applanatis; uredosporis (?) late ovoideis v. breve ellipticis, concatenatis in catenulis brevibus, quadri-septemsporis, dilute lutescentibus vel achrois, episporio subcrasso, echinulato, vertice basique incrassato et processu hyalino ornato, 32-38 $\approx$ 24-28.

Hab. ad folia viva *Aronici altaici*, in silvis subalpinis pr. fluvium Uss Sibiriae asiaticæ (SAFIANOFF).

20. **Coleosporium Aconiti** Thüm. in Myc. un. n. 1440. — Soris uredosporiferis (?) hypophyllis, gregariis, late effusis, magnis, plano-adpressis subfirmisve, luteo-aurantiacis, irregularibus; uredosporis (?) ellipsoideis v. globulosis, catenulatis in catenulis brevibus quadri-sexsporis, pallidissime luteolis vel plerumque achrois, episporio tenui vix subechinulato vel fere levi, 16-22 $\approx$ 14-18.

Hab. ad folia viva *Aconiti barbati*, pr. Minussinsk Sibiriae asiaticæ (N. MARTIANOFF).

21. **Coleosporium cimicifugatum** Thüm. in Bull. Soc. Natur. Moscou 2
1878, p. 222, Myc. un. n. 1250. — Soris uredosporiferis (?) hypophyllis, gregariis, aurantiacis, firmis, sæpe confluentibus, planis, mediis in parte expallescente, in pagina superiore flavescente; uredosporis (?) ellipsoideis, concatenatis, utrinque rotundatis, pallide flavidis, 30 $\approx$ 20, catenulis plerumque tetrasporis; paraphysibus nullis.

Hab. ad folia viva *Cimicifugæ foetidæ*, pr. Minussinsk in Sibiria occidentali (MARTIANOFF).

22. **Coleosporium Madiaæ** Cooke in Grev. VII, p. 102. — Læte auran- 20
tium; soris epiphyllis, ovatis, erumpentibus; uredosporis (?) concatenatis, aurantiacis, globoso-compressis, levibus, 23 $\approx$ 18.

Hab. in foliis vivis *Madiaæ Nuttalli*, Sierra Nevada.

23. **Coleosporium Ligulariæ** Thüm. in Bull. Soc. Natur. de Moscou 2655
1877, p. 140, Myc. univ. n. 1046. — Soris uredosporiferis (?) gregariis, hypophyllis, sæpe confluentibus, applanatis vel vix elevatis, rubris; uredosporis (?) 3-4 conjunctis, fere globosis sed compressis, 20-28 μ . crass., concatenatis, 80-85 μ . longitudine catenularum, episporio tenui, levi, terminalibus acutatis, pulchre ochraceo-flavis; paraphysibus nullis.
Hab. in foliis vivis Ligulariæ sibiricæ, Minussinsk Sibiræ occidentalis (N. MARTIANOFF). — Hanc speciem cl. Winter cum *C. Sonchi* conjungit. «An, revera, ab hac specie sat diversa?»
24. **Coleosporium fuscum** Hazsl. Brand. und Rostp. Ungarns in Wiss. 2656
Akad. Ung. 1877 et in Just Bot. Jahresb. 1877, p. 71. — Soris minutis, hypophyllis, sparsis, brunneis; sporis breviter catenulatis, globosis vel polymorphis, levibus, 20-24 μ . diam. brunneis.
Hab. in foliis Cytisi supini, prope Nyiregyhaza (A. DIETZ) et pr. Wallendorf Hungariæ (KALCHBRENNER).
25. **Coleosporium Hedyotidis** Kalchbr. et Cooke in Grevillea IX, p. 21. 2657
— Epiphyllum, sparsum, aurantiacum; soris elongatis vel confluentibus; sporis concatenatis, ellipticis, utrinque truncatis, 20-30 $\approx$ 16, episporio granuloso donatis.
Hab. in foliis Hedyotidis Amatymbicæ, ad Natal Africæ.
26. **Coleosporium Rubi** Ell. et Holw. in Ellis et Everh. North Ame- 2658
rican Fungi n. 1878. — Soris hinc inde gregariis confluentibusque, flavescenti-aurantiacis, minutis, hypophyllis; uredosporis catenulatis, globosis vel late ellipsoideis, 18-20 μ . latis, flavescensibus, subtiliter verruculosus, episporio hyalino, tenui.
Hab. in foliis Rubi villosi, Faulkland Del. Americæ borealis (A. COMMONS). — «An *Phragmidii* cujusdam status uredosporus?»
- CHRYSOMYXA** Unger Beit. z. vergl. Pathologie p. 1 cum icona (Etym. *chrysos* aureus et *myxa* gelatina), *Blennoriæ* sp. Wallr. — Teleutosporæ transverse pluriseptatæ, in seriem simplicem vel subinde ramosam, loculis inferioribus sterilibus (suffultoriis), in stratum flavo- v. sanguineo-rufescentem, explanatum v. leniter convexum, subceraceum, coalitæ; promycelium plerumque 4-septulatum, loculis singulis sporidiola solitaria sterigmatum ope gerentibus; uredosporæ ut in *Coleosporio*; æcidia ut in *Puccinia*.

A. EUCHRYSOMYXA De Bary, (*Melampsoropsis* Schroet.). *Æcidiosporæ*, *uredosporæ* et *teleutosporæ* cognitæ.

1. **Chrysomyxa Ledi** (Alb. et Schwein.) De Bary in Botan. Zeitung 1879, p. 809, t. X, f. 7-8, Winter Die Pilze p. 251, Schroet. Pilz. Schles. p. 371, *Uredo Ledi* A. et S. Consp. p. 125, *Melampsoropsis Ledi* Schroet. olim, *Pucciniastrum Ledi* Karst. Myc. Fenn. IV, pag. 57, *Erysibe Ledi* Wallr. Fl. Crypt. Germ. II, n. 1620, *Æcidium abietinum* Alb. et Schw. l. c. p. 120 p. p. *Cæoma piceatum* Link Sp. II, p. 63 p. p., *Cæoma longiusculum* Lasch in Klotzsch-Rabenh. Herb. myc. I, n. 495, *Cæoma Ledi* Link Sp. pl. gen. p. 15, *Uredo ovoideo-aurantiaca* Bonord. Coniom. p. 32, *Uredo abietina* Spr. Syst. IV, p. 572. — *Spermogoniis* globosis, numerosis, aurantiaco-rufis, solitariis vel gregariis; *æcidiiis* plurimisque seriatis; *pseudoperidiis* margine albo, lacerato, cellulis biconcavo-explanatis; *æcidiosporis* globosis, ellipticis vel ovatis, 17-45 $\approx$ 12-22, aurantiaco-rufis, verrucosis; *oris* uredosporiferis minutis, rotundatis vel majusculis, oblongis, punctiformibus, demum confluentibus, hypophyllis; *maculis* flavis vel sordide brunneis, epiphyllis; *uredosporis* rotundatis, ellipticis vel oblongo-piriformibus, subinde angulatis, 16-35 $\approx$ 14-23, verrucosis, aurantiaco-flavescentibus; *oris* teleutosporiferis brunneo-vel sanguineo-rufis, explanatis, pustuliformibus, sparsis vel gregariis; *teleutosporis* oblongis, 70-90 $\approx$ 13-15, levibus, aurantiacis; *sporidiolis* ovoideis, 11 $\approx$ 7, aurantiaco-rufescentibus.

Hab. *æcidia* et *spermogonia* in *Abietibus*, *uredosporæ* et *teleutosporæ* in foliis *Ledi palustris*, in Germania, Fennia et Lapponia nec non in America boreali. — Cl. De Bary anno 1877 experimentis nexum metageneticum comprobavit.

2. **Chrysomyxa Rhododendri** (DC.) De Bary in Bot. Zeit. 1879, p. 809, t. X, f. 1-6, *Melampsoropsis Rhododendri* Schroet. Entw. ein. Rost. p. II, p. 57, *Uredo Rhododendri* DC. Fl. Franc. VI, p. 86, *Cæoma Rhododendri* Link Sp. II, p. 16, *Erysibe Rhododendri* Wallr. Fl. Crypt. Germ. II, n. 1622, Winter Die Pilze. p. 250, *Æcidium abietinum* Alb. et Schwein. Consp. p. 120 p. p., *Cæoma piceatum* Link. Sp. II, p. 62 p. parte. — *Æcidiiis* in acubus flavo-maculatis uni-vel biseriatis; *pseudoperidiis* cylindræis, margine irregulariter dentato, albis, usque ad 3 mm. longis; cellulis valde compressis; *æcidiosporis* rotundatis, ellipticis vel oblongis, 17-45 $\approx$ 12-22, verrucosis, aurantiaco-flavis; *oris* uredosporife-

ris rotundatis vel oblongis, subinde angulatis, sparsis vel gregariis, maculis rufo-violaceis, flavis vel brunneo-rufis; uredosporis plerumque subpolygoniis, globosis vel oblongis, 17-28 $\approx$ 15-22, verrucosis, aurantiaco-flavis; soris teleutosporiferis similibus convexis, nullo ordine in greges magnos vel parvos, maculæ rufo-brunnæ impositos congestis, primo brunneo-rufis, dein aurantiaco-flavis; teleutosporis 10-14 μ . latis, sursum non dilatatis, obtuse rotundatis.

Hab. æcidia in acubus, Pini Abietis, uredosporæ et teleutosporæ in foliis Rhododendri ferruginei, dahurici et hirsuti, in Italia, Gallia, Germania, Sibiria asiatica.

B. HEMICHRYSOMYXA Winter. Uredosporæ et teleutosporæ adhuc tantum cognitæ, in eadem matrice evolutæ.

3. **Chrysomyxa Pirolæ** (DC.) Rostr. Myc. Notiz. pag. 126, Schroet. 2661
 Pilz. Schles. p. 372, *Æcidium?* *Pirolæ* DC. Fl. Franç. VI, p. 99, *Uredo pirolata* Körn. in Hedwigia 1877, p. 28, *Æcidium pirolatum* Schwein. Syn. North Amer. Fungi n. 2893, *Chrysomyxa pirolata* Wint. Die Pilze p. 250, F. E. n. 2622, Linhart. F. Hung. n. 340. — Soris uredosporiferis pulverulentis, minutis, rotundatis, mox epidermide rupta cinctis, plerumque æque per totam inferiorem folii paginam sparsis, flavo-rufescentibus, usque 1 mm. latis; uredosporis rotundatis vel oblongis, sæpe angulatis, 19-33 $\approx$ 16-22, verruculoso-punctulatis, aurantiaco-flavis, episporio hyalino; soris teleutosporiferis crustiformibus, minutis, rotundatis, explanatis, flavo-rufis, demum sanguineo-rufis, per totam superficiem folii inferiorem sparsis; teleutosporis 100-120 $\approx$ 8; sporidiolis globosis, 7-8 μ . diam.

Hab. in foliis *Pirolæ* rotundifoliæ, grandifloræ, minoris et secundæ, in Germania, Groënlandia, Hungaria, Gallia et America boreali.

4. **Chrysomyxa albida** Kühn in Schroet. Pilz. Schles. pag. 372. — 2662
 Soris uredosporiferis dilute citrinis, mox expallescentibus, minutis, punctiformibus, diu epidermide tectis; uredosporis globosis, ellipticis vel ovoideis, circ. 26 μ . diam., hyalinis, subtiliter verruculosis; soris teleutosporis solitariis, albis vel flavidulis, plerumque crustas 250-500 μ . latas, explanatas efformantibus; teleutosporis, cellula suffultoria exclusa, 5-6-12-locularibus, simplicibus vel ramosis, episporio hyalino vertice levi vel subpunctulato, explanato vel acutiusculo, loculis singulis valde difformibus, 17-47 $\approx$ 15-26; sporidiolis globosis, 8,5-9,5 μ . diam.

Hab. in *Rubus fruticosus*, in Germania.

5. **Chrysomyxa Empetri** (Pers.) Rostr. F. Groën. pag. 536, Schroet. & Pilz. Schles. p. 372, *Uredo Empetri* Pers. in Moug. et Nestl. Stirp. crypt. vogeso-rhen. n. 391, DC. Fl. Franç. VI, p. 87, *Thecopso-ra Empetri* Karst. M. F. App. Link. Sp. II, p. 16, *Cecoma Empetri* Winter Die Pilze p. 25, *Erysibe Empetri* Wallr. Fl. Crypt. Germ. II, n. 1621. — Soris uredosporiferis hypophyllis, aurantiaco-rufis, primo epidermide bursiformi tectis clausisque, dein pulverulentis; uredosporis ellipticis, ovatis vel piriformibus, sæpe subangulatis, 26-45 μ = 17-32, verruculosi, aurantiaco-flavis, exterioribus insimul subcompressis, pseudoperidium laxum efficientibus.

Hab. in foliis *Empetri nigri*, in Germania, Groënlandia, Fennia et Gallia. — Teleutospore adhuc ignotæ, tamen species hæc, suadente Schroeter, videtur hoc loco inserenda.

C. LEPTOCHRYSONYXA De Bary. Teleutospore tantum cognitæ, mox germinantes.

6. **Chrysomyxa Abietis** (Wallr.) Unger Beitr. zur vergl. Pathol. 2 p. 24 cum icone, Kunze F. sel. n. 53, Winter Die Pilze p. 249, Schroet. Pilz. Schles. p. 372, *Blennoria Abietis* Wallr. in Allgem. Forst. und Jagdzeit. 1834, n. 17, *Uredo epidermoidalis* Hartig in Verhand. Harzer Forstvereins 1864, pag. 61. — Soris teleutosporiferis (mycelio hybernante) linearibus, seriatis, ceraceis, flavescenti-rufis, maculæ flavidæ insidentibus; teleutosporis cylindraceis, sursum leniter clavato-incrassatis, sæpe ramosis, subinde simplicibus, usque ad 100 μ . longis, 9-12 μ . latis, usque ad 12-locularibus, episporio hyalino, plasmate aurantiaco-rufescente; sporidiolis globosis, 4-6 μ . diam., aurantiaco-rufis.

Hab. in acubus *Abietis pectinatæ* et *Abiet. excelsæ*, in Germania, Gallia et Bohemia. — Folia infecta flavo-maculata vel flavo-fasciata videntur.

Pucciniastrum Otth. in Mitth. Bern. (1861), p. 72 (Etym. a *Puccinia*). *Phragmospora* Magnus in Hedwigia (1875), p. 123, *Melampso-ræ* sp. auct. — Teleutospore extracellulares, longitudinaliter divisæ; uredospore pseudoperidio apice poro minuto pertuso inclusæ; ceterum fere ut in *Melampso-ræ*.

1. **Pucciniastrum Epilobii** (Chaill.) Otth. in Mittheil. Bern 1861, p. 72, 20 *Melampso-ræ pustulata* (Pers.) Schroet. Pilz. Schles. p. 364, *Uredo pustulata* a Pers. Syn. pag. 219, *Cecoma Onagrarum* Link

Sp. II, pag. 29 p. p., *Melampsora Epilobii* Fuck. Symb. pag. 44, Wint. Die Pilze pag. 243, *Phragmospora Epilobii* Magnus in Hedwigia 1875, pag. 123, *Erysibe pustulata* Wallr. Fl. Crypt. Germ. II, n. 1618 saltem p. p. — Soris uredosporiferis hypophyllis, pseudoperidio hemisphærico apice pertuso tectis, pustuliformibus, flavo-rufis, mox expallescentibus, sparsis; uredosporis inæqualibus, angulato-sphæroideis vel ellipsoideo-sphæroideis, echinulatis, flavescentibus, 12-24 $\approx$ 10-16; soris teleutosporiferis crustiformibus, primo rufo-brunneis, epidermide tectis, planis, confluentibus, atrofusis; teleutosporis intercellularibus, raro uni-, plerumque 3-4-ocularibus, cylindræis v. obovato-clavatis, usque ad 40 μ . longis.

Hab. in foliis *Epilobii* angustifolii, rosei, hirsuti, irrigati, palustris, spicati, montani, Dodonæi, in Italia, Belgio, Arduennis, Austria, Hungaria, Helvetia, Germania, Gallia, Fennia, Britannia, America boreali.

2. **Pucciniastrum Œnotheræ** Gaillard in Bull. Soc. Myc. Fr. tom. III, 2666 1887, pag. 183. — Soris uredosporiferis hypo-, rarius epiphyllis, sparsis vel in macula brunneo-ferruginea gregariis; pseudoperidiis epidermide tectis, flavidis; uredosporis inæqualibus, subsphæricis vel angulatis e flavo pallide virescentibus, 33-36 $\approx$ 24-27, episorio hyalino, tenui, levissimo; teleutosporis non visis.

Hab. in foliis *Œnotheræ* biennis, in Gallia. — A *Pucciniaastro Epilobii*, cui simile, uredosporis levissimis distinctum videtur.

3. **Pucciniastrum Circææ** (Schum.) Speg. Dec. myc. n. 65, *Melampsora Circææ* (Schum.) Thüm. in Myc. univ. n. 447, Wint. Die Pilze p. 243, Schroet. Pilz. Schles. p. 364, *Uredo Circææ* Schum. Pl. Saell. II, p. 228, *Cæoma Onagrarum* Link Sp. II, p. 29 p. p. — Soris uredosporiferis minutis, pustuliformibus, sparsis, rotundatis, flavo-rufis, sæpe late extensis; pseudoperidiis hemisphæricis, apice ostioliformi-apertis; uredosporis ellipticis vel ovoideis, 15-24 $\approx$ 10-14, aculeatis, aurantiaco-flavis; soris teleutosporiferis explanatis, confertis, sæpe confluentibus, minutis, explanatis, crustiformi-ceraceis, flavo-brunneis; teleutosporis 1-4-ocularibus, rotundato-polygoniis, intercellularibus, usque ad 30 μ . longis et 26 μ . latis, pallide brunneis, loculis cuboideis, breviter cylindræis vel claviformibus.

Hab. in foliis *Circææ* lutetianæ, intermediæ, alpinæ, in Italia, Gallia, Germania.

4. **Pucciniastrum Crotonis** (Burr.) De-Toni, *Melampsora Crotonis* 2668

Burrill Parasitic Fungi of Illinois p. 213, *Trichobasis Crotonis* Cooke in Grevillea VI, p. 137. — Amphigenum; soris uredosporiferis sparsis, prominulis, rotundatis, epidermide cinctis, minutis, subcinnamomeis; uredosporis obovatis, pedicellatis, verruculoso-aculeolatis, $18-30 \approx 15-21$; soris teleutosporiferis irregularibus, sparsis vel subinde confluentibus, leniter elevatis, rufo-brunneis; teleutosporis irregularibus, plerumque ellipticis vel oblongis, 1-2-pluri-ocularibus, levibus, granuloso-farctis, $30-42 \approx 11-15$, e pallido obscure brunneis.

Hab. in foliis *Crotonis* capitati, procumbentis, monanthogyni et *Crotonopsidis* linearis, in Illinois et California Americæ borealis.

5. **Pucciniastrum? Scleriæ** Pat. in Journ. de botanique I, (1887) p. 248. 2

— Pseudoperidiis persistentibus, hypophyllis, minutissimis, flavis, distinctis, sparsis, aureola violacea folii contextum transcurrente et in opposita pagina maculam efficiente cinctis; uredosporis inæqualibus, ellipsoideis vel sphaericis, longe subtiliterque aculeolatis, flavis, pallidissimis, granuloso-farctis, $20-30 \approx 20$, paraphysibus nullis; teleutosporis haud visis.

Hab. in foliis *Scleriæ*, Gabon Africæ occidentalis (THOLLON). — Pseudoperidia 0,5-1 mm. diam.

THECOPSORA Magnus in Hedwigia 1875, p. 123 (Etym. *theca* capsula et *psora* scabies). *Melampsora* sp. auct. — Teleutosporæ intracellulares, longitudinaliter divisæ; uredosporæ in soros pustuliformes congestæ; ceterum ut in *Melampsora* et *Pucciniastro*.

1. **Thecopsora areolata** (Wallr.) Magnus in Hedwigia 1875, p. 123, 2
Melapsora Padi Wint. Die Pilze p. 244, Schroet. Pilz. Schles. p. 365, *Uredo Padi* K. et S. Exsicc. n. 187, *Cavoma porphyrogenitum* Link Sp. II, p. 31, *Erysibe areolata* Wallr. Fl. Crypt. Germ. II, *Melampsora areolata* Fr. Summa p. 482, *Sclerotium areolatum* Fr. Syst. II, p. 263, *Ascospora pulverulenta* Riess in Klotzsch-Rabenh. Herb. myc. I, n. 1754, *Uredo porphyrogenita* Link Sp. II, p. 31, *Pucciniastrum areolatum* Otth. in Wartm. et Schenk Schw. Crypt. n. 521, *Cavoma Padi* Libert Crypt. Ard. n. 89. — Soris uredosporiferis maculæ purpurascenti insidentibus, sæpe lineis rectis (nervis matricis) definitis, aggregatis, hypophyllis, flavis, pseudoperidio hemisphaerico irregulariter rupto et lacero; uredosporis sphaeroideis vel ellipsoideis, vulgo angulatis, $15-23 \approx 10-16$, aculeatis, flavescens; soris teleutosporiferis epidermidi

innatis, epiphyllis, crustas irregulares, leniter convexas, subinde angulatas, primo brunneo-rufas, minutas, demum atro-brunneas confluentesque efficientibus; teleutosporis in cellulis epidermidis evolutis easque implentibus, rotundato-cuboideis, longitudinaliter septatis, 2-4-locularibus, usque ad 30 μ . longis, brunneis, loculis prismatico-cylindraceutis.

Hab. in foliis Pruni Padi et virginianæ, in Britannia, Austria, Helvetia, Germania, Gallia, Fennia, Belgio, Arduennis, Sibiria asiatica.

2. **Thecopsora Galii** (Link) De-Toni, *Melampsora Galii* Wint. Die Pilze p. 244, Schroet. Pilze Schles. p. 365 *Cæoma Galii* Link Sp. II, p. 21, *Melampsora guttata* Schroet. Brand. und Rostp. p. 26, *Uredo Sherardiae* Rostr. in Thüm. Mycoth. Univ. n. 1348. — Soris uredosporiferis minutis, hemisphæricis, pustuliformibus, flavo-rufis, sparsis vel gregariis, pseudoperidio hemisphærico, apice pertuso; uredosporis ellipticis vel ovoideis, 14-26 $\approx$ 11-17, aculeolatis, aurantiaco-flavis; soris teleutosporiferis irregularibus, maculas variæ magnitudinis efformantibus, in epidermidis cellulis evolutis easque implentibus, in crustas atras, minutas confluentibus; teleutosporis rotundato-cuboideis, plerumque septis longitudinalibus 4-locularibus, usque ad 26 μ . longis.

Hab. in foliis Galii Molluginis, veri, Schulthesii, silvatici, uliginosi et Sherardiae arvensis, in Italia, Austria, Germania, Dania.

3. **Thecopsora Vacciniorum** (Link) Karst. Myc. Fenn. IV, p. 58, *Melampsora Vacciniorum* (Link) Schroet. Pilz. Schles. p. 365, *Melampsora Vaccinii* (A. et S.) Wint. Die Pilze p. 244, *Uredo pustulata* var. *Vaccinii* Alb. et Schwein. Consp. p. 126, *Thecopsora myrtillina* Karst. Mycol. Fenn. IV, p. 59, *Cæoma Vacciniorum* Link Sp. II, p. 15, *Uredo Vacciniorum* DC. Fl. Franç. p. 85, *Æcidium Myrtilli* Schum. Pl. Saell. II, p. 224? — Soris uredosporiferis hypophyllis, pustuliformibus, maculæ flamenti-pallidæ, dein ferruginascenti vel subfusæ insidentibus, solitariis vel plus minus aggregatis pseudoperidio innato-prominulo, demum poro minuto pertuso, flavido-ferruginascente tectis, minutis; uredosporis subsphæroideis vel subellipsoideis vel ovoideis, echinulatis 16-28 $\approx$ 11-20, aurantiacis; soris teleutosporiferis parum conspicuis in cellulis epidermidis evolutis easque complentibus, maculas flavas hypophyllas efficientibus, crustiformibus, brunneis, hypophyllis; te-

leutosporis rotundato-cuboideis, 14-17 μ . longis, pallide brunneis, septis longitudinalibus instructis.

Hab. in foliis *Vaccinii* *Vitis-idææ*, corymbosi, *Myrtilli*, *Oxycocci*, uliginosi, in Italia, Gallia, Austria, Germania, Belgio, Britannia, Fennia, Lapponia, Sibiria asiatica et America boreali.

4. **Thecopsora? Pirolæ** (Gmel.) Kart. Myc. Fenn. IV, p. 59, *Melampsora Pirolæ* (Gmel.) Schroet. Pilz. Schles. p. 366, *Æcidium Pirolæ* Gmel. in Linn. Syst. Nat. II, p. 1473, nec DC., *Uredo Pirolæ* Mart. Fl. Mosq. p. 229, Wint. Die Pilze p. 254, *Cæoma Pirolæ* Schlecht. Fl. Berol. II, p. 122, *Trichobasis Pirolæ* Berk. Outl. p. 332, Cooke Handb. n. 1584. — Soris uredosporiferis minutis, pustuliformibus, flavo-rufis, in greges parvos dispositis; pseudoperidiis hemisphæricis, apice ostiolo pertusis; uredosporis plerumque oblongis vel claviformibus, raro ellipticis v. ovatis, deorsum angustatis, 20-35 $\approx$ 12-20, aculeolatis, aurantiaco-flavescentibus.

Hab. in foliis *Pirolæ* unifloræ, rotundifoliæ, chloranthæ, minoris, secundæ, mediæ, in Germania, Gallia, Rossia, Arduennis, Britannia, Fennia, Lapponia et America boreali. — Etsi teleutosporæ nondum cognitæ sint, verisimiliter uredosporæ sunt generi *Thecopsoræ* adscribendæ. Cfr. n. 2661.

CALYPTOSPORA Kühn in Hedwigia 1869, p. 81 (Etym. a *calypto* tego et *spora*) *Melampsoropsis* Wint. die Pilze p. 245 (ut subgenus *Melampsoræ*), non Schroet. — *Æcidiosporæ* catenulatæ, pseudoperidio persistenti inclusæ; uredosporæ nullæ; teleutosporæ intracellulares plerumque longitudinaliter 4-loculares, soros intense brunneos ætate protracta expallescentes efformantes.

1. **Calyptospora Gæppertiana** J. Kühn in Hedwigia 1869, pag. 81, 28. Schroet. Pilz. Schles. p. 367, *Melampsora Gæppertiana* Winter Die Pilze pag. 245 (*Melampsoropsis*), *Æcidium columnare* Alb. et Schwein. Consp. Nisk. p. 121, t. 5, f. 4, *Cæoma columnneum* Link Sp. II, p. 66, *Peridermium columnare* Kunze et Schm. D. Schw. n. 10. — Spermogoniis numerosis, conoideo-prominulis, flavo-melleis; æcidiiis secus series duas dispositis, in acuum pagina inferiore sitis; pseudoperidiis cylindræis, usque ad 3 mm. longis, albis, margine irregulariter denticulato; æcidiosporis globosis vel ellipsoideis, 16-22 $\approx$ 10-16, verrucosis, episporio hyalino, plasmate aurantiaco-rufescente; soris teleutosporiferis cauliculis vel ramiculis, late expansis, prima ætate læte brunneis, demum expallentibus; teleutosporis

cuboideo-globosis, septis longitudinalibus plerumque 4-ocularibus; usque ad 30 μ . longis, levibus, intracellularibus, brunneolis.

Hab. spermogonia et æcidia in acubus *Abietis* albæ et canadensis, teleutosporæ in caulibus ramisque *Vaccinii* *Vitis*-*Ideæ*, in Austria, Germania, Britannia, America boreali. — Ramuli caulesque *Vaccinii* a soris deformati sunt et ut plurimum elongato-inflati.

ENDOPHYLLUM Lév. in *Bullet. philom.* 1825, p. 233 (Etym. *endon* intus et *phyllon* folium). — Teleutosporæ catenulatæ, facile secedentes, pseudoperidio æcidiiformi inclusæ, ut teleut. *Pucciniæ* germinantes; sporidiola globosa v. ellipsoidea, aurantiaco-rufescentia.

1. **Endophyllum Sempervivi** (Alb. et Schwein.) De Bary *Morphol.* 2675 p. 304, *Winter Die Pilze* p. 252, *Schroet. Pilz. Schles.* p. 356, *Uredo Sempervivi* Alb. et Schwein. *Consp.* p. 126, *Endophyllum Persoonii* Lév. in *Bull. philomat.* 1825, p. 232, *Uredo Sedi* DC. *Encycl.* VIII, p. 225, p. parte. — Pseudoperidiis sparsis, hemisphæricis, deorsum roseis, sursum albis, plus minus extus lacunosis, sub epidermide pustuliformi-inflata demumque lacerata immersis; teleutosporis plerumque rotundatis vel obovatis, 25-35 $\approx$ 20-32, verrucosis, flavo-brunneis.

Hab. in foliis *Sempervivi* tectorum, montani, hirti, soboliferi nec non *Echeverie*, in Gallia, Belgio, Austria, Helvetia, Germania, Britannia.

2. **Endophyllum? Sedi** (DC.) Lév. in *Bull. Philom.* 1825, p. 232, *Winter Die Pilze* p. 252, *Uredo Sedi* DC. *Fl. Franç.* II, p. 227, p. parte, vix Cesati, *Schroet. Pilzfl. Schles.* p. 381. — Pseudoperidiis ut in *E. Sempervivi* De Bary at minori magnitudine, solitariis; cellulis subtiliter verrucosis; teleutosporis rotundato-polygoniis, 20-35 $\approx$ 16-24, subtiliter muriculatis, lutescentibus, episporio hyalinulo.

Hab. in foliis *Sedi* maximi, acris, reflexi, boloniensis, sexangularis, in Gallia et Germania. — Adest sæpe socia *Tuberculina persicina* (Ditm.) Sacc. Spermogonia sparsa, infossa, conoideo-prominula, mellea.

3. **Endophyllum Euphorbiæ-silvaticæ** (DC.) *Winter Die Pilze* p. 251, 2677 *Æcidium Euphorbiæ-silvaticæ* DC. *Fl. Fr.* II, p. 241. — Pseudoperidiis æque per totam inferiorem folii paginam sparsis, rotundatis vel ellipticis, cupulatis, margine albo, lacinulato, suberecto vel reflexo; teleutosporis polygoniis, 16-26 $\approx$ 12-18, subtiliter granulatis, aurantiaco-flavis.

Hab. in foliis *Euphorbiæ silvaticæ* et *amygdaloidis*, in Gallia et Germania. — Partes plantæ infectæ pallescentes, flavo-viridi coloratæ.

MILESIA White in Scot. Natur. IV, p. 162 (Etym. a cl. MILES). — *Pseudoperidium minutum, incarceratum, endophyllum, reticulatum, basi inter cellulas matricis radicante; teleutosporæ (?) obovatæ, echinulatæ, ex ostiolo minuto demum copiose ejectæ.*

1. **Milesia Polypodii** B. et White l. c. t. II, f. 5. — Hypophylla; pseudoperidiis sphaericis, minutis, pallidis, mammiformi-prominulis, dispersis; sporis albidis, obovatis, echinulatis.

Hab. in foliis *Polypodii vulgaris*, Perthshire Britanniae.

2. **Milesia Polygoni** B. et White in Hedwigia 1878, p. 83. — Hypophylla; pseudoperidiis omnino infossis, reticulatis; sporis 30-40 μ . l.

Hab. in foliis *Polygoni vivipari*, in Britannia. — «Etsi matrix tam diversa indicetur, forte ex lapsu calami, species eadem ac præcedens».

4. Dictyosporæ Sacc. et DE-TONI.

TRIPHFRAGMIUM Link Sp. II, (1824), p. 84 (Etym. a *tria* et *phragma* septum). — *Teleutosporæ brunneæ, radiatim triloculares, locus inferior unus pedicello suffultus, superiores bini; loculi singuli unum porum germ. gerentes; uredosporæ globosæ, aurantiaco-rufescentes.*

A. EUTRIPHFRAGMIUM Schroet. *Æcidia*, uredo- et teleutosporæ notæ.

1. **Triphragmium Ulmarie** (Schum.) Link Spec. II, p. 84, Winter 2 Die Pilze p. 224, Schroet. Pilz. Schles. p. 350, *Uredo Ulmarie* Schum. Saell. II, pag. 227, *Coleosporium Spirææ* Karst. Enum. Fung. Lapp or. p. 222, *Puccinia Ulmarie* Hedw. in DC. Flor. Franç. p. 56, *Uredo Spirææ* Sow. Engl. Fungi t. 398. — *Spermogoniis hypophyllis, rotundato-explanatis, minutis, flavo-rufis, sporulis 6 μ . longis; æcidiiis hypophyllis, nervisequiis, vulgo longissimis, epidermide mutata (pseudoperidio?) irregulariter fissa cinctis, mucosis, subaurantiacis; æcidiosporis angulato-sphæroideis, verruculosis, flavidis, 18-25 μ . diam.; soris uredosporiferis sæpius hypophyllis, solitariis vel spermogonia ambientibus, aurantiacis v. aurantio-ferrugineis, suborbicularibus, effusis, pulverulentis; uredosporis sphæroideis vel sphæroideo-ellipsoideis, primitus pedicellatis, episporio achroo, echinato, protoplasmate rubro-aurantiaco foetis, 18-30 μ 17-24; soris teleutosporiferis hypophyllis, suborbicularibus, primo*

epidermide tectis, mox ea evanescente effusis, fuscis v. fusco-nigrescentibus; teleutosporis cordatis vel obovoideis, verrucosis, 35-50 $\approx$ 26-35, castaneo-brunneis, pedicello paullo longioribus.

Hab. in foliis Spirææ Ulmariae et Ulmariae pentapetalæ, in Arduennis, Gallia, Britannia, Austria, Germania, Fennia et Sibiria asiatica.

B. HEMITRIPHAGMIUM Winter. Uredo- et teleutosporæ tantum cognitæ; æcidia ignota.

2. **Triphragmium Filipendulæ** (Lasch) Passer. in N. Giorn. botan. italiano VII, p. 252, *Uredo* (*Uromyces*) *Filipendulæ* Lasch in Klotzsch-Rabenh. Herb. Myc. I, n. 580, Winter Die Pilze p. 226. — Soris uredosporiferis sparsis, globuliformibus, epidermide tectis, luteis, dein epidermide rupta cinctis, aurantiacis; uredosporis globosis vel ovatis, aurantiacis, stipitatis, usque ad 35 μ . longis; soris teleutosporiferis conformibus, fuscis, nitidis, dein atris, puverulentis; teleutosporis gibboso-subglobosis, primo luteo-aurantiis, levibus, pedicello hyalino, longiusculo, teleutosporam subæquante fultis, usque ad 55 μ . longis.

Hab. in pagina inferiore foliorum Spirææ Filipendulæ, in Italia (PASSERINI), Britannia (CURREY) et Germania (LASCH). — A *Triphragmio Ulmariae* teleutosporis levibus differt.

3. **Triphragmium Acaciæ** Cooke in Grevillea VIII, p. 94. — Amphigenium; soris brunneis, mediis, sparsis; teleutosporis ovatis, tricellulosis, 50-60 $\approx$ 35-40, atro-brunneis, episporio hyalino-spiculatis; aculeis supra obtusis; pedicello hyalino, infra attenuato; uredosporis subglobosis, fuscis, 23-28 $\approx$ 20, levibus.

Hab. in foliis Acaciæ, ad Belgaum Indiæ or. (J. HOBSON).

C. MICROTRIPHAGMIUM Winter. Teleutosporæ tantum cognitæ.

4. **Triphragmium echinatum** Lév. in Ann. Scienc. Nat. III, 9, p. 247, Schroet Pilz. Schles. p. 351. — Soris atris, plus minus elongatis, sæpe late diffusis, pulverulentis, sæpe confluentibus, mox denudatis; teleutosporis trigonis 26-33 μ . diam., aculei, 8-14 μ . longis, brunneis obsitis, obscure brunneis, pedicello hyalino, longiusculo, deciduo.

Hab. in foliis, petiolis caulibusque Mei Mutellinæ et athamantici, in Gallia, Austria et Germania.

5. **Triphragmium Isopyri** Moug. Vog. n. 892. — Soris satis extensis, irregularibus, tumidulis, ob epidermidem velantem subcinereis, de-

nique erumpentibus, atris; teleutosporis obtuse trigonis, tricellularibus, sursum 2-locularibus, attenuatis, 35-40 μ . diam., parce verruculosus, 3-nucleatis, opace fuligineis, pedicello cylindraceo, 15 $\approx$ 6-7, hyalino suffultis.

Hab. in pagina inferiore foliorum viventium *Isopyri thalictroidis*, in collibus Euganeis Italiæ borealis (Bizzozero) et in Gallia (Mougeot). — Folia affecta deformantur vel corrugantur infraque bullosa fiunt, quasi ab aliqua ustilagine invasa essent.

6. ***Triphragmium clavellosum*** Berk. in Gard. Chron. 1857, North Americ. Fungi n. 558, Ceyl. Fungi n. 823. — Soris in maculis orbicularibus congestis, epidermide cinctis, nigris; teleutosporis truncato-obovatis, biseptatis, septo superiore verticali, processibus apice incrassatis emarginatis asperis.

Hab. in foliis *Araliæ nudicaulis*, *Paratropæ terebinthinacæ*, *Hederæ* et *Amygdaleacæ* cujusdam, in America boreali et in insula Ceylon.

7. ***Triphragmium Thwaitesii*** B. et Br. Ceylon Fungi n. 822. — Teleutosporis globosis, processibus bifurcatis ornatis.

Hab. in foliis *Hederæ Vahlîi*, ad *Peradenya* in insula Ceylon. — «An idem ac *T. clavellosum* Berk.?»

RAVENELIA Berk. in Gardeners' Chronicle 1853, pag. 211 (Etym. a cl. mycologo amer. H. W. RAVENEL), Parker Morphol. *Ravenelia* glanduliformis in Am. Acad. of arts and Sciences, 1886, VIII, p. 205, Cooke The genus *Ravenelia* in Journal. R. Micr. Society ser. I, vol. III, 1880, p. 384, pl. XI. — Teleutosporæ pluriloculares, transverse et longitudinaliter h. e. radiatim septatæ, basi cellulis hyalinis (cystoideis) plerumque instructæ, sessiles vel pedicellatæ; uredosporæ et æcidiosporæ nonnumquam evolutæ.

A. EU-RAVENELIA. Æcidiosporæ, uredosporæ et teleutosporæ evolutæ.

1. ***Ravenelia Hieronymi*** Speg. Fungi Argentini Pugillus IV, n. 78, 2 *Æcidium Hieronymi* l. c. n. 93, *Uredo Hieronymi* l. c. n. 78. — Pseudoperidiis densiuscule gregariis vix basi matrici infossis, cylindraceo-tubulosis, longe exsertis, gracilibus, 1 mm. long., 2-3 mm. crass., facile deciduis, margine vix dilatato, integro vel rarius fissso, levissimis, albis, membranaceis, fragilibus, contextus cellulis hyalinis, tubularibus, irregularibus, 30-40 $\approx$ 12-15, tunica crassa superne seriebus subradiantibus tuberculorum minutorum, lateraliter costis integris, verticalibus percursa composito; æcidiosporis

globosis vel e mutua pressione irregularibus, 20-25 μ . diam., episorio crasso, levi v. minutissime (subimperspicue) granuloso, hyalino, protoplasmate nubiloso, fulvello donatis; soris uredosp. late ramulos tumefactos ambientibus, dense gregariis, primo tectis, dein erumpentibus, minutis, 2-3 mm.; uredosporis obovatis v. obovato-subglobosis, sursum plus minusve rotundatis, deorsum truncatis, sessilibus, episorio antice incrassato, intense fuligineo, densissime minuteque verruculoso, postice tenuiore, palliore, levioere protoplasmate granuloso donatis; soris teleut. dense gregariis, ramos juniores parce deformatos late et sæpe totos ambientibus, hemisphæricis, 5-6 mm., pulveraceis, satupate cinnamomeis; teleutosporis hemisphæricis, vel globoso-sublenticularibus, 80-95 $\approx$ 70-75 e 50-60 loculis fertilibus, subcuboideis vel conico-subcuboideis, episorio tenui, levissimo, 20-22 $\approx$ 10-16, fuligineis compositis, sursum rotundatis, deorsum truncatis, inferne 10-14 cellulis appendicularibus globosis vel ovoideis, hyalinis, 20-25 μ . diam. ornatis, pedicello longiusculo sed mox fatiscente 10 μ . crass., hyalino v. pallidissime fusciscente suffultis.

Hab. in ramulis vivis *Acaciæ caveniæ* in montuosis «*Sierra Dhica*» prope S. José, Córdoba in Republica Argentina Americana borealis (Dr. HIERONYMUS).

B. HEMI-RAVENELIA. Uredosporæ et teleutosporæ evolutæ; æcidiosporæ ignotæ.

2. ***Ravenelia glanduliformis*** Berk. et Curt. North American Fungi 2688 n. 561, Cooke in Journ. of R. Micr. Soc. 1880, III, p. 385, t. XI, f. 1-2, Parker Morph. Raven. glandulif. t. I, f. 1-9, t. II, f. 10-14, *Ravenelia glandulosa* Berk. et Curt. mscr. — Teleutosporis urniformibus, stipitatis, 100-120 μ . diam., 5-6 cellulas in omni directione circ. præbentibus, cellulis singulis 20 μ . latis, deorsum hyalinis plicato-lobatis, sursum levibus, margine excedente; uredosporis ellipticis, muriculatis.

Hab. in foliis *Tephrosiæ spicata*, hispidulæ, hispidæ et virginianæ, in Carolina inferiori et Georgia aliisque Americæ borealis locis.

3. ***Ravenelia glabra*** Kalchbr. et Cooke in Rabenh. Wint. F. E. n. 2689 2624 et Journal of R. Micr. Soc. 1880, III, p. 386, t. XI, f. 9-10, Parker. Morph. Raven. glandulif. t. II, f. 20. — Sparsa; capitulis magnis 150 μ . diam., superne convexis, subsessilibus; teleutosporis 20 μ . diam., levibus, læte brunneis; uredosporis ellipticis, verruculosis.

Hab. in foliis Acaciæ horridæ et Calpurniæ silvaticæ, ad Caput Bonæ Spei Africae australis. — Verisimiliter huc pertinet *Ravenelia stictica* in foliis Calpurniæ silvaticæ ex Africa australi.

4. **Ravenelia stictica** Berk. et Br. Fungi of Ceylon n. 839, Cooke in Journ. of R. Micr. Soc. 1880, III, pag. 387, t. XI, f. 7, Parker Morph. *Ravenelia glanduliformis* t. II, f. 21. — Soris minutis, hypophyllis; teleutosporis s. capitulis sessilibus, 80–90 μ . diam., circ. 4 cellulas in omni directione præbentibus, pallidis, orbicularibus, cellulis cystoideis minutis, inconspicuis, extus breviter echinatis; uredosporis subglobosis, subtiliter papillatis.

Hab. in foliis Pongamiæ glabræ et Tephrosiæ suberosæ, in insula Ceylon (BERKELEY et BROOME) nec non Calpurniæ silvaticæ ad Somerset East Africae australis (MAC-OWAN).

5. **Ravenelia Hobsoni** Cooke in Journ. R. Micr. Soc. 1880, III, p. 386, tab. XI, f. 4–5, *Ravenelia stictica* Berk. et Br. in Grevillea V, p. 15. — Teleutosporis s. capitulis parvis, explanatis, 50–70 μ . diam., circiter 4 cellulas in quaque directione præbentibus, serie superiori et exteriori processibus spiniformibus hyalinis longitudine et crassitudine illos *R. aculeiferæ* simulantibus ornatis; uredosporis late ellipticis, subtiliter verruculosi.

Hab. in foliis arboris cujusdam ignotæ in India orientali.

6. **Ravenelia minima** Cooke in Grevillea X, p. 128. — Uredosporis ellipticis, aurantio-flavidis, 23 $\approx$ 15, episporio asperato donatis; teleutosporis seu capitulis fuscis convexis, infra applanatis, 50 μ . diam., e cellulis 6–8 (rarius 10) compositis; episporio obtuse spinuloso.

Hab. in Albizzia fastigiata, Inanda Natal Africae (WOOD).

7. **Ravenelia verrucosa** Cooke et Ellis in Journal of Mycology 1887, p. 83 et in Grevillea XVI, pag. 112. — Hypophylla; uredosporis globosis, asperulis, luteis, 19 μ . diam.; teleutosporis in glomerulos hemisphaericos congestis 80 μ . diam.; teleutosporis (20) stipitatis, e cellulis 20 compositis, (cellulis cystoideis circ. 8), cuneatis, ad apicem asperulis, atro-fuscis, 20 μ . diam.

Hab. in foliis Lecaniæ cujusdam, Mexico Americae borealis (J. B. ELLIS). — A *Ravenelia stictica* differt teleutosporis v. capitulis stipitatis, cellulis cystoideis hyalinis amplioribus magisque conspicuis, verrucis minoribus.

C. MICRO-RAVENELIA. Teleutosporæ tantum cognitæ.

8. **Ravenelia indica** Berk. in Gardn. Chron. 1853, p. 132. B. et Br. :

Fungi of Ceylon n. 835, Cooke in Journ. of R. Micr. Soc. 1889, III, pag. 385, t. XI, f. 3, Parker Morph. Raven. glandulif. t. II, f. 17-19. — Teleutosporis, 32-100 μ . diam., longe hyalinoque pedicellatis; cellulis suffulcientibus processu filiformi semipercursis.

Hab. in leguminibus Bauhinia tomentosæ et Cassiae Abrus, prope Bohar et Damboul in insula Ceylon. — Pedicellus gracilis superne appendices cystiformes elongatas, hyalinas secus orbem dispositas gerens.

9. **Ravenelia aculeifera** Berk. Fungi of Ceylon n. 837, Cooke in Journ. 2695 of R. Micr. Soc. 1880, III, p. 386, t. XI, f. 11. — Teleutosporis 100 μ . diam., sessilibus, e cellulis paucis (6-8) compactis, basi cellulis magnis, pellucidis suffultis; processibus brevibus spinuliformibus hyalinis e cellulis marginalibus demum radiantibus.

Hab. in foliis Megonemii enneaphylli, in insula Ceylon nec non arboris cujusdam ignotæ, in India orientali.

10. **Ravenelia sessilis** Berk. Fungi of Ceylon n. 836, Cooke in Journ. 2696 of R. Micr. Soc. 1880, III, p. 386, t. XI, f. 6, Parker Morph. Ravenelia glanduliformi t. II, f. 15-16, *Ravenelia glanduliformis* Rav. Exs. III, n. 72, non Berk. Intr. p. 305. — Teleutosporis sessilibus, convexis, subexplanatis, circ. 120 μ . diam., cellulis 6-8 circ. in omni directione præbentibus, subtus cellulis cystoideis pellucidis magnis suffultis.

Hab. in foliis Acaciae Lebbek et Gleditschia, in insula Ceylon nec non in foliis Tephrosia, Aiken in Carolina inferiori Americae borealis.

11. **Ravenelia Tephrosia** Kalchbr. in herb. Winters, Parker Morphol. 2697 Rav. gland. p. 217. — Pedicello composito; cellulis cystoideis ut in *Ravenelia glanduliformi* dispositis.

Hab. in Tephrosia macropoda (?), ad Natal Africae.

12. **Ravenelia macrocystis** Berk. et Br. Fungi of Ceylon n. 838. — 2698 Teleutosporis v. capitulis convexis, 35-40 μ . diam., sessilibus e cellulis paucis, magnis, compactis, e mycelio radiante oriundis.

Hab. in foliis Cassiae Toræ, ad Damboul in insula Ceylon.

UREDINEÆ INFERIORES

ÆCIDIOLUM Unger *) Cfr. Sacc. in Michelia (Etym. ab *Æcidio*), *sphaeronematis* sp. auct. nonnull. — Pseudoperiibecia plus minus promi-

*) Quoad *Æcidio*li species cum formis teleutosporis (*Puccinia*, *Uromycete*, *Chrysomyxa*, *Metampsora* etc.) jam descriptas et nunc omissas, cfr. repertorium secundum matrices et indicem specierum alphabeticum.

nula, more conoidea, flavo-mellea, demum subatra, quasi carbonacea; sporulae ovoideae v. bacillares, hyalinulae, minutissimae. — Status *Uredinearum* spermogonicus.

1. *Æcidium Hydrocotyles* Speg. Fungi Argentini pugillus IV, n. 100. — Maculis pallide flavescentibus, indeterminatis, 1-3 mm. diam. orbicularibus; spermogoniis hypophyllis, densiuscule gregariis, minutissimis, 80-90 μ . diam., aurantiacis, prominulis; sporulis ellipticis, utrinque obtusiuscule rotundatis, 5-8 $\times$ 2-3, hyalinis.

Hab. in foliis vivis *Hydrocotyles bonariensis*, in uliginosis herbosis, Parque de Palermo in Republica Argentina Americae australis. — « Verisimiliter *Pucciniae Hydrocotyles* status spermogonicus ».

2. *Æcidium minutellum* Speg. in *Michelia* I, p. 477. — Spermogoniis primo subepidermicis, minutis, $\frac{1}{10}$ - $\frac{1}{8}$ mm. diam., gregariis, dein erumpentibus, late aurantiacis; sporulis catenulatis, ellipticis vel ovoideis, rarius subsphaericis, hyalinis, 3-4 $\times$ 1-2, sterigmatibus crassiusculis, 45-50 $\times$ 1-2 $\frac{1}{2}$, subclavulatis, quandoque 1-2-septulatis, suffultis.

Hab. in foliis *Scorzonerae hispanicae*, sociâ *Pucciniâ Compositarum*, cujus videtur status spermogonicus, in Italia bor.

ÆCIDIDIUM Pers. *) in Gmel. Syst. p. 1472 (1791) Observ. myc. I, p. 97 (1796), Syn. Fund. pag. 204 (1701) (Etym. *æcis* plagula), *Æcidium* Lév. in D'Orbigny Dict. I, pag. 137 (1841). — Pseudoperidium cupulatum vel suburceolatum, rarius cylindraceum, plerumque pallide coloratum, marginem sæpius crenatum vel laciniatum revolutumque; sporæ (æcidiosporæ) globosæ vel angulatæ, continuæ, ut plurimum aurantiaco-flavæ, catenulatæ, leves vel verrucosæ.

A. Species in Dicotyledoneis vigentes.

1. *Æcidium Clematidis* DC. Fl. Franç II, p. 243, Thüm. Mycolh. Univ. n. 1221, Winter Die Pilze p. 270, *Cwoma Vitalbatum* Link Sp. II, p. 54, *Cwoma (Æcidium) Clematitatum* Schwein. Syn. Amer. bor. p. 293, n. 2874. — Æcidiis hypophyllis vel cauliculis, sine ordine gregariis, in pustulis diverse efformatis evolutis; pseudoperidiis breviter cylindraceo-cupulatis, margine albo, lacerato, late revolutis; æcidiosporis angulatis, 19-27 μ . diam., verrucosis, aurantiaco-flavis.

*) Cfr. notam p. 773.

Hab. in foliis, petiolis, caulibus etc. Clematidis rectæ, Flammulæ, angustifoliæ, virginianæ, Vitalbæ et Viticellæ, in Gallia, Austria, Dalmatia, Hungaria, Germania, Italia, Belgio, America boreali et ad Columbia River (LYALL).

2. *Æcidium otagense* Linds. Lich. and Fungi of Otago p. 430, t. XXX, 2702 f. 61-74. — Deformans, habitu *Sticta* cujusdam; pseudoperidiis primo papilliformibus obtectisque, dein apertis, urceolatis, exsertis, sparsis vel gregariis, flavescentibus, margine integro, subrevoluto; æcidiosporis minutis, globulosis, levibus, fuscidulis.

Hab. in foliis, pedunculis floribusque Clematidis hexapetalæ, in Nova Zelandia.

3. *Æcidium Sommerfeltii* Johanson Swampe fran Island p. 161, t. 29, 2703 f. 4 et in Bot. Centr. 1887, p. 258, *Cwoma Thalictri* Sommerf. Syst. Fl. Lappon. p. 230, *Æcidium Thalictri* Grev. Scott. Crypt. t. IV. Thüm. Mycoth. Univ. n. 1323, Schroet. Pilz. Schles. p. 377, *Æcidium Thalictri-flavi* (DC.) Winter Die Pilze p. 269, *Æcidium Ranunculacearum* var. *Thalictri-flavi* DC. Fl. Franç. VI, p. 97. — Spermogoniis secus parvos greges dispositis, flavescenti-rufis; æcidiis hypophyllis, in annulos plures v. singulos distantiusculos congestis, maculæ orbiculatæ, lividæ insidentibus, pseudoperidiis cylindraceis, margine erecto, irregulariter subfimbriato, albido-flavis; æcidiosporis polygoniis, 17-38 $\approx$ 14-20, episporio hyalino, plasmate e flavo aurantiaco fartis.

Hab. in foliis petiolisque *Thalictri flavi*, minoris, cornuti, angustifolii, aquilegiifolii, Jacquiniæ, petaloidis, majoris, alpini, in Gallia, Britannia, Dalmatia, Germania, Islandia, Grœnlandia, Lapponia, America boreali et Sibiria asiatica.

4. *Æcidium urceolatum* Cooke in Grevillea VII, p. 61. — Epiphyllum vel caulicolum, deformans; pseudoperidiis congestis, cylindrico-urceolatis, subsulphureis; æcidiosporis aurantiacis, ovatis, 25 μ . longis.

Hab. in foliis caulibusque *Thalictri*, quæ valde deformat, Kanawar Indiæ, 2300 m. circ. altis. — Ab *Æcidio Thalictri* æcidiosporis majoribus, colore formaque pseudoperidii præcipue differt.

5. *Æcidium punctatum* Pers. in Usteri Ann. Bot. 1796, 20, p. 135, 2705 Winter Die Pilze p. 269, Schrodt. Pilz. Schles. p. 380, *Æcidium quadrifidum* DC. Encycl. VIII, p. 235 sec. Winter. — Spermogoniis æqualiter per folia expansis, confertis, subhyalinis; æcidiis

hypophyllis, laxiusculis, pseudoperidiis plerumque cupulatis, margine crassiusculo, sæpius regulariter 4-plurifisso, dilute brunneolis; æcidiosporis polygoniis 16-23 μ . diam., levibus, e brunneo-flavo violaceis.

Hab. in foliis *Anemones ranunculoidis*, *coronariæ* nec non *Eranthidis hiemalis*, in Gallia, Italia, Germania, Belgio, Britannia.

6. ***Æcidium Hepaticæ*** Beck in Verhandl. Zool. bot. Ges. 1880, p. 27. Winter Die Pilze p. 269. — *Æcidiiis* sine ordine in greges rotundatos ad maculas flavas, convexulas dispositis; pseudoperidiis breviter cylindræis, margine albido, partito, vix revoluti; æcidiosporis angulatis, usque ad 28 μ . longis, 15-21 μ . diam., verruculosi, aurantiaco-flavis.

Hab. in *Anemone Hepatica*, in Austria.

7. ***Æcidium Ranunculacearum*** DC. Fl. Franç. VI, p. 97, p. p. Thüm. M. U. n. 229, 822, et 1639, Winter Die Pilze pag. 268. — *Spermogoniis* pseudoperidia præcedentibus vel contemporaneis, centrum orbiculi occupantibus; sporulis minutis; æcidiiis hypophyllis, in maculis orbicularibus, ellipticis vel irregularibus sine ordine aggregatis, cupulatis, margine lacerato, revoluti; æcidiosporis angulatis, 17-28 $\approx$ 14-20, aurantiaco-flavis.

Hab. in foliis *Ranunculi Linguae*, *Cymbalariae*, *rivularis*, *inundati*, *abortivi*, *reptantis*, *auricomi*, *cassubici*, *acris*, *lenugiuosi*, *nemorosi* et *Philonotis*, in Gallia, Austria, Germania, Britannia, America boreali, Sibiria asiatica et Australia.

8. ***Æcidium Ranunculi*** Schwein. Syn. Carol. n. 440, Burrill Paras. Fungi of Illinois p. 222. — Plerumque hypophyllum, sine macula; pseudoperidiis pluries incisus margine recurvato; æcidiosporis subglobosis vel ellipsoideis, subtiliter echinulatis, 18-24 $\approx$ 15-21; spermogoniis numerosis, minutis, inter æcidia sparsis.

Hab. in foliis *Ranunculi abortivi*, in America boreali.

9. ***Æcidium Isopyri*** Schroet. Pilz. Schles. p. 378. — *Spermogoniis* flavo-melleis, secus parvos greges dispositis; æcidiiis in annulos simplices v. concentricos, laxiusculos congestis; pseudoperidiis breviter cylindræis; æcidiosporis globosis vel ellipsoideis, aurantiaco-rufis, episporio hyalino tectis.

Hab. in foliis *Isopyri*, in Silesia Germaniæ.

10. ***Æcidium Aquilegiæ*** Pers. Icon. pict. IV, p. 58, t. 23, f. 4, Winter Die Pilze p. 268, Schroet. Pilz. Schles. p. 378, *Æcidium Ranun-*

colacearum var. ζ . DC. Fl. Franc. VI, p. 97. — Spermogoniis in maculas parvas, rotundatas congestis, flavo-melleis; æcidiis in maculis rotundatas vel irregularibus, convexis, flavis, sæpe brunneo-violaceo limitatis impositis vel in plagulis oblongis, pulviniformibus; pseudoperidiis breviter cylindræis, hypophyllis, subiculo incrassato insidentibus, aggregatim congestis; æcidiosporis aurantiacis, polygoniis, 16-30 $\approx$ 14-20, verruculosi.

Hab. in foliis *Aquilegiæ vulgaris*, *Hænkeanæ*, *atratae*, *pyrenaicæ*, glandulosæ, in Gallia, Helvetia, Germania, Fennia et pr. M. Kerlygan Sibiriae.

11. *Æcidium Aconiti-Napelli* (DC.) Winter Die Pilze p. 268, *Æcidium* 2711
Ranunculacearum var. ζ . *Aconiti-Napelli* DC. Fl. Franc. VI, pag. 97. — *Æcidiis* summopere dense congestis, in maculis flavis demum brunneis sæpe convexis, pulvinatis vel pustuliformi-bullatis; pseudoperidiis cylindræis, usque ad 500 μ . longis, margine revoluti, flavescenti, partito; æcidiosporis polygoniis, 20-32 μ . diam., aurantiaco-flavis.

Hab. in foliis *Aconiti Napelli* in Gallia, Germania et Hungaria.

12. *Æcidium Actææ* Opiz in Wallr. Fl. Crypt. Germ. II, pag. 252, 2712
 Winter Die Pilze p. 268, Schroet. Pilz. Schles. pag. 278, Burrill Parasit. Fungi of Illinois pag. 223, *Cæoma mamillatum Actææ* Sommerf. Fl. Lapp. pag. 230, n. 1510. — Spermogoniis in parvos greges dispositis, flavo-melleis; æcidiis sine ordine vel circinatim dispositis, maculis pallidis, demum centro subatris impositis; pseudoperidiis albidis, hypophyllis, aggregatim dispositis, prominulis, margine revoluti, denticulato, minutis; æcidiosporis pallidis vel flavescenti-pallidis, 17-30 $\approx$ 15-25, polygoniis, verruculosi.

Hab. in foliis *Actææ spicatae*, in Italia, Austria, Bohemia, Helvetia, Germania, Lapponia rossica et Illinois America borealis.

13. *Æcidium cimicifugatum* Schwein. Syn. of N. American Fungi 2713
 p. 293, n. 2876. — Maculis magnis, orbiculatis, luteis, bullatis; pseudoperidiis hypophyllis, concentricis, longissimis, cylindræis, apice primo clausis, demum subfimbriatis; æcidiosporis ex aurantiaco hyalinis.

Hab. in foliis vivis languidisve, *Cimicifugæ fœtidæ* et racemosæ rarissime in America boreali et pr. Minussinsk Sibiria asiaticæ.

14. *Æcidium Dicentrae* Trel. in Journal of Mycology I, p. 15, Burrill 2714
 Parasit. Fungi of Illinois pag. 223, Ellis North American Fungi

n. 145. — *Spermogoniis* disciformibus, rufo-brunneis vel violaceis, minutis; *æcidiiis* hypophyllis uniformiter distanterque per totam paginam sparsis, latiusculis; pseudoperidiis brevibus, pallide flavis, 3 mm. diam., margine regulariter plurilobato; cellulis granulatis, polygoniis, plus minus globosis, $18 \approx 15$; *æcidiosporis* subsphæricis vel polygoniis, $11-20 \approx 10-13$, episporio tenui, levibus, saturate aurantiacis.

Hab. in foliis *Dicentræ cucullariæ* et *Corydalis aureæ*, sociâ sæpe *Peronospora Corydalis*, Wiscosin Kansas et Illinois Americæ borealis.

15. *Æcidium magelænicum* Berk. in Hook. Fl. antarct. II, p. 450, 2 Winter Die Pilze p. 267, Schroet. Pilz. Schles. p. 380, Link. F. Hung. exs. n. 143, Rabenh. F. E. u. 2194. — *Æcidiiis* plerumque per totam foliorum paginam inferiorem sparsis eamque subobtegentibus, demum in greges parvos vel magnos hinc illinc congestis; pseudoperidiis cylindraceis, albidis, margine erecto vel demum sabreflexo, inciso; *æcidiosporis* polygoniis, $20-40 \approx 16-24$, episporio hyalino, verruculoso, plasmate aurantiaco.

Hab. in foliis *Berberidis vulgaris*, in Hungaria, Austria, Germania et ad ora freti magelænici Americæ australioris.

16. *Æcidium graveolens* Shuttleworth in Bull. Soc. bot. Fr. 1877, 27 p. 325. — Pseudoperidiis per totam foliorum superficiem sparsis brevibus, odore gravi donatis; maculis nullis; *æcidiosporis*....

Hab. in foliis *Berberidis vulgaris*, in Helvetia.

17. *Æcidium auriellum* Peck in Bull. Torrey bot. Club. 1883, p. 74, 271 — Pseudoperidiis numerosis, brevibus, congestis, plerumque totam folii paginam inferiorem occupantibus, pallidis vel flavescentibus, margine integro vel subcrenulato; *æcidiosporis* subglobosis vel subellipticis, aureo-flavis, $20-25 \mu$. longis, plerumque 3 guttulis nitentibus flavis, majusculis intus faretis, episporio tenui.

Hab. in foliis vivis *Cheiranthi Menziesii*, Nevada Americæ borealis (JONES).

18. *Æcidium Nasturtii* Hazsl. Magyarh. Combavir. e. 76. — Pseudoperidiis parvulis, maculæ obscuræ insidentibus, margine integro, tumefacto; *æcidiosporis* aurantiaceis, oblongis, circ. $20 \approx 17-18$, verruculosis.

Hab. in foliis *Nasturtii*, in Hungaria.

19. *Æcidium Barbareæ* DC. Fl. Franç. II, p. 244, Winter Die Pilze 271 p. 267, *Cæoma Cruciferatum* Link Sp. II, p. 56. — *Æcidiiis* sine ordine dense confertis, cupulatis, maculis fuscis insidentibus, mar-

gine albido, paullulum v. haud revolutum, laceratum; æcidiosporis angulatis, 15-24 μ . diam., siccis dilute flavidis, verruculosis.

Hab. in foliis petiolisque Barbareæ arcuatæ, præcoci et vulgaris, in Gallia et Germania nec non ad Carlton et prope Plymouth Britannicæ. — Forte cum *Puccinia Barbareæ* Cooke connexum.

20. *Æcidium monoicum* Peck New Species of Fungi in Botan. Gazette 1879. p. 230. — 2720
Maculis nullis; pseudoperidiis plerumque gregariis, paginam foliorum inferiorem fere ex toto occupantibus, pseudoperidiis subcylindraceis; æcidiosporis subglobosis, 20-26 μ . diam., plerumque 1-3 nucleis nitentibus instructis, læte flavis; spermogoniis in foliis diversis eiusdem matricis.

Hab. in foliis Arabidis retrofractæ, Colorado Americæ borealis (BRANDEGEE).

21. *Æcidium Drabæ* Tracy et Gall. in Journ. of Mycology 1888, 2721
p. 21. — Hypophyllum; æcidiiis per totam folii superficiem sparsis; pseudoperidiis læte flavis, majusculis, margine laceratis vel grosse fimbriatis, laciniis patentibus; æcidiosporis globosis vel ovatis, 24-28 = 18-21, e virescenti flavis, episporio crasso, levi donatis.

Hab. in foliis Drabæ aureæ, ad Colidge New Mexico. — «An *Pucciniæ Drabæ* Rud. status æcidiosporus?».

22. *Æcidium Lepidli* Tracy et Gall. in Journ. of Mycology 1888, 2722
p. 21. — Pseudoperidiis prominentibus, circinatis, brevibus, irregulariter laceratis, mox sæpe pulverulentis; æcidiosporis subglobosis, 12-14 μ . diam., episporio tenui donatis.

Hab. in foliis Lepidii montani, Utah Americæ borealis.

23. *Æcidium isomerinum* Peck in Bull. Torrey bot. Club 1883, p. 75. — 2723
Maculis pallidis, crassiusculis; pseudoperidiis amphigenis, brevibus, sparsis vel gregariis; æcidiosporis subglobosis, ovatis aut ellipticis, siccis albis, 20-25 μ . longis, episporio tenui.

Hab. in foliis vivis Isomeris arboreæ, San Diego Californiæ (JONES). — Sæpe fungus totum folium occupat quod manifeste incrassatur.

24. *Æcidium palustre* Mont. Plant. cell. nouv. n. 100 bis p. 373. — 2724
Epiphyllum epicaulinumque, macula nulla; pseudoperidiis seriatis, subsecundis (in foliis), ex ovoideo cylindraceis vel conico-truncatis, helvolis, margine inflexo, laccato; æcidiosporis initio doliiformi-concatenatis, tandem solutis, sphæricis, flavidulis.

Hab. in foliis caulibusque Polygalæ cujusdam, in palustribus Brasiliæ occidentalis.

25. *Æcidium polygalinum* Peck in Bot. Gaz. VI, p. 275, Ellis N. Am. 27 Fung. n. 1009. — Maculis flavis, indeterminatis, subinde totum folium occupantibus; pseudoperidiis hypophyllis, confertis vel sparsis, brevibus, margine crenulato, lacerato; æcidiosporis subglobosis, 20-26 μ . longis, albidis, udis forte aurantiacis.

Hab. in foliis vivis languidisve Polygalæ Senegæ, Michigan, Joma Amer. bor. (SPAULDING). — Adest sæpe socia *Septoria consocia*. Cfr. *A. palustre* Mont. in eadem matrice.

26. *Æcidium Proserpinacæ* B. et C. North Amer. Fungi n. 577. — 27 Hypophyllum, sparsum; pseudoperidiis sparsis, margine radiatis; maculis nullis.

Hab. in foliis Proserpinacæ, Alabama Americæ borealis (BEAUMONT).

27. *Æcidium Mariæ-Wilsoni* Peck in 24 Rep. of Stat. Bot. pag. 92, 27 Burrill Paras. Fungi of Illinois p. 223. — Hypophyllum; maculis parvis, determinatis, haud incrassatis, flavidis; pseudoperidiis minutis, breviter cylindræis, anguste marginatis, margine pluries lacerato et recurvato, subcircinatis; æcidiosporis subglobosis vel subinde angulatis, 11-15 μ . diam., episporio tenui, subtilissime tuberculato, aurantiacis; spermogoniis plerumque epiphyllis.

Hab. in foliis Violæ cucullatæ, in Amer. boreali. — «Vix forte a sequenti diversum».

28. *Æcidium Petersii* B. et C. North Americ. Fungi n. 580. — Pseudoperidiis gregariis, cylindricis, e macula flava oriundis.

Hab. in petiolis Violæ, Alabama Americæ borealis (PETERS).

29. *Æcidium Cerastii* Winter in Journal of Mycology I, 1885, p. 126. 278 — Pseudoperidiis supra paginam foliorum inferiorem totam dense sparsis, interdum præcipue secus nervum primarium stipatis, sine macula sed folium totum decolorantibus, semiimmersis, patelliformibus, late apertis, margine crenulato incisoque, late recurvo, albis; æcidiosporis angulato-rotundatis, tenuissime verruculosus, aurantiacis, 17-22 μ . diam.

Hab. ad folia viva Cerastii nutantis, Missouri Amer. bor.

30. *Æcidium gregarium* Hazsl. Magyarh. Ueszökg. 1877, p. 71 et in Just Bot. Jahresb. 1877, p. 72. — *Æcidii* sparsis, hypophyllis, subdistantibus, pseudoperidiis margine erecto, integro, subcupulato-depressis, fere clypeiformibus; æcidiosporis globosis, flavis; spermogoniis flavis, epiphyllis.

Hab. in foliis Silenes noctifloræ, prope Viskove Slavoniæ (SCHULZER). — «An ab *Æcidio Pucciniæ Silenes* diversum?»

31. *Æcidium Otitis* Schlecht. in Botan. Zeitung 1852, p. 606. — Hy- 2731
pophyllum vel amphigenum; pseudoperidiis solitariis vel gregariis
primo pustuliformibus, dein cylindraceis, aurantiacis, apice plerum-
que 3-lacinatis, contextu e cellulis irregularibus, angulatis con-
stante; æcidiosporis subglobosis vel ovatis, læte aurantiacis, pellu-
cidis, 1-guttulatis.

Hab. in foliis *Silenes Otitis*, prope Halle Germaniæ.

32. *Æcidium sparsum* Hazsl. Magyarh. Ueszökgombai 1877, p. 81 et 2732
in Just Botan. Jahresb. 1877, p. 73. — *Æcidii* sparsis, vix de-
colorantibus vel gregariis, in macula pallida; pseudoperidiis primo
globosis, dein cylindraceis, margine lacerato, subciliato, fragilibus
basimque tantum (in exoletis) relinquentibus; æcidiosporis globosis,
subhyalinis; spermogoniis minutis, flavis, epiphyllis, æcidii con-
trapositis.

Hab. in foliis *Silenes viridifloræ*, pr. Losenez Hungariæ
(KUNSZT).

33. *Æcidium Hiptages* B. et Br. Fungi of Ceyl. n. 849. — Maculis 2733
ochraceis, orbicularibus, amphigenis; pseudoperidiis minutis, con-
gestis, peritheciiformibus.

Hab. in foliis *Hiptages*, Peradenya in insula Ceylon.

34. *Æcidium Cressæ* DC. Fl. Franç. V, p. 89, Duby Botan. Gall. II, 2734
p. 908, Thüm. Mycoth. Univ. n. 823. — Hypophyllum; pseudope-
ridiis sparsis, helvolis, totam paginam occupantibus, hemisphærico-
cupulatis, margine patulo, denticulato, demum circumscisso; æci-
diosporis flavis, dein fusciscentibus.

Hab. in foliis *Cressæ creticæ*, in littoribus maris Mediter-
ranei nec non pr. Damietta et in insula Cypro (BARBEY).

35. *Æcidium hypericatum* Schwein. Syn. North Amer. Fungi p. 293, 2735
n. 2883, *Æcidium Hyperici-frondosi* Schwein. Syn. Carol. p. 68,
n. 451. — Suborbiculare, aurantiacum; pseudoperidiis cylindraceis,
elevatis, siccis albis; æcidiosporis hyalinis, oblongis.

Hab. in foliis *Hyperici elliptici* et *frondosi*, in America
boreali. — Pulcherrimum, maculas minores at frequentes consti-
tuit, interdum fere expers coloris proprii.

36. *Æcidium Hypericorum* B. et C. North Americ. Fungi n. 581. — 2736
Hypophyllum; maculis nullis; pseudoperidiis paucis secus orbiculos
parvos dispositis.

Hab. in *Hyperico*?, Alabama Americæ borealis (PETERS). —

Ab *Æcidio hypericato* distinctum dicitur «An revera?»

37. *Æcidium hibisciatum* Schwein. Syn. North Americ. Fungi n. 2877, 2737

Burrill Parasitic Fungi of Illin. p. 224, Ell. et Everh. N. Am. Fungi n. 1830. — Hypophyllum; maculis plerumque paucis, magnis, crassiusculis, determinatis, confluentibus, brunneis, margine flavis; pseudoperidiis ut plurimum dense confertis, subinde irregulariter circinatis, subimmersis; æcidiosporis late ovatis, circ. 37 = 18, flavescensibus laxè congestis.

Hab. in foliis Hibisci moschati et militaris, Alabama (PETERS), Illinois (BURRILL), aliisque Americæ borealis locis.

38. *Æcidium erythrobasis* B. et Br. Fungi of Ceyl. n. 846. — Maculis 273
lis hypophyllis, rubris; pseudoperidiis cylindricis, brevibus lacinatis.

Hab. in foliis Hibisci eriocarpi, in ins. Ceylon.

39. *Æcidium Desmium* C. et Br. Fungi of Ceyl. n. 850. — Maculis 273
nullis; pseudoperidiis primo peritheciiformibus, hypophyllis, inclusis, margine angusto; æcidiosporis oblongo-cuneatis, asperulis.

Hab. in foliis Gossypii, Peradenya in insula Ceylon.

40. *Æcidium odoratum* Wint. in Hedwigia 1887, p. 13. — Maculis 274
nullis; pseudoperidiis numerosissimis, deusissime confertis, foliorum paginam inferiorem ex toto fere obtegentibus, cylindræis, late apertis, margine inciso, erecto vel parum recurvo, hyalinis, e cellulis angulato-oblongis, dense rugulosis compositis; æcidiosporis angulato-subglobosis seu ellipsoideis, 16-21 μ . diam. vel usque ad 25 μ . longis, 12,5-14 μ . latis, minutissime granulatis, oleo aurantiaco repletis.

Hab. in foliis vivis Sidæ intermediæ, ad Montevideo, Uruguay Americæ australis. — Odor gratus, fortis.

41. *Æcidium ræstelioides* Ell. et Everh. in Journal of Mycology 1885, 274
p. 93. — Hypophyllum, maculis incrassatulis, flavescensibus, demum purpurascensibus insidens; æcidiis gregariis, subcircinatis, 15-40 in greges dispositis, pseudoperidiis primo hemisphæricis, dein campanulatis vel breviter cylindræis, margine circiter sex-inciso, demumque in segmenta 1 mm. longa angusta ut in *Ræstelia lacerata* fisso; æcidiosporis pallidis, subglobosis, circiter 22 μ . diam., episorio subtiliter striatulo, crassiusculo.

Hab. in foliis Sidalceæ, Washington Territ. in America boreali (M. M. SUKSDORF).

42. *Æcidium Callirhœes* Ell. et Kellerm. in Journal of Mycology 274
1886, p. 4. — Hypophyllum, gregarium, 2,5-5 mm. occupans; æcidiis primo tectis, demum nudis, pseudoperidiis cupulatis, pallidis, 300-350 μ . latis, margine subintegro; æcidiosporis subglobosis, pal-

lidis, 12-18 μ . diam.; spermogoniis centrum plagarum ab æcidiiis efformatarum occupantibus.

Hab. in foliis vivis Callirrhöes involucratae, ad Manhattan Kansas Americae borealis (KELLERMAN).

43. *Æcidium Modiolæ* Thüm. F. an Entre-Rios in Flora 80, n. 2. — 2743

Pustulis sparsis, amphigenis caulicolisque, magnis; pseudoperidiis longissime cylindricis, tenuibus, fere capilliformibus, sordide luteis, margine fimbriato penicillatoque; æcidiosporis globosis vel regulariter ellipsoideis, episporio 4 μ . crasso, hyalinis, homogeneis, episporio subdilutiore, 18-24 $\approx$ 16-20.

Hab. ad folia et caules *Modiolæ* geranioidis, Quinta del Colegio pr. Concepcion del Uruguay et Patagonia in Amer. austr.

44. *Æcidium Napææ* Arth. et Holw. Prelim. List of Iowa Uredineae 2744

p. 166, n. 112. — *Æcidiiis* in greges orbiculares congestis, hypophyllis, maculis flavis, parvis insidentibus; pseudoperidiis margine prominentibus, albidis, revolutis, lobis latis, parvis; æcidiosporis ex oblongo ovatis, subhyalinis, levibus vel (valde auctis) subtiliter hinc inde corrugatis, 16-22 $\approx$ 15-18.

Hab. in foliis *Napææ dioicæ*, Decorah Iowa Americae borealis.

45. *Æcidium Pelargonii* Thüm. in Flora 1877, p. 411, Myc. univ. 2745

n. 1026. — Pseudoperidiis hypophyllis, dense gregariis, concentricè dispositis, parvis, in macula minima, expallescenti, dilute aurantiacis, margine sublacerato vel crenato, albo-luteo, crasso, elevato; æcidiosporis ellipticis vel subglobosis, 21-24 $\approx$ 18-22, episporio subgranuloso, vel obsolete verruculoso, subcrasso, hyalino, utrinque rotundatis, pallidissime flavidis, interdum catenulatis.

Hab. in foliis vivis *Pelargonii alchemilloidis*, sociâ sæpe *Uredine Pelargonii*, in dumetis ad pedem montis « Boschberg. » Africae australis (Prof. P. MAC OWAN).

46. *Æcidium Lagena* Sorok. Mat. Fl. As. p. 23, t. 1, f. 9-12. — 2746

Pseudoperidiis gregariis, suburceolatis, margine leviter inciso-dentatis revolutisque, pallidis, circ. 1 mm. latis, cellulis contextus subhexagonis, hyalinis, punctulatis; æcidiosporis minutis, globosis, uniguttulatis, subtiliter aculeolatis, 4-6 μ . diam., dilute aurantiacis.

Hab. in foliis *Zygophylli*, quæ deformat, in Asia.

47. *Æcidium Oxalidis* Thüm. in Flora 1876, p. 425, Myc. un. n. 1226. 2747

— Pseudoperidiis hypophyllis, raro amphigenis, congestis, concentricè dispositis, prominentibus, rotundis, flavo-albescentibus, demum umbrinis, margine sublacero; æcidiosporis globosis, diaphanis, episporio levi, 24-28 μ . diam., decoloribus.

Hab. ad folia viva *Oxalidis Bowei*, in dumetis montis ad Somerset East. Africae australis (MAC OWAN). — Videtur cum *Uredine Oxalidis*. Lév. cognatum.

48. *Æcidium Pteleæ* B. et C. in *Grevillea* III, p. 61, Burrill Paras. ²
Fungi of Illinois p. 225, Ell. et Everb. North Amer. Fungi n. 1819.
— Maculis pallide flavescentibus, hypophyllis, extrorsum bullatis; pseudoperidiis congestis, brevibus, cylindraceis, longiusculis, dein margine numerose profundeque incisis, valde recurvatis; æcidiosporis subglobosis vel ellipticis, 24-30 $\approx$ 21-25, tuberculatis.

Hab. in foliis *Pteleæ trifoliatæ*, Alabama (PETERS) Missouri (DEMETRIO) et Illinois (BURRILL) in America boreali.

49. *Æcidium Impatientis* Schwein. Syn. Fung. Carol. pag. 674, 442, ²
Burrill Paras. Fungi of Illinois p. 224, *Æcidium Impatientatum*
Schwein. Syn. Amer. bor. n. 2880, Ell. N. Amer. Fungi n. 1001.
— Hypophyllum; maculis sæpe determinatis, purpureis, flavo-marginatis, sæpius effusis, in foliis vix inerassatis, in petiolis caulibusque inflatis; æcidiis subcircinatis vel irregulariter sparsis, pseudoperidiis brevibus, margine profunde grosseque fisso valde incurvato; æcidiosporis globosis vel ellipticis, episporio tenui, sublevi, subtiliter granuloso-farctis, 18-20 $\approx$ 15-18; spermogoniis in maculis epiphyllis centralibus gregariisque vel sparse amphigenis.

Hab. in foliis *Impatientis pallidæ*, in America boreali.

50. *Æcidium Xanthoxyli* Peck in Botanical Gazette VI, p. 275, Ellis ²
N. Am. Fungi n. 1013. — Maculis suborbicularibus, flavo-viridulis; pseudoperidiis brevibus, hypophyllis, confertis; æcidiosporis subglobosis, 22-25 μ . diam., in sicco albidis, verisimiliter flavis vel aurantiacis.

Hab. in petiolis foliisque vivis *Xanthoxyli americani*, Iowa Americae borealis (E. W. HOLWAY).

51. *Æcidium splendens* Winter in Hedw. 1885, p. 156. — *Æcidiis* ²
hypophyllis, rotundatis vel parum irregularibus, minutis, 1-2,5 mm. luteis, in macula indeterminata, luteola, in pagina foliorum superiore intensius colorata solitariis sparsisve; pseudoperidiis dense stipatis, breve cylindricis, albidis, margine erecto, fimbriato-crenulato, contextu e cellulis valde verrucosis, protoplasmate aurantiaco repletis, 20-35 μ . diam.; æcidiosporis rotundato-polygoniis, 20-28 $\approx$ 14-19, minutissime granulatis, aurantiacis.

Hab. in cotyledonibus vivis *Crotonis monanthogyni*, pr. Perryville Missouri Amer. borealis. — Forte, saudente ipso Win-

ter, idem ac *Æcidium Crotonopsidis* Burrill. Etiam proxima sunt *A. Tragiae* Cooke et *A. detritum* Thüm.

52. *Æcidium pulcherrimum* Rav. in Berk. et Curt. North Americ. 2752
Fungi n. 583. — Pseudoperidiis niveis, cylindricis, totam superficiem occupantibus, obtusis, dein apertis nec radiatis.

Hab. in Berchemia in Carolina inf. Americæ borealis.

53. *Æcidium Discariæ* Cooke in Grevillea XIV, pag. 89. — Hypo- 2753
phyllum; maculis orbicularibus, fuscis; pseudoperidiis cupuliformibus, semiimmersis, congestis, margine fimbriato albo; æcidiosporis ovalibus, flavidis.

Hab. in foliis Discariæ ad Wellington, in Nova Zelandia (Kirk).

54. *Æcidium Cardiospermi* Cooke in Grevillea X, p. 124. — Hypo- 2754
phyllum; pseudoperidiis minimis, in maculis brunneis orbicularibus congestis, margine subintegro; æcidiosporis luteolis.

Hab. in foliis Cardiospermi microcarpi, Natali Africae.

55. *Æcidium Æsculi* Ell. et Kellerm. in Bull. Torr. botan. Club 2755
1884, October, Ell. N. Am. Fungi n. 1429. — Æcidiis maculae vix decoloratae seu pallidiori insidentibus, secus nervos folii seriatim dispositis vel hinc inde circumscriptis; pseudoperidiis cupulatis, margine subintegro, flavescentibus; æcidiosporis globosis angulatisve, e flavo virentibus, episporio hyalino, aequali, levi, 18-22 μ . diam.

Hab. in foliis Æsculi glabrae, Kansas Americæ borealis.

56. *Æcidium fulgens* Hazsl. Magyarh. Uetzk. 1876, pag. 81 et in 2756
Just Bot. Jahresb. 1877, p. 72. — Pseudoperidiis tubulosis, sursum ampliatulis, albis, margine extrorsum revolutis, fimbriatulo, aurantiacis; æcidiosporis globosis, 21 μ . diam. vel oblongis seu ovoideis (inferioribus) 28-30 μ . longis, episporio crasso, pellucido; spermogoniis inter æcidia sparsis, obscure brunneis, demum subcalyculatis.

Hab. in caulibus, petiolis et foliis *Cytisi austriaci*, in Hungaria. — «Cum *Æcidio Cytisi* Voss comparandum».

57. *Æcidium australe* Berk. Fung. Zeyh. p. 16, t. XXI, f. 5, non 2757
Speg. — Amphigenum, totam superficiem occupans; pseudoperidiis elongatiusculis, margine dentato, laciniato, laciniis siccis, convolutis, cellulis laciniarum oblongis coherentibus; æcidiosporis obovatis, subangulatis, levibus.

Hab. in foliis Melobii, Uitenhage.

58. *Æcidium Psoraleæ* Peck in Amer. Nat. VIII, pag. 215, Burrill 2758

Paras. Fungi of Illinois pag. 225, Ell. et Everh. N. Amer. Fungi n. 1818. — Plerumque hypophyllum; maculis nullis; æcidiiis uniformiter distributis, pseudoperidiis brevibus, margine mox profunde inciso recurvatoque; æcidiosporis ellipticis, episporio crassiusculo donatis, dense tuberculatis, 18-24 $\approx$ 15-18, e brunneo flavescentibus; spermogoniis numerosis, inter æcidia sparsis, flavo-melleis.

Hab. in foliis Psoraleæ floribundæ, in America fœderata.

— Ab *Æcidio Onobrychidis* Burr. diversum videtur.

59. **Æcidium Onobrychidis** Burrill Paras. Fungi of Illinois p. 225, Ell. et Everh. North Americ. Fungi n. 1826. — Hypophyllum; maculis distinctis v. confluentibus, sæpe effusis, flavescenti-brunneis; æcidiiis subcircinatis, gregariis, pseudoperidiis brevibus, margine abrupte recurvo, grossiuscule fisso; æcidiosporis subglobosis vel ellipticis, episporio tenuiusculo, obtuse tuberculatis, 19-24 μ diam.; spermogoniis in centro macularum gregariis, epiphyllis, minutis, rufescenti-brunneis.

Hab. in foliis Psoraleæ Onobrychidis, Illinois America borealis (SEYMOUR).

60. **Æcidium Amorphæ** Cooke in Rav. Fung. Amer. n. 39 et in Grevillea VI, pag. 137. — Maculis epiphyllis, orbicularibus, fuscis; pseudoperidiis paucis, congestis; æcidiosporis ovalibus, 30 $\approx$ 20, leniter asperulis, luteis.

Hab. in foliis Amorphæ, Aiken in Carolina inf. America borealis.

61. **Æcidium carneum** Nees in Funk Krypt. Gewächse n. 523, Winter Die Pilze p. 267, *Æcidium Phacæ-frigidæ* Wahlb. Fl. lappon. p. 525, *Æcidium Hippocrepidis* DC. Fl. Franç. VI, p. 96? — Æcidiiis æque per totam folii paginam inferiorem sparsis; pseudoperidiis rotundatis vel late ambitu ovatis, hemisphærice prominulis, demum late apertis, margine primo integro introrsumque curvato, dein suberecto, hinc illinc lacerato, pallido, sordide rufescenti-albis; æcidiosporis polygoniis, siccis hyalinis, 14-19 μ diam.

Hab. in foliis Phacæ frigidæ et Oxytropidis campestris, in Gallia et Germania.

62. **Æcidium Astragali** Thüm. in Mycoth. Univ. n. 1117. — Pseudoperidiis hypophyllis, dense gregariis, minutis, orbiculatis, dilute luteis, margine levi, suberasso, integro, pallidiore; æcidiosporis irregulariter globosis vel rotundo-subpolygoniis, achrois (in speciminibus exsiccatis, an semper?), episporio levi, tenuissimo, plerumque 16 μ diam.

Hab. in foliis vivis *Astragali melilotoidis*, in pratis montosis Sajanensibus Sibiriae asiaticae (MARTIANOFF).

63. *Æcidium porosum* Peck in Botan. Gazette 1878, pag. 34, Ellis 2763
North Americ. Fungi n. 1430. — Maculis nullis; pseudoperidiis confertis, infossis, latis, late dentatis, totam superiorem folii paginam occupantibus (quæ porosa videtur); æcidiosporis subangulatis, 20-25 μ . longis, aurantiacis.

Hab. in foliis vivis Viciæ americanæ, in America boreali.
— Ab *Æcidio albo* distinctum.

64. *Æcidium umbilicatum* B. et Br. Fungi of Ceylon n. 858. — Spar- 2764
sum; pseudoperidiis irregulariter ruptis demum umbilicatis; æcidio-
sporis levibus, globosis, 32-33 μ . diam.

Hab. in foliis Phaseoli Grahamiani, in insula Ceylon.
— Cuticula siccando contrahitur et radiata apparet.

65. *Æcidium ornamentale* Kalchbr. in Flora 1876, pag. 362, n. 39, 2765
Thümen, Mycoth. univ. n. 224. — Pseudoperidiis myriadeis, denso
agmine totam ramulorum superficiem occupantibus, pallide carneis,
concavis vel passim obconicis vel cylindrico-angulatis, margine
sublaceris; æcidiosporis globoso-angulatis, aurantiaco-carneis.

Hab. in virgultis tenellis virentibus *Acaciæ horridæ*, ad
pedem montis «Boschberg» prope Somerset-East, Promont. Bonæ
Spei (P. MAC OWAN.) — ramulos circinatim detorquet; maxime in-
signe. «An *Raveneliæ* cujusdam status æcidiosporus?»

66. *Æcidium inornatum* Kalchbr. in Grevillea XI, p. 25. — *Æcidiiis* 2766
hypophyllis, sparsis; pseudoperidiis prominulis, vix apertis, pallidis.

Hab. in foliis vivis *Acaciæ horridæ*, cum *Ravenelia glabra* K. et C., Somerset East Africae australis. (MAC OWAN.) —
«An *Raveneliæ glabræ* status æcidiosporus?» *Æcid. ornamentale* K., ramulos *A. horridæ* occupat et detorquet, folia non tangit.
In hac vero specie multo teneriore nec unquam elongata contra-
rium occurrit.

67. *Æcidium leucostictum* Berk. et Curt. in Grevillea III, p. 61, Bur- 2767
rill Paras. Fungi of Illinois p. 226, Ellis et Everlh. North Amer.
Fungi n. 1827. — Hypophyllum; maculis minutissimis, vix con-
spicuis, haud discoloribus; æcidiis minutissimis, irregulariter in par-
vos greges dispositis; pseudoperidiis brevibus, margine angusto,
recurvo, pluries inciso; æcidiosporis subglobosis, 12-16 $\approx$ 11-12, sub-
tiliter verruculosus.

Hab. in foliis *Lespedezæ procumbentis*, Illinois Americae
borealis. — Forte var. *Æc. Orobæ* sistit.

68. *Æcidium Oxytropidis* Thüm. Fung. it. Mongol. p. 66. — Pseudoperidiis dense gregariis et plerumque folii paginam inferiorem totam occupantibus, numquam confluentibus, orbiculatis, paullo elevatis, aureo-flavis, margine subcrasso, integro, disco vix obscuriore; æcidiosporis globosis aut compresso-angulatis, episporio levi, subcrasso, intus plasmate homogeneo fœtis, hyalinis vel pallidissime flavescentibus, 20 μ . diam.

Hab. in *Oxytropidis* cujusdam floribus azureis pr. fluvium Ulei, affluentem lacus Kosogol ab occidente in Mongolia boreali (POTANIN).

69. *Æcidium resinicolum* (Rud.) Wint. in Flora 1884, n. 14, *Cavoma resinicolum* Rud. in Linnæa IV, p. 389, *Æcidium Rafniæ* Mac Owan mscr. — Pseudoperidiis in macula rotundata vel irregulari, flavida, demum arescendo fuliginea sordidaque amphigenis, dense gregariis, basi insculptis, longe cylindraceis, plerumque 5 mm. longis, demum ad basim laciniatis, albidis, contextu e cellulis oblongis angulatis, pallide aurantiacis, membrana valde crassa, rugosa præditis, 30-70 $\approx$ 17-26; æcidiosporis subglobosis v. late ellipsoideis densissime verruculosi, 22-32 μ . diam. aurantiacis.

Hab. in foliis, rarius in ramulis junioribus vivis *Rafniæ* amplexicaulis, pr. Capetown Africae australis (MAC OWAN). — Var. **tumefaciens** Winter loc. cit.: a typo differt tumoribus magnis, usque 45 mm. diam. metientibus, lobatis, carnosius, ab *Æcidio* ad ramulos juniores genitis. In ramulis junioribus *Rafniæ* angulatae cum specie.

70. *Æcidium soleniiforme* Berk. Fl. Tasm. p. 270. — Maculis orbicularibus, fuscis; pseudoperidiis cylindricis, elongatis, candidis, apice laciniato-radiatis; æcidiosporis subangularibus, aurantiacis, 25-26 μ . diam.

Hab. in *Goodia latifolia*, in Tasmania (ARCHER). — Habitus *Æcidii Berberidis*.

71. *Æcidium Kellermannii* De-Toni, *Æcidium amphigenum* Ell. et Kellerm. in Journal of mycology 1886, p. 4, nec Hazsl. — Subiculo leniter incrassato, pallidiori; æcidiiis in plagulas s. greges sub-orbiculares collectis, 2,5 cm. diam., primo tectis, dein erumpentibus; pseudoperidiis brevissimis, parvis, parce confertis, amphigenis, margine subdentatis; æcidiosporis subglobosis, 22-25 μ . diam., episporio crasso donatis.

Hab. in foliis *Baptisiae leucophææ*, ad Manhattan Kansas Americae borealis (KELLERMAN).

72. *Æcidium album* Clint. in Peck 26 Rep. St. Mus. p. 76, Ellis North 2772
Amer. Fungi n. 1431. — Maculis nullis; pseudoperidiis sparsis, brevibus, albis, margine subintegro; æcidiosporis subglobosis, circiter 20 μ . diam., hyalinulis.

Hab. in pagina inferiore foliorum *Viciæ americanæ*, Buffalo (CLINTON) et Nipigon River (ELLIS) Amer. bor.

73. *Æcidium Mespili* DC. Fl. Franc. VI, pag. 98, Winter Die Pilze 2773
p. 266, *Cavoma Cylandrites* Link Sp. II, p. 64 pro parte, *Æcidium cornutum* var. *c* Rabenh. Krypt. Fl. I, p. 20, *Æcidium Cotoneasteris* Körn. in Hedwigia 1877, p. 24. — *Æcidii* in maculis rotundatis vel irregularibus, superne flavidis, brunneis vel rufis, flavo limitatis, centro pulvinato-inflatis insidentibus; pseudoperidiis cylindraceis vel cylindraceo-convexis, in lacinias angustas fissis; æcidiosporis polygoniis, 19–24 μ . diam., subtilissime verrucosis, brunneis.

Hab. in foliis *Cotoneasteris vulgaris* et *Mespili germanicæ*, in Gallia et Germania.

74. *Æcidium Nesææ* Gerard in Bull. Torrey Bot. Club IV, p. 47, 2774
Ellis North American Fungi n. 1015. — *Æcidii* hypophyllis, maculas epiphyllas contrapostas, purpurascenti-brunneas, margine pallidiori determinatas efficientibus; pseudoperidiis gregariis, flavescens, cupulatis, margine crenulato, subpulverulentis; æcidiosporis e globoso angulatis, pallidis, sublevibus, 20–24 μ . diam.

Hab. in foliis caulibusque *Nesææ verticillatæ*, Poughkeepsie (GERARD), Buffalo (CLINTON), Newfield (ELLIS) in America boreali. — «Diagnosin erui ex speciminibus Ellisianis in herbario Saccardiano asservatis».

75. *Æcidium Dissotidis* Cooke in Grevillea X, p. 124. — Hypophyl- 2775
lum; æcidiiis rotundatis, parvulis; pseudoperidiis congestis, minimis, vix prominulis, margine albido; æcidiosporis luteis.

Hab. in foliis *Dissotidis incanæ* et principis, in Africa australi. — Cum *Uredine Dissotidis* Cooke forte connexum.

76. *Æcidium pallidum* Schneid. in 50. Jahresb. Schles. Ges. 1872, p. 71, 2776
Winter Die Pilze pag. 265. — Pseudoperidiis plerumque sparsis, rarius gregariis, præcipue hypophyllis, brevibus, flavis, margine subindivisis; æcidiosporis prima ætate flavidulis, dein hyalinis, rotundato-angulatis.

Hab. in foliis *Lythri Salicariæ*, in Germania.

77. *Æcidium Œnothæræ* Mont. Fl. Chil. VIII, p. 37 non Peck. — Hy- 2777
pophyllum, macula nulla; pseudoperidiis confertim sparsis, ochra-

ceis, orbiculatis, minutis, cylindricis, margine circulari, reflexo, denticulato; æcidiosporis primo polyhedris, tandem sphaericis, pro ratione minimis, in sicco hyalinis, nucleo flavescente.

Hab. in foliis *Ænotheræ tenellæ*, loco La Quinta dicto reipub. Chilensis (BERTERO).

78. **Æcidium Peckii** De-Toni, *Æcidium Ænotheræ* Peck 23 Rep. of St. Mus. p. 60, Ellis N. Am. Fungi n. 1016, Burrill Paras. Fungi of Illinois p. 227 non Montagne. — Hypophyllum vel sparse epiphyllum; maculis conspicuis, plerumque purpureis, vix incrassatis; pseudoperidiis in greges circulares congestis, area centrali libera, parva, brevibus, profunde margine incisus recurvatisque; æcidiosporis subglobosis, episporio tenui, subtilissime tuberculatis, 15-18 μ . diam., pallide aurantiacis; spermogoniis paucis, subinconspicuis, epiphyllis, centro macularum insidentibus, flavo-melleis.

Hab. in foliis *Ænotheræ biennis*, Knowersville (PECK), Iowa et Illinois (BURRILL) in America boreali. — Ab *Æc. Ænotheræ* Mont. macularum præsentia distinctum videtur.

79. **Æcidium Jussieæ** Speg. F. Argent. I, n. 55, Dec. myc. Argent. n. 30. — Hypophyllum; macula epiphylla, obscure purpurascente; æcidiis rotundatis, non vel areola indeterminata fusca vel purpurascente cinctis; pseudoperidiis 4-18 confertissime aggregatis, primo tectis, dein erumpentibus, exsertiusculis, margine albido, irregulariter minute lacero-dentato, reflexo, contextu cellulis pentagonis centro depressis ac radiatim striatis, 24-25 μ . diam., hyalinis efformato, epithecio fulvo donatis; æcidiosporis subsphaerico-pentagonis, 15-20 μ . diam., hyalinis, levibus, crassiuscule tunicatis, protoplasma granuloso-oleoso, fulvescente faretis.

Hab. in foliis vivis *Jussieæ longifoliæ*, in paludosis secus Rio de la Plata in Rep. Argentina.

80. **Æcidium hydnoideum** B. et B. North Americ. Fungi n. 852, Thüm. Myc. n. 1120. — Maculis orbicularibus, rufulis; pseudoperidiis albis, obtusis, circinantibus, sero apertis.

Hab. in foliis *Dircæ palustris*, Alabama (PETERS) et Albany (PECK) Americæ borealis.

81. **Æcidium gaurinum** Peck in Botanical Gazette 1879, pag. 218. — Pseudoperidiis amphigenis, numerosis, sparsis vel gregariis, plerumque totam paginam inferiorem folii occupantibus, sparsis in pagina superiore, brevibus; æcidiosporis subglobosis, 15-20 μ . diam., flavis vel aurantiacis, 1-3 nucleos nitentes plerumque continentibus.

Hab. in foliis *Gauræ coccineæ*, Colorado Americæ borealis (M. E. JONES).

82. *Æcidium Gayophyti* Vize in *Grevillea* VII, p. 12, Ellis North American Fungi n. 1426. — Hypophyllum; pseudoperidiis coccineis, irregulariter dispositis, gregariis v. solitariis, primo epidermide tectis, demum liberis; æcidiosporis irregulariter globosis vel polygoniis, 1-4 nucleis coccineis instructis.

Hab. in foliis *Gayophyti ramosissimi*, in California Americæ borealis (HARKNESS). — Verisimiliter, suadente cl. Ellis, idem ac *Æcidium Gayophyti* Billings in U. S. Survey of 40th parallel, vol. V, p. 144.

83. *Æcidium Circææ* Ces. in Rabenh. Herb. myc. n. 372, Thüm. Myc. Univ. n. 1222, Winter Die Pilze pag. 266, Schroet. Pilz. Schles. p. 379, *Cecoma epilobiatum* Link Sp. II, p. 59 p. p. — Spermogoniis in parvos greges dispositis, pallide flavo-rufis; æcidiis in orbes simplices vel plures concentricos, sublaxos congestis, maculis rotundatis vel irregularibus, sæpe confluentibus, brunneolis margineque pallide flavidis; pseudoperidiis cupulatis, margine albo-flavescente vel albido, lacinulato; æcidiosporis polygoniis, levibus, 12-16 μ . diam., dilute aurantiaco-rufis.

Hab. in foliis *Circææ lutetianæ*, alpinæ et intermediae, in Germania et Italia.

84. *Æcidium Hydrangææ* Pat. in Revue Mycologique 1886, p. 82. — *Æcidiis* in greges circulares, hypophyllos dispositis, macula hypophylla flava, epiphyllâ brunneo-rufescente; pseudoperidiis tubulosis, rufescentibus, margine lacero-dentato; æcidiosporis rotundatis vel angulatis, 15-18 μ . diam., flavescentibus, striolatis; spermogoniis in centro gregis et epiphyllis, ore longe fimbriato; sporulis non visis.

Hab. in foliis *Hydrangææ Davidii*, in Thibet orient. Asiæ (AB. DAVID).

85. *Æcidium Parnassiæ* (Schlecht.) Gravis in Duby Botan. Gall. II, p. 904, Winter Die Pilze p. 267, Schroet. Pilz. Schles. pag. 378, *Cecoma Parnassiæ* Schlecht. Fl. Berol. II, p. 113. — Spermogoniis flavo-melleis, parce gregariis; æcidiis secus greges annulatos plus minus distantes, in maculis parvis vel majusculis dimidiam vel totam folii inferiorem paginam occupantibus, dispositis; pseudoperidiis latiusculis, cupulatis, albido-flavis, margine lato, fisso, revolutis; æcidiosporis polygoniis, 14-17 μ . diam., episporio hyalino, verruculoso, plasmate aurantiaco.

Hab. in foliis *Parnassiae palustris*, in Gallia, Germania, Britannia et Lapponia (LAGERHEIM). — Maculae flavescentes demum brunneae.

86. *Æcidium Saxifragæ* Thüm. Pilzfl. Sibir. n. 505. — Hypophyllum 2
vel raro petiolicolum, medium sparsum, orbiculatum subplanum;
pseudoperidiis patelliformibus, luteis, margine subcrasso, integro,
levi; æcidiosporis irregulariter globosis et interdum compressis,
magnitudine valde varia, 20-34 μ . diam., pallidissime flavescenti-
bus, intus granulosi, episporio subcrasso, levi vel vix plicatulo.

Hab. in foliis vivis *Saxifragæ sibiricae*, in pratis subal-
pinis pr. Schunery Sibiriae.

87. *Æcidium Grossulariae* Schum. Pl. Saell. II, p. 223, Schroet. Pilz. 27
Schles. p. 378, Thüm. Myc. Univ. n. 26 et 625, *Cæoma grossu-*
lariatum Link. Sp. II, p. 59, *Æcidium Rumicis* var. *Grossulariae*
Pers. Syn. p. 207, *Æcidium rubellum* var. *Grossulariae* Gmel.
Syst. p. 1473. — Spermogoniis flavo-melleis, secus parvos greges
dispositis; æcidiiis plerumque pluriseriatis, annuliformibus, confertis,
in maculis orbicularibus, saepe vesiculosis, usque ad 1 cm. latis
insidentibus; pseudoperidiis breviter cylindraceis, margine albo, la-
cinulato; æcidiosporis 10-20 μ . diam., aurantiaco-rufis, episporio
hyalino vix ruguloso instructis.

Hab. in foliis, petiolis fructibusque subimmaturis *Ribis Gros-*
sulariae, alpini, rubri, nigri, aurei, rotundifolii, in Ger-
mania, Belgio, Lapponia (LAGERHEIM), Gallia, Helvetia, Dania, in
America boreali et Sibiria asiatica.

88. *Æcidium gracilens* Peck in Botanical Gazette 1879, pag. 128. — 27
Maculis crassiusculis, viridulis vel leniter discoloribus; pseudope-
ridiis hypophyllis, elongatis, gracilibus, rubro-rufescentibus, eva-
cuatis albidis; æcidiosporis globosis, 23-25 μ . diam., aurantiaco-
lateritiis, episporio crasso, hyalino tectis.

Hab. in foliis *Philadelphii microphylli*, Colorado Ame-
ricae borealis.

89. *Æcidium Pastinacæ* Rostrup in Thüm. Myc. Univ. n. 2027. — 27
Hypophyllum, deformans, pustulas seu bullas efformans; pseudo-
peridiis confertis, urceolatis, margine rite denticulato, reflexo; æci-
diosporis angulato-sphaeroideis, 19-22 μ . diam., subaurantiacis.

Hab. in foliis *Pastinacæ sativæ*, ad littora marina prope
Nyborg ins. Fioniae Daniae (ROSTRUP).

90. *Æcidium Sii-latifolii* (Fiedl.) Wint. Die Pilze p. 265, F. E. n. 2719. 27
Æcidium Falcariae DC. var. *Sii-latifolii* Fiedler in Klotzsch-

Rabenh. Herb. myc. n. 1176. — *Æcidii* in foliis irregulariter v. indistincte orbiculariter dispositis, in nervis petiolisque plerumque lineas elongatas, parallelas, plurimas efformantibus; pseudoperidiis, ut plurimum, cupulatis, margine albo, lacerato revolutoque; æcidiosporis angulatis, 17-30 μ . diam., dilute flavis.

Hab. in foliis petiolisque *Sii latifolii*, in Germania.

91. *Æcidium Seselis* Niessl in Verhandl. naturf. zu Brünn, 1865, p. 51, 2791
Winter Die Pilze p. 264. — *Æcidii* in foliis plerumque secus greges irregulares, in petiolis secus strias parallelas, numerosas dispositis; pseudoperidiis primo poculiformibus, demum cylindraceis, usque ad 1 mm. longis, margine dentato, dein usque ad basim plurilacinia-
tis; æcidiosporis sphaeroideis, 20-30 μ . diam., grosse verrucosis, aurantiaco-flavis.

Hab. in foliis petiolisque *Seselii* glauci et *Laserpitii* Sileris, in Moravia. — Fungillus in foliis *Laserpitii* maculas flavas, amphigenas, irregulariter rotundatas vel oblongas, bullatas, in petiolis pustulas flavas, longiusculas efformat.

92. *Æcidium Mei* Schroet. Pilz. Schles. p. 379, *Æcidium Mei-atha-* 2792
mantici Schroet. olim *Æcidium Mei-Mutellinæ* Wint. Die Pilze p. 265. — *Æcidii* ut plurimum in foliis irregulariter dispositis, in petiolis foliorumque nervis strias plures, parallelas efficientibus, subiculo flavescente, raro solitariis; pseudoperidiis plerumque elongato-, raro brevi-cylindraceis, usque ad 500 μ . longis, margine albo lacinulato, reflexo; æcidiosporis polygoniis, 17-26 μ . diam., episporio hyalino, plasmate subaurantiaco.

Hab. in foliis *Mei athamantici* et *Mutellinæ*, in Germania.

93. *Æcidium Ferulæ* Rouss. et Dur. in Fl. d'Algerie p. 305. — Am- 2793
phigenum et petiolicolum; maculis fusco-purpureis, effusis; pseudoperidiis e subiculo crasso protuberantibus, mamillosis, subseriatim dispositis, pallide flavis, urceolato-campanulatis, in lacinias elongatas, erectas productis, tandem nudis; æcidiosporis maximis, subglobosis vel ovoideis, rufo-aurantiacis.

Hab. in foliis petiolisque *Ferulæ communis* et *tingitanæ*, ad Alger (ROUSSEL) et Oran (DURIET) in Africa bor. et in Sicilia (CUBONI). — Pseudoperidia uni- v. pluriseriata, interdum irregulariter conferta; *Æcidio Fœniculi* Cast. et *Æc. Bunii* DC. quodammodo affine. Verisimiliter *Pucciniæ Ferulæ* Rud. status æcidiosporus.

94. *Æcidium Fœniculi* Cast. Observ. I, p. 32, Cat. plant. Mar. p. 215. 2794
— Fructicolum; maculis flavis; pseudoperidiis confertis, minutis,

cylindraceis, distinctis, seriatis, apice albis margineque lacero-fimbriato; æcidiosporis rotundatis, fuscidulis.

Hab. ad fructus Anethi Fœniculi, pr. Marseille Galliae.

95. *Æcidium Osmorrhizæ* Peck in 24 Rep. of Stat. bot. pag. 92. — 279

Maculis flavescentibus; pseudoperidiis hypophyllis vel secus venas seriatim dispositis, leniter elevatis, margine subintegro, incurvo; æcidiosporis subglobosis, flavis, dein expallescentibus, circ. 25 μ . diam.; spermogoniis centralibus, hypophyllis.

Hab. in frondibus *Osmorrhizæ brevistylis*, North Greenbush Americæ borealis.

96. *Æcidium Libanotidis* Thüm. Pilzfl. Sibir. n. 687, Mycoth. Univ. 279

n. 1715. — Pseudoperidiis hypophyllis, sparsis, semper orbiculatim dispositis, parvulis, longe diu clausis, margine dilacerato, pallide luteis, disco ochraceo; æcidiosporis plus minusve globosulis, interdum compressis, subhyalinis v. pallidissime luteolis, episporio crassissimo, subtilissime reticulato, 21-24 μ . diam.

Hab. ad folia viva *Libanotidis* speciei indeterminatæ v. potius *Phloiodocarpi dahurici*, in pratis pr. fluv. Irba et Minusinsk Sibiriae.

97. *Æcidium albilabrum* Kalchbr. in Flora 1875, n. 31, Thüm. My- 279

coth. Univ. n. 1627. — Pseudoperidiis innatis (in maculis fuscis) sparsis, margine regulari subintegro, albis; æcidiosporis primum concatenatis, subglobosis.

Hab. in foliis vivis *Alepideæ amatymbicæ* et ciliaris ad pedem montis Boschberg prope Somerset-East, Promont. Bonæ Spei, in Africa australi (P. Mac Owan).

98. *Æcidium Cussoniæ* Kalchbr. in Grevillea X, p. 123. — Amphige- 279

num; maculis suborbicularibus, bullatis, pallidis; pseudoperidiis subcongestis, semi-immersis, concavis, ochraceis, margine albo-crenulatis; æcidiosporis aurantiacis.

Hab. in foliis *Cussoniæ spicatae*, ad Natal Africae.

99. *Æcidium Arechavaletæ* Speg. Fungi Argentini pug. IV, n. 88. — 2799

Pseudoperidiis laxè gregariis atque per totam matricem sæpius decolorato-tumefactam sparsis, primo globuloso-depressis, epidermide velatis dein erumpentibus, margine orbiculari v. suboblongato, 200-300 μ . diam., vix prominulo, margine crassiusculo, integro v. 3-4 fisso extusque reflexo, albo-flavescentibus; contextu e cellulis subtabulari-parallelipipedis, 30 $\approx$ 20, crasse tunicatis, margine radiatim minute et dense striolatis composito; æcidiosporis globosis v. e mu-

tua pressione angulatis, 24-26 μ . diam., episporio tenui, levissimo, protoplasmate dense et minute granuloso, hyalino-flavescentibus.

Hab. ad caules vivos Galii (an Rubiæ?) speciei cujusdam, pr. Montevideo Americæ australis (J. ARECHAVALETA).

100. **Æcidium Diodiæ** Burrill Paras. Fungi of Illinois p. 228. — Hy- 2800
pophyllum, cotyledones, rarius folia inferiora occupans; maculis distinctis, parvis, viridulo-brunneis; æcidiis paucis, in greges irregulares dispositis; pseudoperidiis minutis, brevibus, margine non vel vix recurvato; æcidiosporis subglobosis vel ellipsoideis, episporio tenuiusculo, verruculoso, 21-30 $\approx$ 17-21; spermogoniis numerosiusculis, sparsis, epiphyllis.

Hab. in foliis, cotyledonibusque Diodiæ teretis, socio sæpe *Uromycele Spermacoces*, in America boreali. — Forte *Uromycelis Spermacoces* status æcidiosporus.

101. **Æcidium Vangueriæ** Cooke in Grevillea X, p. 124. — Sparsum 2801
vel irregulariter aggregatum, hypophyllum; pseudoperidiis semiimmersis, pallidis, marginæ albo-lacerato; æcidiosporis globosis, luteolis, 18 μ . diam., cellulis pseudoperidiorum elongato-hexagoniis, 26 $\approx$ 18.

Hab. in foliis Vangueriæ infaustæ et latifoliæ, sociâ sæpe *Hemileia Woodii* K. et C., ad Natal Africæ.

102. **Æcidium Plectroniæ** Cooke in Grevillea X, p. 124. — Spermogoniis in eadem macula ac æcidiis, epiphyllis; æcidiis hypophyllis, rotundatis, in maculis orbicularibus, decoloratis nidulantibus; pseudoperidiis paucis, prominulis, margine subintegro, pallido; æcidiosporis luteis (?). 2802

Hab. in foliis Plectroniæ Gueinzii, ad Natal Africæ.

103. **Æcidium Pavettæ** Berk. in Hook. Journ. 1853, p. 231. — Maculis 2803
orbicularibus, hypophyllis, nigris, tenuibus; pseudoperidiis sparsis, margine angusto.

Hab. in foliis Pavettæ indicæ, in insula Ceylon.

104. **Æcidium flavidum** B. et Br. Fungi of Ceylon n. 852. — Maculis effusis, flavidis, hypophyllis; æcidiis sparsis; pseudoperidiis margine crenatis, laceris. 2804

Hab. in foliis Pavettæ indicæ, Peradeniya in ins. Ceylon. — «An idem ac *Æcidium Pavettæ* Berk.?»

105. **Æcidium Houstoniatum** Schwein. N. Amer. Fungi p. 293, n. 2891, 2805
Burrill, Parasitic fungi of Illinois p. 229, Ell. North Am. F. n. 1422. — Hypophyllum; æcidiis sparsis per totum folium, minutis, brevissimis, margine angusto, recurvato, pluries laciniato; æcidiosporis glo-

bosis vel ellipticis, sæpe angulatis, 15-18 $\approx$ 12-15, subtiliter tuberculatis, subaurantiacis; spermogoniis numerosis, conspicuis, sparsis, hypophyllis, purpurascentibus.

Hab. in foliis pedunculisque *Houstoniæ cæruleæ* et longifoliæ, in Pennsylvania et Illinois Americæ borealis. — Maculæ subindistinctæ.

106. ***Æcidium Sambuci*** Schwein. Syn. Carol. p. 67, n. 441, Burrill 2806
Parasitic Fungi of Illinois p. 228, *Æcidium Sambuciatum* Schw. Syn. North Amer. Fungi p. 294, n. 2897, Ell. N. A. F. n. 1002. — Hypophyllum vel etiam caulicolum; maculis conspicuis, flavis, bullatis; æcidiiis circinatis vel sæpius dense irregulariterque aggregatis; pseudoperidiis brevibus, margine fusco, profunde in ciso et recurvato; æcidiosporis subglobosis, episporio tenui, subtiliter tuberculatis, 18-21 μ . diam., aurantiaco-fulvis, decolorantibus; spermogoniis paucissimis, centro maculæ insidentibus.

Hab. in foliis caulibusque *Sambuci canadensis*, in Carolina, Pennsylvania (SCHWEINITZ), Alabama (PETERS) et Illinois (BURRILL) Americæ borealis. — Maculæ magnæ, 2,5-5 cm. latæ; pseudoperidia aurantiaca v. pallida.

107. ***Æcidium Ceanothi*** Ell. et Kellerm. in Bull. Torrey botanical 2807
Club 1884, October. Ellis N. Am. Fungi n. 1428. — Pseudoperidiis epiphyllis, cupulatis, flavescentibus, margine subintegro, quasi involuto, 0,5 mm. circ. diam; contextu cellulis subinde hexagoniis, margine eleganter striatulis, hyalinis; æcidiosporis e globoso angulatis, flavescentibus; episporio hyalino, æquali, 18-22 μ . diam.

Hab. in foliis *Ceanothi ovalis*, pr. Manhattan Kansas Americæ borealis.

108. ***Æcidium lonicerinum*** Thüm. Pilzfl. Sibir. n. 507. — Pseudoperidiis hypophyllis, dense gregariis, cæspites orbiculatos formantibus, elevatis, tubiformibus, luteis, parvulis, margine crasso, crenulato; æcidiosporis plus minus globosis vel irregulariter compresso-ellipticis, pallide flavidis vel subhyalinis, episporio tenui, multipunctatulo vel subplicatulo, 29-32 μ . diam. 2808

Hab. ad folia viva *Loniceræ* speciei indeterminatæ in subalpinetis pr. fluvium Uss Sibiricæ (SAFIANOFF). — Ab *Æcidio Loniceræ* Duby et *Æcidio Xylostei* Wallr. valde diversum.

109. ***Æcidium Periclymeni*** Schum. Enum. Pl. Sæll. II, p. 225, Winter 2809
Die Pilze p. 264, Schroet. Pilz. Schles. p. 379, *Æcidium Xylostei* Wallr. Fl. Crypt. germ. II, p. 256, *Cavoma xylosteatum* et *Periclymenatum* Link Sp. II, pag. 52 et 53, *Cavoma Loniceræ*

Schlecht. Fl. Berol. II, pag. 115, *Æcidium Lonicerae* Duby Bot. Gall. II, p. 906, *Æcidium Caprifoliacearum* DC. Fl. Franc. II, pag. 597, ex parte. — Spermogoniis in greges parvos dispositis, flavo-melleis; æcidiis hypophyllis, plurimis secus orbes v. irregulariter dispositis, sæpe confluentibus, folium totum vel ex parte obtegentibus, maculis rotundatis vel oblongis, flavescentibus, superne brunneolis; pseudoperidiis plus minus elongato-cylindraceutis, raro cupulatis, margine flavescente vel albido, irregulariter lacinulato, reflexo; æcidiosporis rotundatis, rarius oblongis, polygoniis, 16-28 μ . diam., subtiliter verrucosis, aurantiacis.

Hab. in foliis Lonicerae Periclymeni, Xylostei, nigræ, cæruleæ, alpigenæ, altaicæ, in Italia, Helvetia, Gallia, Belgio, Arduennis, Germania, Britannia et Sibiria asiatica.

110. *Æcidium Rehderianum* Magnus in Abhandl. Bot. Vereins d. Pro. 2810
vinz Brandenburg XXIX, p. 7. — Pseudoperidiis hypophyllis, in maculis irregularibus, flavis, determinatis, haud bullatis insidentibus, parum prominulis, flavidis, margine irregulariter rupto, subrevoluto; æcidiosporis ovatis vel irregulariter angulatis, 22,4-24,8 $\approx$ 17,4-18,6, episporio æqualiter subtiliterque granulato.

Hab. in foliis Loasæ aurantiacæ, in horto botanico Berlin et Jena Germaniæ (REHDER). — *Æcidio Convallariæ* subaffine.

111. *Æcidium abundans* Peck in Botanical Gazette 1878, p. 34, Ell. 2811
et Everh. North Amer. Fungi n. 1814. — Maculis flavis, numerosis, parvis, suborbicularibus, subinde confluentibus; pseudoperidiis paucis, hypophyllis, subcircinatis, pustulatis; æcidiosporis subglobosis, 25 μ . diam., aurantiacis; spermogoniis in eadem vel diversa macula dispositis.

Hab. in foliis vivis Simphoricarpi oreophyllæ et vulgaris in America boreali.

112. *Æcidium Valerianellæ* Biv. Bernh. Stirp. rar. Sic. IV, p. 28. — 2812
Hypophyllum vel rarius epiphyllum; pseudoperidiis numerosis, distinctis, albido-flavis, campanulatis, multifidis, laciniis revolutis, angustissimis; æcidiosporis globosis, aurantiacis.

Hab. in foliis Valerianellæ campanulatae, in insula Sicilia (BIVONA-BENHARDI) et V. eriocarpæ pr. La Rochelle Galliae (BRUNAUD). — Huc forte pertinet *Æcidium Fediv-olitoricæ* Bals. et De Not. in Bibl. ital. 1831, et Klotzsch in Herb. myc. n. 1792.

113. *Æcidium Cephalanthi* Seym. in Botan. Gazette IX, p. 191, Burrill 2813
Paras. Fungi of Illinois p. 228, Ell. et Everh. North Americ. Fungi

n. 1817. — Hypophyllum; maculis distinctis, brunneis, vix incrassatis; æcidiis numerosis, irregulariter gregariis; pseudoperidiis brevibus, margine abrupte recurvato, subtiliter fisso; æcidiosporis subglobosis aut ellipticis, episporio crassissimo, reticulato-rugoso, 33-43 = 28-36; spermogoniis epiphyllis, minutis, rufescenti-brunneis.

Hab. in foliis *Cephalanthi occidentalis*, Illinois (ARTHUR, HART) et Manhattan Kansas (KELLERMAN), Americæ borealis.

114. **Æcidium Scabiosæ** Dozy et Molkenb. Fl. Neerland. II, pag. 12. 281

Winter Die Pilze p. 264. — Æcidiis hypophyllis, in maculis rotundatis v. irregularibus, brunneis, sine ordine secus parvos greges dispositis; pseudoperidiis viridulis, dein flavidis demumque pallescentibus, cupulatis, margine denticulato, nec reflexo; æcidiosporis angulatis, sphaeroideis vel oblongis, 10-24 = 12-18. flavescentibus.

Hab. in *Knautia silvatica* et *Scabiosa arvensi*, in Neerlandia, Belgio et Germania. — Verisimiliter huc pertinet *Æcidium Succisæ* Kirchn. in Lotos 1856, p. 180.

115. **Æcidium Compositarum** Mart. Fl. Erlang. p. 314, Winter. Die 281

Pilze p. 264, Burrill. Paras. Fungi of Illinois *Cæoma Compositarum* Schlecht. Fl. Berol. II, pag. 114, p. p. — Formæ æcidiosporæ *Pucciniæ Hieracii* simillima. Hæc species valde variabilis in plures formas dividitur, ceterum ulterius inquirendas. — Var.

Taraxaci (K. et S.) Grev. Fl. Ed. pag. 444. Cfr. *Puccinia silvatica* Schroet. — Var. **Prenanthis** (Pers.) Wallr. Fl. Crypt. Germ. n. 1773 a. Cfr. *Puccinia Prenanthis*. — Var. **Tussilaginis** (Pers.)

Cooke Handb. n. 1624 c Cfr. *Puccinia Poarum* Nielseu. — Var.

Lapsanæ (Schulz.) Purt. in Cooke Handb. n. 1624 c Cfr. *Puccinia Hieracii* Maat. — Var. **Eupatorii** (Schw.) Cfr. Burrill. l. c. p. 231:

hypophyllum, maculis distinctis, conspicuis, paucis, flavis; æcidiis irregulariter gregariis vel subinde circinatis, pseudoperidiis brevibus irregulariter fissis moderateque recurvatis, mox pulverulentis; æcidiosporis subglobosis, verruculosis 18-20 μ . diam.; spermogoniis numerosis, sparsis epiphyllis, flavo-melleis. In Eupatorio perfoliato in America boreali. — Var. **Silphii** Burrill l. c.: hypo- vel sæpe etiam epiphyllum, maculis distinctis, late sparsis, haud magnis, flavis; æcidiis irregulariter consociatis, parce gregariis profunde immersis, pseudoperidiis margine pluries inciso v. pulverulento, subrecurvato; æcidiosporis subglobosis, sæpe angulatis, 11-15 μ . diam., spermogonio subpaucis, conspicuis, rufescenti-brunneis, centralibus, amphigenis. In *Silphio integrifolio*, terebenthinaceo, laciniato in America boreali. — Var. **Am-**

brosiæ Burrill l. c.: maculis ut in var. *Eupatorii*; æcidiiis haud dense gregariis, irregulariter in macula dispositis, aream vacuum centralem relinquentibus; pseudoperidiis brevibus, haud profunde immersis, firmulis, margine fisso, latiusculo, eleganter curvato; æcidiosporis subglobosis, ut plurimum angulatis, levibus episporio firmo, 12-25 μ . diam.; spermogoniis paucis centralibus, amphigenis, rufo-brunnei s. In *Ambrosia trifida* in America bor. — Var. **Xanthii** Burrill l. c.: hypophyllum, rarius epiphyllum; maculis minusculis, distantibus, paullulum incrassatis, flavescentibus, sæpe purpureo-tinctis; æcidiiis haud dense confertis, irregulariter sparsis vel subcircinatis, plerumque ambitu irregularibus; pseudoperidiis profunde immersis, prominulis, margine pulverulento, raro lobato incurvatoque; æcidiosporis subglobosis vel ellipticis sæpeque angulatis, episporio tenuiusculo, 15-18 μ . diam. verruculosus; spermogoniis paucis, centralibus, plerumque epiphyllis, minutis, flavescenti-brunneis. In *Xanthio strumario*, socia sæpe *Puccinia Xanthii* Schwein. cujus forte status æcidiosporus, in America boreali. — Var. **Helianthi** Burrill loc. cit. pag. 232: hypo- vel raro etiam epiphyllum; maculis distinctis vel confluentibus, ut plurimum flavis, subinde incrassatis; æcidiiis subcircinatis, confertiusculis; pseudoperidiis brevibus, profunde immersis, primo firmis, dein pulverulentis; æcidiosporis subglobosis v. ellipsoideis, episporio tenui, subtiliter verruculosus; spermogoniis paucis centralibus, plerumque epiphyllis, inconspicuis, flavescenti-brunneis. In *Helianthi* speciebus variis in America boreali. *Æcidiosporæ* tunc 13-16 $\approx$ 12-14, tunc 20-24 $\approx$ 15-21. — Var. **Bidentis** Burrill l. c.: hypophyllum, rarius etiam epiphyllum, maculis latiusculis, effusis, sæpe confluentibus, purpureis, vix incrassatis; æcidiiis sparsis, pseudoperidiis prominulis, abrupte marginatis revolutisque, firmis; æcidiosporis subglobosis, episporio tenui, verruculoso donatis, 15-17 μ . diam.; spermogoniis paucis et inconspicuis, plerumque centralibus, hypophyllis sæpeque omnino nullis. In *Bidente frondosa* in America boreali. — Var. **Lactucæ** Burrill l. c.: hypophyllum, maculis indeterminatis, conspicuis, incrassatis, purpureis dein brunneis; æcidiiis ut plurimum confertis, aream centralem vacuum relinquentibus; pseudoperidiis numerosis, brevibus, pluries irregulariter fissis lateque margine recurvatis vel pulverulentis; æcidiosporis angulatis, irregulariter subglobosis vel late ovalibus, episporio tenui, verruculoso donatis, 15-18 μ . diam.; spermogoniis subnume-

rosis, epiphyllis, majusculis, convexis, rufescenti-brunneis. In *Lactuca canadensi* in America boreali.

116. *Æcidium Mac-Owanianum* Thüm. in Flora 1875, pag. 380, Myc. ²⁸¹
univ. n. 426 et n. 1023. — *Æcidiis* hypophyllis, sparsis, minutis,
in macula exarida, aurantiaco-roseis; *æcidiosporis* polygoniis vel
irregulariter rotundatis, 15-22 μ . diam., flavescentibus, episporio
crasso, levi.

Hab. ad folia viva *Conyzæ ivifoliæ* et pinnatilobæ,
Promont. Bonæ Spei ad Sommerset-East (Mac Owan et Tuck).

117. *Æcidium Ligulariæ* Thüm. in N. Giorn. botanico italiano 1880 ²⁸¹
p. 196. — Pseudoperidiis hypophyllis, parvis, orbiculatim dense
gregariis, pallide luteis, margine tenui, levi, in macula utrinque
vix pallescenti; *æcidiosporis* globosis vel plerumque clavatis et
ellipsoideis, irregularibus, episporio tenui, dense punctulato, 30-44
≈ 22-26, hyalinis.

Hab. ad folia *Ligulariæ sibiricæ*, ad Karagaïsk Orenburg.

118. *Æcidium intermixtum* Peck in Botanical Gazette 1879, p. 231. ²⁸¹
— Pseudoperidiis sparsis, hypophyllis, brevibus; *æcidiosporis* sub-
globosis vel ellipsoideis, 20-30 μ . diam., aurantiacis.

Hab. in foliis *Ivæ axillaris*, ad Green River, Wyoming Ter-
sit. Amer. borealis (Jones). — Forte *Pucciniæ intermixtæ* status
æcidiosporus.

119. *Æcidium Stobææ* Kalchbr. et Cooke in Grevillea VIII, p. 70. — ²⁸¹
Pseudoperidiis 3-5 in greges congestis, albis, margine fimbriato-
lacerato; *æcidiosporis* subglobosis, hyalinis, 28-30 μ . diam., recen-
tibus verisimiliter coloratis.

Hab. in foliis *Stobææ*, ad Natal Africae. — Pseudoperidia *Ræ-
steliiæ laceratæ* similia. *Pucciniæ Stobææ* Mac Owan probabiliter
connexum.

120. *Æcidium Galatellæ* Thüm. in Mycoth. Univ. n. 534. — Hypo- ²
phyllum, dense gregarium, in macula rufo-brunnea, purpureo-mar-
ginata, indeterminata; pseudoperidiis elevatis, margine levi, fla-
vidis, parvis; *æcidiosporis* globoso-polygoniis vel hexagoniis, epi-
sporio levi, crassiusculo, hyalino, nucleo fulvo, globoso, 14 μ . diam.

Hab. in foliis vivis *Galatellæ dahuricæ*, ad lac. Kysykul
pr. Minussinsk Sibiriae occidentalis (MARTIANOFF).

121. *Æcidium crypticum* Kalchbr. et Cooke in Grevillea IX, p. 21. ²⁸²
— Hypophyllum; pseudoperidiis paucis (5-6) secus circum dispo-
sitis, intra tomentum nidulantibus; *æcidiosporis* subglobosis, levi-
bus, aurantiacis, 12-14 μ . diam.

Hab. in foliis *Gerberæ*, ad Natal Africae.

122. *Æcidium Bigeloviae* Peck in Botanical Gazette 1878, p. 34. — 2822

Maculis crassiusculis, flavis; pseudoperidiis pustulatis, hemisphaericis, margine angusto apertis; æcidiosporis subglobosis, 25-32 μ . diam., flavis vel aurantiacis.

Hab. in caulibus folisque vivis *Bigeloviae* Douglasii, in America boreali. — Ab *Æcidio hemisphaerico* maculis flavis æcidiosporisque majoribus distinctum.

123. *Æcidium Barkhausiae* Roum. in Revue Mycol. 1880, p. 203. — 2823

Amphigenum; pseudoperidiis rotundatis, albidis, margine sericeo parum recurvato, greges compactos densosque efformantibus; æcidiosporis globosis, aureis, episporio punctulato præditis.

Hab. in foliis *Barkhausiae* (*Crepidis*) fœtidæ, Villa Thuret Antibes in Gallia (CH. NAUDIN). — Ab *Æc. Crepidis* et *Rostropi* caute distinguendum.

124. *Æcidium Bahiæ* Berk. et Curt. North American. Fungi n. 578. 2824

— Totam frondem deformans; pseudoperidiis gregariis, innumeris, radiatis.

Hab. in foliis *Bahiæ*, in America boreali.

125. *Æcidium amphigenum* Hazsl. Magyarhon Uetzökgombái es ragyái 2825

(1877) p. 81 et in Just Botan. Jahresb. 1877, p. 72 nec Ellis et Kellerm. — *Æcidiis* irregulariter sparsis, amphigenis; pseudoperidiis margine erecto, subtiliter crenulato, flavescentibus; æcidiosporis globosis, flavis, dein brunneis.

Hab. in foliis *Apargiæ* *Taraxaci*, in M. Tatricis. — Adsunt quoque spermogonia epiphylla, sporulas ex albido flavas fœventia.

126. *Æcidium Homogynes* Schroet. Pilz. Schles. p. 379. — Spermogo- 2826

niis epiphyllis, flavo-melleis, secus greges parvos, rotundatos dispositis; *æcidiis* secus series annuliformes plerumque plurimas (maculis rotundatis sæpe confluentibus) dense confertis; pseudoperidiis breviter cylindræcis, margine albo, lacinulato; æcidiosporis 17-28 $\approx$ 15-20, subtiliter punctulatis, aurantio-rufis, episporio hyalino tectis.

Hab. in foliis *Homogynes* alpinae, in Silesia Germaniæ.

127. *Æcidium erigeronatum* Schwein. Syn. North Amer. Fungi n. 2869, 2827

p. 292, Burrill Paras. Fungi of Illinois p. 229, Thüm. Mycoth. Univ. n. 151. — Hypophyllum; maculis ut plurimum distinctis, magnis, inflatis, flavis; *æcidiis* subcircinatis vel irregulariter gregariis; pseudoperidiis brevibus, elevatis, margine pluries fisso valde revolutato, fragilibus, more pulverulentis; æcidiosporis subglobosis, episporio tenui verruculoso donatis, 12-15 μ . diam., flavescentibus;

spermogoniis indistinctis, paucis, plerumque centraliter gregariis epiphyllisque, flavescentibus.

Hab. in foliis *Erigerontis* annui, canadensis, strigosi philadelphici et bellidifolii, in America boreali.

128. *Æcidium Spegazzinii* De-Toni, *Æcidium australe* Speg. Fungi guaranitici I, n. 154, non Berk. — Maculis quandoque nullis, quandoque amphigenis, latissimis ac fere totum folium occupantibus, indeterminatis, pallescentibus, medio sæpe subincrassatis; pseudoperidiis hypophyllis in plagulas majusculas, 3-8 mm. diam., subellipticas constipatis, minutis 150-180 μ d., flavidis, primo subglobosis, dein punctato-apertis, margine vix exserto, crenulato, albido, membranaceis, contextu parenchymatico-loricato, e cellulis obovatis v. elliptico-rhomboides utrinque truncato-obtusatis. 18-20 $\approx$ 12-16, crasse tunicatis, dense minutissimeque granulosi, hyalinis composito; æcidiosporis subglobosis, e mutua pressione sæpius obtuse polygoniis, 14-17 $\approx$ 12-15, episporio crassiusculo levissimo, hyalino, protoplasmate nubiloso-granuloso, flavescenti faretis.

Hab. ad folia viva *Erigerontis* bonæerensis in uliginosis pr. Paraguari Americæ australis.

129. *Æcidium Asterum* Schwein. Syn. Carol. p. 67. n. 444, Burrill & Paras. Fungi of Illinois p. 230, *Æcidium Solidaginis* Schwein l. c., n. 446. — Hypophyllum; maculis plerumque distinctis, sæpe bullatis, flavis vel purpureis; æcidiis subcircinatis aut irregulariter gregariis; pseudoperidiis brevibus, margine profunde fisso recurvatoque, mox pulverulentis; æcidiosporis subglobosis, episporio tenui tuberculato donatis, 12-17 μ . diam.; spermogoniis subconspicuis, paucis, ut plurimum epiphyllis, flavescentibus.

Hab. in foliis *Asteris* et *Solidaginis*, in America boreali.

130. *Æcidium Asteris* Thüm. in Mycoth. Univ. n. 935. — Pseudoperidiis parvis, dense gregariis, in macula orbiculata, fusca, aurantiacis, margine levi, crasso, hypophyllis; æcidiosporis irregulariter ellipsoideis vel angulosis, verruculosis, verruculis minutis, episporio tenui, intus granulosi, hyalini, 22 μ . diam.

Hab. in pratis subalpinis ad *Asteris* alpini folia viva pr. Minussinsk Sibiriae asiaticæ (MARTIANOFF.) — «An revera idem ac *Æcidium Asterum* Schwein.?»

131. *Æcidium Hualtatinum* Speg. Fungi Fuegiani p. 52, n. 145. — Pseudoperidiis dense 20-30 gregariis, glomerulos discoideos, 3-8 mm. diam., macula majusculæ, pallescenti, indeterminate insidentes efformantibus, hypophyllis, flavidulis, modice prominulis, cylindra-

ceis, margine pallescenti-laciniato donatis, cellulis contextus rhomboideo-tetragonis haud vel vix loricatis, obtusissime angulatis, crasse tunicatis, 50-60 $\approx$ 25-30, dense rugoso-striatis, subhyalinis; æcidiosporis globosis, 26-34 μ . diam., e mutua pressione angulatis, crasse tunicatis, dense minutissimeque ruguloso-granulosis, pallide flavescentibus, granuloso-farctis.

Hab. ad folia viva Senecionis (hualtatæ) etc., in uliginosis in Gabel Island Patagoniæ. — Huc etiam *Æcidium Senecionis* Speg. (nec Desm.) in Fungi Argentini pug. I, n. 53, duendum.

132. *Æcidium sclerothecium* Speg. Fungi patagonici n. 99. — Pseudoperidiis laxe gregariis, subepidermicis, parce prominulis, diu clausis apice tandem lacero-dehiscentibus, coriaceis, duris, pallide albo-fuscescentibus, pulvere rufescente repletis, contextu grosse celluloso, flavescente, parum perspicuo subopaco; æcidiosporis globosis vel e mutua pressione irregulariter obtuseque angulatis, 25-30 $\approx$ 20-25, crassiuscule tunicatis, minutissime densissimeque papilluloso-asperulis, ex hyalino fulvescentibus, granuloso-farctis. 2832

Hab. ad ramulos juniores vivos Senecionis patagonici, pr. Puerto Deserto in Patagonia Amer. australis. — Pars infecta incrassata, pallescenti-flavescent; pseudoperidia dura, facillime integra e matrice extrahenda et ovula elliptica 700 μ . ad 1,5 mm. longa, 500 μ . ad 1 mm. lata, levia, pallescentia mentiuntur.

133. *Æcidium paludosum* Pass. Funghi parmensi in Nuovo giorn. bot. ital. 1877, p. 267. — Amphigenum, pseudoperidiis minutis, marginæ lacero-dentato, expansis, in maculis flavicantibus aggregatis. 2833

Hab. in foliis Senecionis paludosi, in Italia boreali.

134. *Æcidium Senecionis-crispati* Schroet. Pilz. Schles. p. 379. — *Æcidiiis* confertis, in annulos concentricos dispositis, maculis usque ad 1 cm. et etiam ultra latis; pseudoperidiis explanatis, margine albo, fimbriatulo; æcidiosporis aurantiaco-rufis. 2834

Hab. in Senecione crispato var. rivulari, pr. Rybnik Silesiæ in Germania.

135. *Æcidium Ptarmicæ* Schroet. in Rabenh. F. E. n. 1887, Winter Die Pilze pag. 263. — *Æcidiiis* confertis, pluriseriatis, in maculis usque ad 1 cm. longis; pseudoperidiis explanatis, margine lacerato, albido; æcidiosporis subglobosis, 15-20 μ . diam., levibus, aurantiaco-flavis. 2835

Hab. in *Achillea Ptarmica*, in Germania.

136. *Æcidium Leucanthemi* DC. Fl. Franç. VI, p. 94, Linhart F. Hung. 2836

exs. n. 46, Winter Die Pilze p. 263. — *Æcidiis* plerumque in maculis magnis, rotundatis aut irregularibus, epiphyllis, flavidis, sæpe rufo-violascenti conspurcatis sive secus orbes plurimos irregulares incompletosque, sive nullo ordine insidentibus; pseudoperidiis cupulatis, margine amœne inciso, late revoluti, flavescente; æcidiosporis polygoniis, 14-21 $\approx$ 10-17, aurantiaco-flavis.

Hab. in foliis *Chrysanthemi* *Leucanthemi* et montani, in Gallia, Germania, Hungaria et Italia.

137. *Æcidium Martianooffianum* Thüm. in Bull. d. l. soc. d. Nat. de Moscou 1877, p. 135, Myc. univ. n. 821. — Pseudoperidiis parvulis, dense gregariis, epiphyllis vel etiam caulicolis, elatis, orbiculatis, rubro-aurantiacis, margine levi, albo-flavo; æcidiosporis plus minus globosis vel globoso-ovoideis, basi verticeque cum processu semigloboso hyalino, episporio levi, tenui, dilute flavidis, subpellucidis, 20-22 μ . diam.

Hab. in foliis caulibusque vivis *Artemisiæ* glaucæ, in campatribus arenosis, Minussinsk Sibiriae occidentalis.

138. *Æcidium Dracunculi* Thüm. in Myc. Univ. n. 1223. — Pseudoperidiis hypophyllis vel raro etiam amphigenis, in macula rubiginoso-fusca, indeterminata, non marginata, greges parvos formatibus densis, elevatis, magnis, pallide lutescentibus, margine subcrenulato, pallidiore; æcidiosporis globosis vel late ellipsoideis, achrois, episporio tenui, levi, 16-18 μ . diam.

Hab. ad folia viva *Artemisiæ* *Dracunculi*, in ruderatis pr. Minussinsk Sibiriae occidentalis (N. MARTIANOFF). — Ab *Æcidio Martianooffiano* Thüm., forma pseudoperidiorum æcidiosporarumque et etiam magnitudinem toto cœlo diversum.

139. *Æcidium gnaphaliatum* Schwein. Syn. Amer. bor. p. 292, n. 2873. — Hypophyllum, in lana foliorum caulisque primo involutum; maculis plus minusve effusis, lutescentibus; pseudoperidiis tantum paucis sed dense approximatis, sæpissime etiam simplicibus, longissimis, candidissimis, cylindraceis, apice fimbriatis; æcidiosporis aurantiaco-luteis.

Hab. in foliis caulibusque *Gnaphalii* *polyccephali*, pr. Bethlehem in Pennsylvania Americae borealis.

140. *Æcidium Serratulæ* Schroet. Pilz. Schles. p. 379. — *Spermogoniis* in parvos greges dispositis, flavo-melleis; æcidiis congestis, maculas usque ad 8 mm. latas, orbiculares vel elongatas efformantibus; pseudoperidiis explanatis, margine lacinulato, albido; æcidiosporis aurantiaco-rufis.

Hab. in foliis *Serratulae tinctoriae*, in Silesia Germaniae.

141. *Aecidium Rhagadioli* Pass. Funghi parmensis in N. Giorn. botan. ital. 1877, p. 267. — Amphigenum; pseudoperidiis minutis, folii paginam fere omnino tegentibus, margine lacero-dentato, reflexo. 2841

Hab. in foliis *Rhagadioli stellati*, in Italia boreali.

142. *Aecidium Sonchi* West. Bull. Acad. belg. II série t. II, n. 6, Exsicc. n. 1160. — Maculis elongatis, crassis, vinosis; pseudoperidiis ovatis, flavidulis secus series lineares dispositis, clausis vel apertis, margine inæqualibus; aecidiosporis globulosis, aureis. 2842

Hab. in foliis caulibusque *Sonchi oleracei*, palustris et littoralis, in Belgio, Fennia et Sibiria. — Quoad huc pertineat *Aec. Sonchi* Karst. Myc. Fenn. IV, p. 43, dubium manet.

143. *Aecidium minusense* Thüm. Pilzfl. Sibir. n. 157. — Pseudoperidiis hypophyllis, raro etiam in pagina superiore, sine macula, plerumque secus circulum dispositis v. orbiculatim nervos circumdantibus ochraceis, mediis, margine sublevi, concolori; aecidiosporis irregulariter globosis, episporio tenui, verruculoso, cum verruculis minimis multis, dilute flavescentibus, circ. 20-28 μ . diam. 2843

Hab. ad folia viva *Mulgedii* species indeterminatæ, pr. Minussinsk. Sibiriae. — *Aecidium Sonchi* West. Les crypt. d'après l. stat. nat. p. 74, species diversa est.

144. *Aecidium hemisphaericum* Peck in Botan. Gazette 1878, p. 34. — Pseudoperidiis prominulis, sparsis vel confertis hemisphaericis, anguste apertis; aecidiosporis subglobosis vel ellipsoideis, 20-25 μ . longis, aurantiacis, episporio crasso, hyalino tectis. 2844

Hab. in foliis caulibusque vivis *Mulgedii pulchelli*, in America boreali.

145. *Aecidium Cyani* DC. Fl. Franç. VI, p. 90, Winter Die Pilze p. 263, *Cavoma Cyanatum* Link Sp. II, p. 51. — Aecidiis aequaliter per totam inferiorem foliorum paginam sparsis, maculae flavæ insidentibus; pseudoperidiis albidis, primo hemisphaericis, dein apice perforatis margineque demum revolutis lacinias latas 5-6 præbentibus; aecidiosporis primo albo-flavescentibus, dein subrufulis. 2845

Hab. in foliis *Centaureae Cyani*, in Gallia et Germania.

146. *Aecidium Pratiae* Speg. Fungi Fuegiani p. 53, n. 147. — Maculis nullis vel folium totum nonnihil pallescens ac incrassatum relinquens; pseudoperidiis laxè gregariis, primo globosis, dein scutellato-apertis, 300-500 μ . diam., vix prominulis, flavescenti-melleis, margine non vel vix exserto parcissime fisso vel laciniato; cellulis contextus polygoniis, 40-45 $\approx$ 20-30, haud vel vix loricatis, crasse 2846

tunicatis, dense verrucosis; æcidiosporis globosis vel e mutua pressione angulatis, 20-25 $\approx$ 17-20, tenui tunicatis, levibus, granuloso-farctis, flavescentibus.

Hab. ad folia viva *Pratiæ* repentis, in herbosis prope Penguin rookery in Staten Island Patagoniæ.

147. *Æcidium Campanulæ* Gaillard in Bull. Soc. Myc. Fr. tom. IV, p. 184. — Pseudoperidiis haud gregariis, hypophyllis, sine ordine vel secus orbes dispositis, macula nulla, albidis; æcidiosporis rotundatis angulatisve, 28 $\approx$ 15, pallidissimis, episporio striatulo-plicato præditis.

Hab. in foliis *Campanulæ* rotundifoliæ, in M. Pyrenæis Galliæ.

148. *Æcidium Polemonii* Peck in Bot. Gazette 1879, p. 230, Ellis N. 284. Am. Fung. n. 1008, Burrill Paras. Illin. p. 235. — Hypophyllum; maculis plerumque distinctis, suborbicularibus, pallide brunneis vel flavo-viridulis, sæpe confluentibus; æcidiis irregulariter gregariis, plerumque aream centralem vacuam relinquentibus; pseudoperidiis brevibus, margine fisso recurvato; æcidiosporis subglobosis vel ellipsoideis subinde angulatis, episporio crasso, subtiliter ruguloso, 21-25 $\approx$ 18-21, læte aurantiacis; spermogoniis paucis, centralibus, amphisporis.

Hab. in foliis *Polemonii* reptantis et *Phlogis* pilosæ, in America boreali.

149. *Æcidium Ligustri* Strauss in Sturm D.C. Fl. III, p. 43, Winter Die Pilze p. 263, Thüm. Mycoth. Univ. n. 1628. — Æcidiis secus orbes pluriseriatis, irregulares, sæpe interruptos dispositis v. dense congestis gregesque rotundatos v. elongatos efformantibus; pseudoperidiis breviter cylindraceo-cupulatis, albis, margine primo erecto, demum expanso laceratoque; æcidiosporis angulatis, 16-21 $\approx$ 12-16, dense et subtiliter verruculosi, hyalini.

Hab. in Ligustro vulgari, in Germania.

150. *Æcidium Fraxini* Schwein. Syn. Carol. p. 66, n. 430, Burrill Paras. 284. Fung. of Ill. pag. 236, Ellis North Americ. Fungi n. 222, *Ræstelia Fraxiniles* Schwein. Syn. Amer. bor. — Spermogoniis numerosis, vix elevatis, epiphyllis, medio maculæ insidentibus; maculis determinatis, bullatis, sæpe purpurascentibus; æcidiis plus minus dense congestis, parvis vel numerosis, elongatis, cylindraceis, demum laceratis, tandem profunde laciniatis et reflexis; æcidiosporis ellipticis, episporio tenui, tuberculato instructis, 24-32 $\approx$ 21-24.

Hab. in foliis *Fraxini* americanæ et viridis, in Amer. bor.

151. *Æcidium Ligustici* Ell. et Everh. in Bull. Torrey bot. Club 1884, 2851
p. 73. — Pseudoperidiis minutis, margine angusto subintegro, in
greges 2-3 mm. latos congestis, hypophyllis; æcidiosporis irregu-
lariter globosis, 18-20 μ . diam., aurantiacis (?).

Hab. in foliis *Ligustici scotici*, in ins. Anticosti Americæ
borealis (Prof. J. Macoun). — Maculæ epiphyllæ, æcidiis contrapo-
sitæ, pallide flavescentes.

152. *Æcidium Phillyreæ* DC. Fl. Franç. VI, p. 96, Erb. Critt. Ital. II, 2852
n. 691, Thüm. M. U. n. 1717, Winter Die Pilze p. 263. — Pseu-
doperidiis plerumque numerosis denseque confertis, margine sub-
integro, paullulum introrsum incurvo; æcidiosporis diversiformi-
bus, sphæroideis, ellipticis vel oblongo-piriformibus, 18-35 $\approx$ 14-20,
verrucosis, aurantiaco-flavis.

Hab. in foliis caulibusque *Phillyreæ* mediæ et latifoliæ,
in Italia, Gallia, Britannia et Germania. — Fungillus in foliis pu-
stulas vesiculosas, rotundatas, in caulibus plagulas longas, crassiu-
sculas efformat portionemque juvenilem plerumque deformat.

153. *Æcidium Chionanthi* B. et Br. Fungi of Ceyl. n. 857. — Cras- 2853
siusculum, congestum; pseudoperidiis incarcerationis nec prominenti-
bus, marginæ irregulari; æcidiosporis candidis, rugosis, 25 μ . diam.

Hab. in foliis *Chionanthi*, in insula Ceylon. — Pulvinuli
crassiusculi, rufescentes.

154. *Æcidium ebenaceum* Mont. Syll. Crypt. n. 1151. — Hypophyl- 2854
lum; macula fuliginosa; pseudoperidiis gregariis, tandem dimidia-
tis, cupularibus, pallide helvolis (saltem in sicco), clinodio cellu-
lari fultis, margine erecto integerrimo; æcidiosporis 8-12-conca-
tenatis, e fundo paralleliter erectis, mox solutis, crassis, aurantiacis,
intus granulosi, 30 μ . circiter diam.

Hab. in foliis *Ebenacæ* ejusdam, ad Rio-Negro Americæ
meridionalis (Spruce). — Pseudoperidia 500 μ . diam. æquantia,
convexa, tandem aperta, ad dimidium folii immersa.

155. *Æcidium rhytismoideum* B. et Br. Fungi of Ceylon n. 855. — 2855
Maculis orbicularibus, rhytismoideis, 12 mm. et ultra latis, hypo-
phyllis; pseudoperidiis e crusta nigra oriundis, sparsis, margine lo-
bato, latiusculo, e cellulis penta- vel hexagoniis constante; æcidio-
sporibus subglobosis, levibus, plus minus angulatis.

Hab. in foliis *Diospyri*, in insula Ceylon (G. H. K. Thwaites).

156. *Æcidium miliare* B. et Br. Fungi of Ceyl. n. 851. — Effusum; 2856
pseudoperidiis in pagina superiore minutis, peritheciiformibus, in

pagina inferiore cupuliformibus, margine elevato; æcidiosporis globosis, 20 μ . diam.

Hab. in foliis *Diospyri ovalifolii*, Damboul in insula Ceylon. — For. **cylindraceum** B. et Br. l. c. maculis pallidis vel nigrescentibus, irregularibus; pseudoperidiis in pagina superiore peritheciiformibus, in inferiore cylindricis, basi cuticula nigrificata cinctis; æcidiosporis angulatis, 22-23 μ . diam.

157. **Æcidium Apocyni** Schwein. Syn. Carol. pag. 68, n. 448, Ell. et Everh. North Amer. Fungi n. 1823, Burrill Paras. Illin. p. 236, *Cvoma (Æcidium) apocynatum* Schwein. Syn. N. Am. F. n. 2865. — Maculis tenuibus, orbicularibus, maximis, aurantiacis, subtus pallidis; pseudoperidiis secus circulos concentricos paucos dispositis, clausis, e luteo-badiis vel fusciscentibus, apertis margine lacero pallido; æcidiosporis simplicibus, subhyalinis.

Hab. in foliis *Apocyni cannabini*, in Carolina, Kansas et Illinois Americæ borealis.

158. **Æcidium ceraceum** B. et Br. Fungi of Ceyl. n. 847. — Maculis flavis; pseudoperidiis sparsis quandoque petiolos ambientibus, margine angusto, denticulato; æcidiosporis angulatis, 50 μ . longis, granulatis.

Hab. in foliis *Tabernæmontanæ dichotomæ*, in insula Ceylon.

159. **Æcidium Jamesianum** Peck in Bot. Gazette 1880, p. 34, Burrill Paras. Fungi of Illinois p. 236, Ellis North Americ. Fungi n. 1012. — Amphigenum; maculis circularibus, distinctis, flavo-viridibus sæpeve confluentibus, subbullatis; æcidiis subcircinatis vel irregulariter aggregatis, brevibus; pseudoperidiis fragilibus, mox pulverulentis; æcidiosporis subglobosis vel ellipsoideis, episporio 5 μ . crasso, conspicue denseque tuberculato, 24-45 = 21-36, plerumque 39 = 30, aurantiacis; spernagoniis numerosis, sparsis vel concentricè dispositis, subatris.

Hab. in foliis, caulibus petiolisque (quæ destruit) *Asclepiadis Cornuti*, tuberosæ et *Jamesii*, New Mexico (BRANDEGEE), Jowa (HOLWAY) et Illinois (BURRILL) Americæ borealis.

160. **Æcidium Brandegei** Peck in Botanical Gazette 1878, p. 34. — Pseudoperidiis amphigenis, sparsis vel gregariis, subinde seriatim dispositis, elongatis; æcidiosporis subglobosis, 20-25 μ . diam., aurantiacis.

Hab. in foliis caulibusque vivis *Asclepiadis verticillatæ*, in Amer. bor. — Pseudoperidia *Æc. Sommerfeltii* simillima.

161. **Æcidium Anisotomes** Reichardt in Sitzungsber. K. Akad.-der 2861
Wissensch. 51. Band, I, p. 3 cum tabula (1865). — Pseudoperidiis
in caulibus, pedunculis fructibusque (numquam in foliis) subseria-
tim dispositis, rarius irregulariter confertis, pallide flavescentibus,
tubulosis vel subinfundibuliformibus, margine irregulariter crenu-
lato, integro vel in lobos breves, obtusos producto; cellulis con-
textus polyhedricis, tunica crassa donatis, margine eleganter strio-
latis; æcidiosporis concatenulatis, 20-25 μ . diam., subglobosis, pal-
lide aurantiacis, levibus.

Hab. in caulibus, pedunculis fructibusque *Anisotomes* geni-
culatæ (Peucedani geniculati), ad lacum Wanaka Novæ Zelandiæ
(Dr. JULIUS HAAST).

162. **Æcidium nummulare** Berk. Fungi of Ceylon n. 856. — Maculis 2862
flavis; pseudoperidiis in plagas orbiculares congestis, margine an-
gusto; æcidiosporis levibus.

Hab. in *Ceropegia Candelabro*, in insula Ceylon. — Pla-
gulæ 7-13 mm. latæ.

163. **Æcidium Limnanthem** Thüm. in N. Giorn. botanico italiano 1880, 2863
p. 196. — Pseudoperidiis epiphyllis, parvis, gregariis, plerumque
orbiculariter dispositis, paullulum elevatis, luteis, margine vix conti-
nuo, sine macula; æcidiosporis plus minusve globosis sed plerum-
que valde irregularibus, episporio subcrasso, echinulato punctula-
toque, 20-28 μ . diam., hyalinis.

Hab. in foliis vivis *Limnanthem* nymphoidis, ad Kyb-
scherva Orenburg. — «An *Æcidii Nymphoidis* DC. varietas?»

164. **Æcidium Nymphoidis** DC. Fl. Fr. II, p. 597, Pass. in Erb. Critt. 2864
Ital. II, n. 1066, Winter. Die Pilze p. 262, *Uredo hemisphaerica*
Spr. Syst. p. 751, *Cœoma nymphoidatum* Link Sp. II, p. 48. —
Epiphyllum; æcidii sine ordine in maculis rotundatis, concentrice
zonatis dispositis gregariisque, scutelliformibus, margine vix pro-
minulo, integro; æcidiosporis angulatis, 12-20 μ . diam., aurantia-
co-flavis.

Hab. in foliis *Limnanthem* nymphoidis et forte etiam
Nymphææ albæ et *Nuphari* lutei, in Italia, Gallia et Ger-
mania.

165. **Æcidium Sweertiae** Opiz Seznam rostlin pag. 111, Winter Die 2865
Pilze p. 205 (sub *Puccinia*), Schroet. Pilz. Schles. p. 380. — Sper-
mogoniis in greges parvos, rotundatos dispositis, flavo-melleis;
æcidii subdistantibus, in maculis orbicularibus vel elongatis insi-
dentibus; pseudoperidiis explanatis, margine inæqualiter dentato;

acidiosporis polygoniis, 19-25 μ . diam., subtiliter punctulatis, aurantiaco-rufis, episporio hyalino tectis.

Hab. in foliis *Sweertiae perennis*, in Germania et Bohemia.

166. *Æcidium Myosotidis* Burrill Parasitic Fungi of Illinois p. 234, 286
 Ellis et Everh. N. Amer. Fungi n. 1832. — Hypophyllum; æcidiiis uniformiter distributis, sæpe dense gregariis, majusculis, subinde prominulis; pseudoperidiis margine lato, recurvo, grosse fisso; acidiosporis subglobosis vel ellipticis, episporio crasso, conspicue tuberculatis, 18-22 $\approx$ 15-18; spermogoniis numerosis, uniformiter amphigenis, rufescenti-flavis.

Hab. in foliis *Myosotidis vernæ*, Illinois Americæ borealis (SEYMOUR).

167. *Æcidium Lappulæ* Thüm. Pilzfl. Sibir. n. 510. — Hypophyllum, 2867
 gregarium; pseudoperidiis mediis, subelevatis, aurantiaco-luteis, margine crasso, integro, toroso; acidiosporis globosis vel subelliptico-globosulis, hyalinis vel pallidissime flavidis, 25-33 μ . diam., episporio subtiliter echinulato, subcrasso, æquali.

Hab. in foliis caulibusque vivis *Echinospervi Lappulæ*, in deserto pr. Minussinsk Sibiriae asiaticæ.

168. *Æcidium Onosmatis* Thüm. Beitr. fl. Sib. III-V, p. 8, Mycoth. 2868
 Univ. n. 2026. — Pseudoperidiis dense gregariis, amphigenis et plerumque hypophyllis, pro ratione magnis, primo longe diu clausis conoideisve, demum apertis disciformibusque, margine declinato, levi, luteo-aurantiacis, in folio maculam distinctam non efformantibus; acidiosporis plus minusve globosis vel interdum etiam late ellipsoideis, episporio tenui, levi, intus homogeneis, pallidissime luteis, 24-29 μ . diam.

Hab. in foliis vivis caulibusque *Onosmatis Gmelini* et simplicissimæ, in dejectis pr. Minussinsk Sibiriae asiaticæ.

169. *Æcidium Nonneæ* Thüm. in N. Giorn. botanico italiano 1880, 2869
 p. 196. — Pseudoperidiis hypophyllis, densissime gregariis, numerosis, pro ratione parvis, flavis, margine vix crenulato, crasso, concolori; acidiosporis aut globosis aut ovalibus, episporio densissime et subtilissime punctulato, tenui, 30-10 μ . diam., hyalinis vel pallidissime flavescentibus.

Hab. in foliis vivis *Nonneæ pullæ*, Alabataj Orenburg.

170. *Æcidium Hydrophylli* Peck in 26 Rep. St. Mus. p. 78, Burrill 2870
 Paras. Fungi of Illinois p. 234. — Spermogoniis centralibus, epiphyllis, numerosis; æcidiiis hypophyllis, subcircinatis; maculis parvis, paucis, flavis, pallide-viridi marginatis; pseudoperidiis brevi-

bus, margine profunde crenato, latiusculo, recurvato; æcidiosporis subglobosis, episporio tenui instructis, levibus v. sublevibus, 18-21 μ . diam., flavis vel aurantiacis.

Hab. in foliis *Hydrophylli canadensis* et appendiculati, M. Catskill et Illinois Americæ borealis.

171. *Æcidium Heliotropii* Tracy et Gall. in Journ. of Mycol. 1888, 2871 p. 21. — Amphigenum; maculis mediocribus, determinatis, purpurascentibus; pseudoperidiis pallide flavis, circinatis, magnis, longissimis, latit. 4-plo longioribus, margine integro vel sæpe lacerato; æcidiosporis subglobosis, 16-19 μ . diam., episporio tenui, subtiliter ruguloso donatis.

Hab. in foliis caulibusque *Heliotropii curassavici*, ad Albuquerque New Mexico. — «Videtur *A. biformi* identicum.»

172. *Æcidium biforme* Peck in Amer. Natur. 1875, p. 351. — Am. 2872 phigenum; pseudoperidiis confertis, aliis brevibus margine albo, subintegro, aliis elongatis, margine plus minus lacinulato; cellulis 5-6-goniis; æcidiosporis subglobosis, 17-20 μ . diam., aureo-flavis.

Hab. in foliis *Heliotropii curassavici*, Utah Americæ borealis.

173. *Æcidium Atropæ* Mont. Canar. p. 89, Syll. n. 1149. — Hypo-, 2873 rarius epiphyllum; maculis oblitteratis vel fuscis; pseudoperidiis in greges minutos orbiculares, vix 2 mm. latos, annulatim congestis, ex ochraceo albicantibus, cupulam minutam, acute marginatam et integram referentibus; æcidiosporis pallidis, globosis aut gignantibus.

Hab. ad folia *Atropæ aristatæ*, in insulis Canariis (WEBB).

174. *Æcidium Withaniæ* Thüm. Fungi austro-africani n. 90. — *Æci-* 2874 diis hypophyllis vel etiam cauliculis, sparsis, ochraceis; pseudoperidiis sæpe dense gregariis, subelevatis, confluentibus, flavidis, margine levi, rotundato; æcidiosporis globosis, pallidissime griseo-fuscis, episporio subcrasso, levi, 17-18 μ . diam.

Hab. in foliis caulibusque vivis *Withaniæ somniferæ*, in monte «Boschberg» pr. Somerset-East, Promont. Bonæ Spei Africæ australis (P. MAC OWAN).

175. *Æcidium pampeanum* Speg. Fungi Argentini pug. III, n. 51. — 2875 Pseudoperidiis dense sparsis, sæpe totum folium vel caulem occupantibus, matrice parum tumefacta ac pallescente innatis, biformibus, foliiculis hypophyllis, totis immersis, margine tantum exsertis, cauliculis, basi tantum matriçi insculptis, longe exsertis, $\frac{1}{2}$ -1 mm. long., $\frac{1}{2}$ - $\frac{1}{6}$ mm. crass., cylindræis, aurantio-luteis, margine la-

cerato-crenulato, albido, reflexo, contextu cellulis irregulariter polygoniis efformato, epithecio vivide aurantiaco; æcidiosporis sphaeroideis vel e mutua pressione angulatis, 18-20 μ . diam., hyalinis, protoplasmate granuloso, flavo fartis.

Hab. in foliis caulibusque *Salpichroæ rhomboides*, in pratis secus Rio de la Plata, cerca de la Chacarita in Republica Argentina.

176. *Æcidium Cestri* Mont. Prodr. J. Fern. n. 57, Syll. n. 1147, Speg. 28
F. Argent. I, n. 57. — Hypophyllum; maculis epiphyllis, lutescentibus; pseudoperidiis in greges orbiculares circinatim congestis, pallide flavis, cupuliformibus, margine tenui integro vel crenulato-laciniato subinde usque ad basim fisso; æcidiosporis ovoideis, concoloribus, minute asperulis, 25-30 $\approx$ 23-24.

Hab. in foliis *Cestri Parqui*, in consortio *Uromycetis Cestri*, in insula Juan Fernandez nec non in Chili et agro bonaerensi Reip. Argentinae in America australi. — Pseudoperidia laxiuscule 12-40 gregaria, erumpentia, valde exserta (300-500 μ . circ.) margine prælongo, subcylindræco, 300 μ . ad 1 mm. long., membranaceo, albido-hyalino, epithecio luteo-fulvescente donata; contextus cellulis lanciformibus, subliberis, basi tantum connexis, 45-60 $\approx$ 24-30, squamoso-imbricatis, crassiuscule tunicatis hyalinis efformatus; æcidiosporæ e mutua pressione 5-6-gonæ, tenui tunicatæ, guttulis 4-6 protoplasmaticis oleosis fætæ.

177. *Æcidium Cissi* Wint. in Hedwigia 1884, p. 168. — Pseudope- 287
ridiis hypophyllis, maculis rotundatis seu irregularibus, luteis, demum fuscescentibus, sæpe area indeterminata atra cinctis, inordinate densissimeque insidentibus, patelliformibus, margine profunde incisis, laciniis late reflexis, albidis; cellulis contextus hyalinis, crasse tunicatis, angulatis; æcidiosporis rotundato-angulatis, 16-18 μ . diam., dense verruculosus, aurantiacis.

Hab. in foliis vivis *Cissi syciifolii*, prope S. Francisco in Brasilia (E. ULE).

178. *Æcidium solaninum* Speg. Fungi Argentini pug. IV, n. 96. — 287
Pseudoperidiis densissime gregariis, ramulos foliaque late ambientibus ac incrassantibus nec non sæpe bulloso-gyrosa efficiantibus, primo subglobosis tectis, dein erumpentibus, non vel vix exsertis, margine integro (400-500 μ . diam.), albis, membranaceo-carnosulo, contextu parenchymatico e cellulis tabulari-polygoniis, 30-35 μ . diam., tunica crassa irregulariter et grosse verrucosa, hyalinis composito; æcidiosporis globosis vel e mutua pressione obtuse angu-

latis, 18-20 μ . diam., episporio crasso radiatim a seriebus densis granulorum minutissimorum percursu, protoplasmate nubiloso, vix flavo-fulvo donatis.

Hab. in foliis caulibusque vivis *Aenisti parviflori*, in montuosis «Sierra Chica» prope S. José Cordoba in Republica Argentina (Dr. Hieronymus).

179. *Æcidium Plantaginis* Ces. in Erb. Critt. ital. Ser. I, n. 247, Ell. 2879 et Everh. North Americ. Fungi n. 1829, Linh. F. Hung. n. 141, Sacc. M. V. n. 1144, Burrill Paras. fungi of Illinois p. 232. — Maculis plerumque parvis, sæpe effusis latisque; æcidiis circinatis vel laxe sparsis, amphigenis; pseudoperidiis breviter cylindraceis, vix vel haud margine recurvatis; æcidiosporis subglobosis vel ellipticis, 18-21 μ . diam., tuberculatis.

Hab. in foliis *Plantaginis lanceolatae* et *virginicae*, Connegliano (Spegazzini) et Oldenico (Malinverni) Italiae borealis, in Hungaria (Linhart), Illinois Americae borealis (Burrill). — Spermogonia rarissime reperiuntur, plerumque æcidia præcedunt maculisque insident.

180. *Æcidium Melampyri* Kunze et Schm. Exsicc. n. 165, Wint. Die 2880 Pilze pag. 262, *Cecoma Melampyratum* Link Sp. II, pag. 46. — Pseudoperidiis hypophyllis, albidis, in maculis irregularibus, purpureo-rufis, sine ordine v. orbiculariter in groges rotundatos vel diffformes dispositis, cupulatis, margine revoluti, pluries inciso; æcidiosporis polygoniis, siccis flavis, subtilissime punctulatis, 15-18 μ . diam.

Hab. in foliis *Melampyri nemorosi* et *pratensis*, in Germania.

181. *Æcidium Collinsiae* Ell. et Everh. in Bull. Washb. Laboratory 2881 1884, pag. 4. — Pseudoperidiis sparsis, pallidis, primo hemisphaericis, dein breviter cylindraceis, 250 μ . diam., margine tenui, pallido, recurvato profundeque dentato; æcidiosporis irregulariter globosis vel subangulatis, 18-20 μ . diam.

Hab. in foliis, bracteis calycibusque *Collinsiae parviflorae*, Falcon Valley Amer. bor. (Saksdorf). — *Æcidio houstonia-to* Schwein. simile.

182. *Æcidium Gerardiae* Peck in 25 Rep. St. Mus. p. 92, Thüm. Myc. 2882 Univ. n. 1225. — Maculis parvis, subrotundatis, sparsis, flavescenti-viridibus; pseudoperidiis plerumque paucis (4-10) minutis, brevibus, margine granulato, dentibus reflexis patentibusque; æcidiosporis globulosis, 20 μ . diam., aurantiacis.

Hab. in foliis *Gerardiæ quercifoliæ*, quæ siccitate nigrescunt, maculis exceptis, in America boreali.

183. *Æcidium Pentastemonis* Schwein. Syn. Carol. p. 68, n. 499, Burrill 2
Parasitic. Fungi of Illinois pag. 233, *Æcidium Pentastemoniatum* Schwein. Syn. Amer. bor. n. 2864, Ell. et Everh. North Americ. Fungi n. 1813. — Hypophyllum; maculis determinatis, purpureis, flavo-marginatis, plerumque parvis, subinde incrassatis; æcidiis gregariis; pseudoperidiis brevibus, margine profunde recurvato, inciso; æcidiosporis subglobosis, inconspicue tuberculatis, 18-21 μ . diam. luteo-fuscis; spermogoniis paucis, in macula centralibus amphigenisque.

Hab. in foliis *Pentastemonis pubescentis*, gracilis et hirsuti, in America boreali.

184. *Æcidium Pedicularis* Libosch. in Mém. de Moscou, V, p. 76, t. 5, 28
f. 1, Fuckel F. rhen. n. 2695, Winter Die Pilze p. 262, Schroet. Pilz. Schles. p. 380, *Æcidium aurantiacum* Bon. Coniom. p. 42, *Cwoma Pedicularis* Schlecht. Fl. Berol. II, p. 113. — Spermogoniis secus parvos greges dispositis, flavo-melleis; æcidiis hypophyllis in greges rotundatos vel oblongatos congestis aut sine ordine confertis; pseudoperidiis cylindraceo-explanatis, margine albo, revolutis, lacinulatis; æcidiosporis polygoniis, 14-28 $\approx$ 10-16, pallide aurantiaco-rufis.

Hab. in foliis, petiolis caulibusque *Pedicularis silvaticæ* et palustris, in Germania, Rossia, Fennia, Britannia, Belgio.

185. *Æcidium Argyreæ* B. et Br. Ceylon Fungi n. 848. — Maculis pallidis, amphigenis; pseudoperidiis sparsis, in pagina inferiore apertis, margine obsolete; æcidiosporis angulatis. 288

Hab. in foliis *Argyreæ ellipticæ*, Peradeniya in insula Ceylon.

186. *Æcidium Gilii* Peck in Bot. Gazette 1879, p. 230, Ell. et Everh. 288
North Americ. Fungi n. 1831. — Maculis pallide flavis; pseudoperidiis sparsis vel gregariis, brevibus, pustuliformibus, hypophyllis, raro etiam epiphyllis, anguste apertis; æcidiosporis angulatis vel subglobosis, 20-25 μ . diam., aurantiacis plerumque 1-3-nucleatis.

Hab. in foliis *Gilii Nuttallii* et gracilis, in altit. Utah (Jones) et Falcon Valley, Wash. Territory (Suksdorff) in America boreali,

187. *Æcidium Veronicæ* Berk. in herb. n. 5202, Cooke in Grevillea 288
XI, p. 97. — Sparsum, semiimmersum, fimbriato-marginatum.

Hab. in *Veronica*, in Australia (MÜLLER). — Specimina vetusta, decolorata; æcidiosporae dispersae.

188. **Æcidium Lycopi** Gerard in Peck 26 Rep. of Stat bot. Mus. 2888
p. 78, Burrill Paras. p. 234. — Hypophyllum; maculis circularibus, distinctis vel plus minus confluentibus, plus minus incrassatis, purpureo-brunneis vel flavescentibus; æcidiis plerumque in foliis circinatis dispositis, in petiolis caulibusque irregulariter gregariis; pseudoperidiis brevibus, margine recurvo, crenato; æcidiosporis subglobosis, 15-19 μ . diam., episporio tenui, tuberculato, pallide flavis; spermogoniis paucis, centralibus, rufescenti-brunneis.

Hab. in foliis, caulibus petiolisque *Lycopi europæi*, in America boreali.

189. **Æcidium Salviæ** Haszl. Magyarh. Ueszökg. 1877, p. 81 et in Just 2889
Botan. Jahreshb. 1877, p. 72. — Æcidiis confertiusculis, hypophyllis; pseudoperidiis prominulis, margine rotundato, erecto; æcidiosporis globosis, flavis; spermogoniis distinctis, plerumque in pagina folii superiore gregariis; sporulis flavescentibus.

Hab. in foliis inferioribus *Salviæ nutantis*, verisimiliter ex horto botanico Buda-Pest Hungariæ (SADLER).

190. **Æcidium Phlomidis** Thüm. in Bull. d. l. Soc. d. Natur. de Mo- 2890
scou 1877, p. 136, Myc. univ. n. 827. — Pseudoperidiis dense gregariis, hypophyllis, sæpe foliorum paginam totam occupantibus, minutis, flavidis, margine levi, orificiis minutis; æcidiosporis plus minus globosis, levibus, episporio subcrasso, hyalinis vel pallidissime flavidis, 20 μ . diam.

Hab. ad folia viva *Phlomidis tuberosi*, in herbosis pr. Minussinsk Sibiriae occid. (MARTIANOFF).

191. **Æcidium Glechomæ** Gaillard in Bull. Soc. Mycol. Fr. tom. III, 2891
p. 184. — Æcidiis hypophyllis, sparsis, orbicularibus, 3-5 mm. diam.; pseudoperidiis numerosis, congestis, margine integris, aureo-flavis; cellulis contextus polygoniis, striatulis, verruculosi, 23-30 μ . diam., flavescentibus; æcidiosporis subrotundatis, 16-20 μ . diam., flavidulis, levissimis.

Hab. in foliis *Glechomæ hederaceæ*, Vincennes Galliae. — Maculae epiphyllae nullae.

192. **Æcidium Prunellæ** Wint. in Schroet. Pilz. Schles. p. 380. — 2892
Spermogoniis secus parvos greges dispositis, flavo-melleis; æcidiis secus annulos circulares, uni- v. pluriseriatis, subapproximatos, raro sparsos dispositis, plerumque maculae flavescenti vel rufescenti in-

sidentibus; pseudoperidiis explanatis, margine lacinulato, albo; æcidiosporis 14-20 $\approx$ 10-17, episporio tenui tectis, hyalinulis.

Hab. in foliis *Prunellæ vulgaris*, in Germania.

193. *Æcidium tucumanense* Speg. Fungi Argentini pugillus IV, n. 93. 2

— Pseudoperidiis densissime gregariis, late ramulos foliaque incrassata ac contorto-gyrosa occupantibus, primo tectis, dein erumpentibus, non v. parce exsertis, minutis (0,2-0,3 mm.), margine integro v. lacero-fimbriato, 35-45 $\approx$ 20-25 tenuiusculis, contextu e cellulis ellipticis v. rhomboideis, crasse tunicatis grosseque rugoso-verrucosis, hyalinis composito; æcidiosporis globosis vel ellipticis, 25-30 μ . diam., densissime muriculato-verruculosis, ex hyalino fusciscentibus.

Hab. in foliis caulibusque *Hyptidis spicatae*, in provincia Tucuman in Rep. Argentina (Dr. LORENTZ et Hieronymus).

194. *Æcidium Phrymæ* Halst. in Journal of Mycology 1886, p. 52. 2

— Hypophyllum; maculis effusis, conspicuis, aurantiaco-flavis, haud incrassatulis, 1-3 cm. latis; æcidiis plerumque seriatis, subinde secus orbes distinctos dispositis; pseudoperidiis prominulis, margine modice incurvis; æcidiosporis globosis, 20-25 μ . diam., episporio tenui, sublevi præditis; spermogoniis indistinctis.

Hab. in foliis *Phrymæ leptostachyæ*, ad Spirit Lake, Iowa Americæ borealis.

195. *Æcidium Verbenæ* Speg. F. Argent. I, n. 56, Dec. Argent. n. 33. 2

— Hypophyllum vel cauliculum; æcidiis areola purpurea vel fusciscente, senectute griseo-candicante cinctis, foliiculis maculam etiam epiphyllam concolorem efficientibus; pseudoperidiis in foliis subinde sparsis subinde 4-8-confertis, in caulibus sæpius 6-14 compacte constipatis, erumpentibus, $\frac{1}{2}$ - $\frac{3}{7}$ mm., poculiformibus, parum exsertis, margine recto vel vix reflexo, integro, rarissime denticulato, epithecio lutescenti-aurantiaco donatis; contextu cellulis subrotundis, parum angulosis, centro depressis, margine striatis, 24-30 μ . diam., hyalinis efformato; æcidiosporis subsphæroideis, 20-22 μ . diam., mutua pressione obtuse hexagoniis, levibus, crassiuscule tunicatis, protoplasmate pauco, guttulato-oleoso, flavo-ferugineo gerentibus.

Hab. in foliis caulibusque *Verbenæ litoralis* secus Rio de la Plata et Riachuelo in America australi. — Speciminibus authenticis comparatis ab hac specie haud differt *Æcidium verbenicolum* Ell. et Kellerm. in Bull. Torrey botan. Club 1884, XI, October p. 114, Ellis North Americ. Fungi n. 1434 in foliis Ver-

benæ urticifoliæ et strictæ, ad Manhattan Kansas Americæ borealis.

196. *Æcidium effusum* Niessl in Hedwigia 1881, p. 150. — Effusum, 2896
hypophyllum; æcidiosporis ovatis vel subglobosis, 19-24 μ . diam.,
episporio spinuloso donatis.

Hab. in foliis Tectonæ grandis, in horto botanico Calcutta
Indiæ orientalis (KURZ).

197. *Æcidium circinatum* Wint. in Hedwigia 1884, p. 168. — Pseu- 2897
doperidiis plerumque in foliorum pagina inferiori, rarius etiam ad
petiola nervosque primarios, in macula rotundata seu irregulari,
fusco-purpurea, area lutea determinata cincta, subtus pallidiori
plerumque circinatim dispositis aut (ad petiolos) tuberculo subma-
gno forma varia inordinate insidentibus, cylindraceis, usque ad 500
 μ . altis, candidis, margine laciniato, reflexo, late apertis, demum
truncatis; cellulis contextus rotundato-angulatis, membrana crassa,
hyalina, dense sculpturata præditis; æcidiosporis rotundato-angu-
latis, 26-33 μ . diam., verrucosis, pallide luteis.

Hab. in foliis vivis Bignoniaceæ ejusdam adhuc indetermin-
natæ, pr. S. Francisco Brasiliæ (E. ULE).

198. *Æcidium Acanthacearum* Cooke in Grevillea X, p. 124. — Hy- 2898
pophyllum vel amphigenum; æcidiis laxis, suborbicularibus, in ma-
culis decoloratis nidulantibus; pseudoperidiis sparsis, centro subcon-
gestis, subrigidis, margine pallidior, serrulato; æcidiosporis luteis.

Hab. in foliis Calophanidis Burkei et Justiciæ ejus-
dam speciei ad Natal Africæ.

199. *Æcidium Tweedianum* Speg. Fungi Argentini pugillus III, n. 52, 2899
Dec. argent. n. 32. — Æcidiis orbicularibus, hypophyllis rarius epi-
phyllis v. cauliculis, 1-4 mm. lat., maculam arido-pallescentem effi-
cientibus; pseudoperidiis 10-50 gregariis, concentrice dispositis, mi-
nutis ($\frac{1}{5}$ - $\frac{1}{6}$ mm.), primo elliptico-sphæroideis tectis, dein erum-
pentibus poculiformibus, contextu e cellulis elongatis, obtuse hexa-
goniis, 20-30 $\approx$ 12-15, peripherice radiatim striatulis composito, mar-
gine reflexo, albido sublacero-crenulato, epithecio lutescente dona-
tis; æcidiosporis catenulatis, sphæroideis, e mutua pressione angu-
latis, 18-20 μ . diam., hyalinis, protoplasmate granuloso, flavo-ful-
vescente repletis.

Hab. ad folia viva Diclipteræ Tweedianæ, en la Boca del
Riachuelo et cerca de la Recoleta Republicæ Argentinæ.

200. *Æcidium Lysimachiæ* (Schlecht.) Wallr. Fl. Crypt. germ. n. 1770, 2900
Burrill Paras. Fungi of Illinois pag. 233, *Cavoma Lysimachiæ*

Schlecht. Fl. Berol. II, p. 113, *Cwoma lysimachiatum* Link Sp. II, p. 45. — Hypophyllum, etiam petiolicolum; maculis distinctis, flavescentibus, parce incrassatis, effusiusculis; æcidiis plerumque circinatis; pseudoperidiis laxè aggregatis, cupulatis, brevibus, margine recurvo angustissimo; æcidiosporis subglobosis, episporio tenui, conspicue tuberculato, 22-27 $\approx$ 21-24, pallide aurantiacis; spermogoniis paucis, centralibus, epiphyllis.

Hab. in foliis petiolisque *Lysimachiae thyrsiflorae*, quadrifoliae, ciliatae, in agro berolinensi Germaniae (SCHLECHTEN-DAL), nec non pr. Poughkeepsie (GERARD) et Illinois (BURRILL) Americae borealis.

201. *Æcidium Glaucis* Dozy et Molkenb. in Tijdschr. v. Natuur. Geschied. XII, p. 16, t. II, f. 1-3, Winter Die Pilze p. 262, Kunze F. sel. n. 51, Thüm. M. U. n. 1021. — Semiimmersum, hypophyllum; æcidiis sparsis vel nullo ordine dispositis, sæpe orbiculariter in greges plus minus magnos consociatis; pseudoperidiis viridulis, dein ex albido flavis, breviter cylindrico-cupulatis, margine albido, revolutò, sub4-lobato, lobis lacinulatis; æcidiosporis polygoniis, 16-24 $\approx$ 14-20, subtiliter granulatis, ex hyalino flavescentibus.

Hab. in foliis caulibusque *Glaucis maritimae*, in Belgio, Dania et Germania. — Maculae contrapositae flavo-virescentes, dein rufo-brunnæ.

202. *Æcidium Phytolaccae* Rabenh. in Flora 1850, p. 627. — Æcidiis hypophyllis, sparsis, secus folii costas sæpius excurrentibus; pseudoperidiis 8-15-gregariis, brevibus, cylindræis, margine incrassato, leviter lacerato et subrevolutò; æcidiosporis rotundato-ovatis subinde apiculatis, flavescentibus, subtiliter granulatis, episporio crassiusculo, æquali.

Hab. in foliis *Phytolaccae decandrae*, inter Borghetto et Civita Castellana Italiae (RABENHORST).

203. *Æcidium Rivinae* B. et C. Fungi of Cuba n. 606. — Crassum, deformans; margine pseudoperidiorum subintegro; æcidiosporis obovatis, 30 μ . longis, sursum angulatis, echinulatis.

Hab. in racemis *Rivinae octandrae*, in insula Cuba.

204. *Æcidium bonariense* Speg. Fungi Argentini pugillus I, n. 52. — Hypophyllum; æcidiis rotundatis, gregariis, maculae pallescenti, sæpius centro folium perforanti insidentibus; pseudoperidiis concentricè dispositis, minutis, 500-600 μ ., 10-35 laxè confertis, primo tectis, globulosis, in utroque folii pagina prominulis, dein inferne crumpentibus, parum exsertis, poculiformibus, margine reflexo et

regulariter radiato-crenulato, albido, contextu cellulis pentagoniis, 18-20 μ . d., margine fero tantum striolatis, hyalinis efformato, epithecio luteo-fulvo donatis; æcidiosporis subsphæroideis, mutua pressione hexagoniis, 17-19 μ . d., hyalinis, crassiuscule tunicatis, levibus, protoplasmate flavo-fuligineo repletis.

Hab. in foliis vivis Iresines celesioideis, numquam sociâ *Uredine striolatâ*, in paludosis Riachuelo in Republica Argentina Amer. australis.

205. *Æcidium Chenopodii-fruticosi* DC. Fl. Franç. VI, p. 92, *Cæoma* 2905
chenopodiatum Link Sp. II, p. 45, *Uredo Chenopodii* Spr. Syst. IV, p. 574. — Amphigenum; pseudoperidiis subinde 7-8 gregariis, primum tuberculiformibus, convexis, subconicis, dein apertis cylindraceis, rectis, margine irregulariter incis, superne fragilibus deciduisque basimque tantum cupulatam relinquentibus; æcidiosporis sphaericis, aurantiacis, dein exsiccatione subhyalinis.

Hab. in foliis *Chenopodii fruticosi*, pr. Montpellier Galliae (DE CANDOLLE) et Licata Siciliæ (BELTRANI et PASSERINI).

206. *Æcidium Ellisii* Tracy et Gall. in Journ. of Mycol. 1888, p. 21. 2906
 — Amphigenum; maculis mediocribus; æcidiis secus orbes definitos dispositis, sæpe circinatis, magnis, epidermide rupta basi cinctis; pseudoperidiis læte aurantiaco-flavis, margine laceratis; æcidiosporis subglobosis, vacuolis numerosis præditis, episporio crasso, leniter ruguloso, 18-22 μ . diam.

Hab. in foliis *Chenopodii albi*, ad Albuquerque New Mexico. — «Cum *Æcidio Chenopodii-fruticosi* DC. comparandum».

207. *Æcidium Obionis* Speg. Fungi Patagonici p. 31, n. 98. — Sæ- 2907
 pius hypophyllum, folia tota sæpeque ramulos occupans; pseudoperidiis densiuscule gregariis, primo tectis, hemisphaerico-prominulis, dein erumpentibus, plus minusve exsertis, 200-500 μ . diam., flavescenti-albidis, margine lacero; contextu epithecii cellulis polygoniis, 20-25 μ . diam., crassissime tunicatis, dense rugoso-striatis, pallescentibus composito; æcidiosporis e globoso ovoideis, e mutua pressione sæpe angulatis, 20-22 $\approx$ 15-18, pallidissime fulvis, tenuissime tunicatis, granuloso-faretis.

Hab. ad folia viva *Obionis* cujusdam, in Patagonia Americæ australis. — Folia infecta non vel vix incrassatula, pallescentia.

208. *Æcidium Anisacanthi* Peck in Bull. Torrey bot. Club 1883, 2908
 p. 75. — Maculis nullis vel inconspicuis; pseudoperidiis amphigenis, elongatis, griseis rubroque maculatis, margine lacerato-crenatis; æcidiosporis variiformibus, ovatis, subglobosis, ellipticis, ob-

longis vel oblongo-piriformibus, subinde apice acutiusculis, flavis vel brunneis, 22-45 $\approx$ 20-24.

Hab. in folis vivis *Anisacanthi Thurberi*, Arizona Americæ borealis (PRINGLE).

209. *Æcidium Schoberiae* Awd. in Willk. Flora 1852, p. 537. — Pseudoperidiis tubulosis, emergentibus, 4 mm. altis, margine radiatodentato, dentibus obtusis; contextu e cellulis irregulariter hexagoniis constante; æcidiosporis.....

Hab. in foliis *Schoberiae* fruticosæ, inter Alagon et Borja, in Aragonia inferiori.

210. *Æcidium Sarcobati* Peck in Botan Gazette VI, p. 240, Ellis et Evesh. North Amer. Fungi n. 1822, *Peridermium gracile* Ell. et Harkn. New Calif. Fungi p. 16 (1884). — Subiculo incrassatulo; pseudoperidiis usque ad 3 mm. longis, cylindraceis, apice crenatolaceratis, aurantiacis; contextu cellulis pentagoniis vel plerumque hexagoniis, guttulis oleosis faretis composito; æcidiosporis subglobosis, 16-24 μ . diam., in sicco albidis, udis aurantiacis.

Hab. in foliis vivis *Sarcobati* vermiculati, Utah Americæ borealis (JONES) et New California (HARKNESS).

211. *Æcidium Bougainvilleæ* Speg. Fungi Argentini pugillus IV, n. 89. — Pseudoperidiis urceoliformibus, majusculis, 0,3-0,7 mm. d., in matrice tumefacta ac fuscescente (in sicco) insidentibus, densissime aggregatis, longiuscule exsertis, tenui membranaceis, margine rotundo frustulatim evanescente donatis, albis, contextu parenchymatico, cellulis tabularibus, subquadratis, 30-40 μ . diam., hyalinis, tunica crassa dense ac grosse granuloso-verrucosa donatis composito; æcidiosporis obovato-diformibus, 35-50 $\approx$ 20-30, antice quandoque acutatis quandoque late subtruncatis, episporio præcipue ad verticem crassissimo, dense minuteque granuloso-verruculoso, hyalino, protoplasma nubiloso, fulvello faretis.

Hab. in ramulis foliisque vivis *Bougainvilleæ* stipitatae, in montuosis «Sierra Chica» pr. S. José, Córdoba Reip. Argentinae (Dr. HIERONYMUS.)

212. *Æcidium Suædæ* Thüm. Fungi Ægypt. ser. III, n. 53, Mycoth. Univ. n. 1922, non Spegazz. — Pseudoperidiis densis, longissime cylindraceis, pulchre aureo-fulvis, sursum sensim dilatatis, margine pallido, membranaceo, diaphano, crenulato-inciso; æcidiosporis globosis vel elliptico-globosis, episporio subcrasso, paullulum verruculoso, dilute flavidis, 21-24 μ . diam.

Hab. in foliis vivis *Suædæ veræ*, in paludibus salsis pr. Salehieb, Wadi Tumilat, *Ægypti*.

213. *Æcidium Saccardianum* De-Toni *), *Æcidium Suædæ* Speg. Fungi ²⁹¹³ patagonici p. 100 nec Thüm. — Maculis nullis; pseudoperidiis hinc inde 3-5-aggregatis, primo subglobosis, tecto-prominulis, dein erumpentibus, longe exsertis, cylindraceis, non vel vix rigidulis, margine frustulatum lacero donatis, pallide flavescentibus; cellulis contextus irregulariter polygoniis v. subrhombideis, 30-40 $\approx$ 20-30, crasse tunicatis, dense minuteque verruculosi, subhyalinis; æcidiosporis globosis vel e mutua pressione ovoideo-angulatis, 15-20 μ . diam., episporio tenui levi, protoplasmate granuloso faretis, ex hyalino flavescentibus.

Hab. in foliis vivis *Suædæ divaricatæ*, in Patagonia Americæ australis. — Folia infecta parum incrassatulo-decolorata; pseudoperidia 500 μ . ad 1,5 mm. longa, 400-500 μ . diam. — Ab *Æc. Suædæ* Thüm. æcidiosporis levibus, episporio tenui imprimis differre videtur.

214. *Æcidium Urticæ* Schwein. Syn. Am. bor. n. 2898 (*Cecoma urticae* ²⁹¹⁴ *tum*), Burrill Parasitic Fungi of Illinois p. 238 nec Schum. — Hypophyllum; maculis distinctis, brunneis, flavo-marginatis; æcidiiis dense gregariis; pseudoperidiis brevibus, margine angusto abrupte revoluta subtiliterque inciso; æcidiosporis subglobosis, episporio tenuiusculo, sparse tuberculatis, 15-21 μ . diam.; spermogoniis minutis, sparsis, epiphyllis, rufescenti-brunneis.

Hab. in foliis *Urticæ* et *Cynoglossi amplexicaulis*, in America boreali. — Cfr. *Puccinia Caricis*, n. 2196.

215. *Æcidium echinaceum* Berk. in Hook. Journ. bot. 1854, p. 231. ²⁹¹⁵ — Maculis pulvinatis, orbicularibus, oppositis, concavis, umbrinis; pseudoperidiis spiniformibus, rigidis, nitidis, serius apice laciniatis; æcidiosporis globosis, circ. 28 μ . diam., flavescentibus.

Hab. in pagina inferiori foliorum *Actinodaphnes molo-chinæ*, in insula Ceylon. — Maculæ 2-5 mm. latæ.

216. *Æcidium Allenii* Clinton in Peck 24, Rep. of St. Mus. p. 93, ²⁹¹⁶ Ellis et Everh. North Americ. Fungi n. 1815. — Maculis latis, indeterminatis, flavescentibus; pseudoperidiis hypophyllis, elongatis, cylindraceis, albis, foliorum tomento subvelatis; æcidiosporis 25 μ . diam., subglobosis, aurantiaco-lateritiis.

*) Extantibus *Æ. Spegazzinii* et *Æ. Spegazziniano*, hanc speciem magistro meo illustrique mycologo P. A. SACCARDO dicatam volui.

Hab. in foliis *Shepherdia canadensis*, Buffalo (CLINTON) et Goat. Island. (CLARA CUMMINGS) Amer. bor. — Maculæ epiphyllæ.

217. *Æcidium Cookeanum* De-Toni, *Æcidium Loranthe* Cooke in *Grevillea* XIV, p. 13, vix Thüm.? — Gregarium, amphigenum; pseudoperidiis emergentibus, elongatis, cylindræis, margine lacerato; æcidiosporis angulariter subglobosis, aurantiacis, 20 μ . diam.

Hab. in foliis *Loranthi*, in horto botanico Durban, Africae (WOOD). — Cellulæ pseudoperidii oblongæ, irregulares, 30 $\approx$ 20.

218. *Æcidium Loranthe* Thüm. *Fungi Entr.* n. 27, p. 3 vix Cooke — Pustulis maximis, usque ad 1,5 cm. diam. tuberascentibus, ramuliculis, fabæformibus vel subglobosis vel hemisphæricis; pseudoperidiis densissime gregariis, magnis, cupuliformibus, flavidis, margine sublevi, erecto, tenui; æcidiosporis globosis vel ovoideo-globosis, magnis, episporio subcrasso, levi, hyalinis, 30-36 μ . diam.

Hab. in ramulis vivis *Loranthi uruguensis*, prope Santa Cándida, Entrerios Americae australis.

219. *Æcidium Osyridis* Rabenh. *Krypt. Fl.* I, p. 19, Winter Die Pilze p. 262. — Pseudoperidiis cylindræis, prominulis, dilute flavescens, margine inciso; æcidiosporis subconcoloribus.

Hab. in *Osyride alba*, in Germania et ad M. Gargano Italiae.

220. *Æcidium pustulatum* Curt. in Peck 23 Rep. of St. Bot. p. 60, Ellis N. Am. *Fungi* n. 224, Burrill Paras. *Fungi of Illinois* p. 237. — Hypophyllum; maculis parvis, e rufo flavescens, crassiusculis, sæpe superne concavis, inferne convexis; pseudoperidiis dense gregariis, brevibus, sæpe secus orbem centro vacuum dispositis, margine subtiliter inciso recurvatoque; æcidiosporis subglobosis, inconspicue tuberculatis, 16-21 μ . diam., pallide aurantiacis; spermogoniis paucis, flavescens, epiphyllis.

Hab. in foliis *Comandrae umbellatae*, in America boreali.

221. *Æcidium Hamiltoniae* Thüm. in Bull. Torrey Bot. Club 1879, n. 3. — Hypophyllis, rarissime amphigenis, sparsis, irregularibus, in foliorum pagina superiore maculam ferrugineam formantibus; pseudoperidiis densis, dilute flavidis, parvis, cupuliformibus, margine crenulato, tenui; æcidiosporis polyhedris v. irregulariter ovoideis, dilute flavescens vel hyalinis, episporio reticulato punctulatoque, tenui, 30-40 $\approx$ 16-22.

Hab. in foliis vivis *Hamiltoniae umbellatae*, St. Louis Americae borealis.

222. *Æcidium Hippuridis* Kunze in Winter Die Pilze p. 265. — *Æcidiosporiis* plerumque solitariis aut irregulariter sparsis, maculis nullis

vel pallidis, primo albidis, dein dilute flavescentibus; pseudoperidiis tubulosis, sursum subdilatis, flavo-albidis, margine subcrenulato; æcidiosporis globosis aut ovoideis, pellucidis, ex albido flavis.

Hab. in Hippuride vulgari, in Germania.

223. *Æcidium Euphorbiæ* Gmel. in L. Syst. nat. II, pag. 1473, p. p. 2923

Winter Die Pilze pag. 261, *Lycoperdon Euphorbiæ* Schrank Fl. Bav. II. p. 631. — *Æciditis* plerumque per totum folium æqualiter sparsis, primo conoideis, dein urceolatis vel cupulatis, margine albo, lacerato, mox evanido; æcidiosporis polygoniis, usque ad 35 μ . longis, 19–26 μ . diam., subtiliter verrucosis, aurantiaco-flavis.

Hab. in foliis *Euphorbiæ* dulcis, verrucosæ, punctatæ, maculatæ, dentatæ, polygoniifoliæ, hypericifoliæ Gerardianæ, Esulæ, lucidæ, virgatæ, in Italia, Austria, Germania, Britannia, Amer. bor. et Ægypto. — «Sub hoc nomine fere omnia *Æcidia* ad *Euphorbias* vegetantia tradita sunt, quorum cyclus evolutionis nondum notus est». *Spermogonia* pseudoperidia præcedentia, in eodem vel diverso folio evoluta.

224. *Æcidium lobatum* Körn. in Hedwigia 1877, pag. 36, Wint. Die 2924

Pilze p. 261. — *Æcidiis* parum prominulis, margine in lacinias paucas (plerumque 4), latas, longissimas, albas, varie involutas, mox deciduas diviso; æcidiosporis sphæroideis, 17,5–19,5 $\approx$ 16–17,5, aurantiaco-flavis.

Hab. in *Euphorbia* *Cyparissia*, in Germania. — Plantam matricem eodem modo ut *Æcidium Euphorbiæ* (*Uromycetis Pisi*) deformat.

225. *Æcidium Pammelii* Trel. in Journ. of Mycol. I, p. 15, Ellis North 2925

Amer. Fungi n. 1427. — Maculis brunneis, orbicularibus vel ellipsoideis, subpustulatis, centro *spermogonia* gregaria gerentibus; æcidiis plerumque hypophyllis, concentrice dispositis, raro paucis epiphyllis; pseudoperidiis brevibus, albis, margine angusto circ. 10-lobo; cellulis contextus hyalinis, rugosis, subsphæroideis, 20–25 μ . diam.; æcidiosporis polygoniis, isodiametricis vel elongatis, 20–25 μ . diam., rufo-aurantiacis.

Hab. in foliis *Euphorbiæ* corollatæ, in America boreali.

226. *Æcidium detritum* Thüm. in Mycoth. univ. n. 1324. — Hypo- 2926

phyllum, sparsum, maculam fuscam in pagina foliorum superiore formans; pseudoperidiis primo cylindricis, margine sublevi, dilute lutescenti-albidis, parvis, postremo cito applanatis detritivæ; æcidiosporis plus minusve ellipsoideis, utrinque rotundatis, episporio folliculoso, crasso, inæquali, hyalinis, homogeneis, 25–28 $\approx$ 18–20.

Hab. in foliis vivis *Phyllanthi Sellowiani* (vulgo Sarandi blanco) pr. Concepcion del Uruguay in America australi (P. G. LORENTZ).

227. *Æcidium Crotonopsidis* Burrill Parasitic Fungi of Illinois p. 237, 2 Ellis et Everh. North Amer. Fungi n. 1824. — Hypophyllum, cotyledones, rarius caulem et folia inferiora occupans; maculis distinctis, obscure coloratis, cotyledonibus flavescentibus; æcidiis parce numerosis, irregulariter gregariis; pseudoperidiis breviter cylindraceis, grosse fissis lateque margine patentibus, tenuibus at firmis; æcidiosporis irregularibus, ut plurimum ellipticis, episporio crassiusculo, verruculoso donatis, 15-18 $\approx$ 12-15; spermogoniis paucissimis, sparsis, epiphyllis.

Hab. in foliis, cotyledonibus etc. *Crotonopsidis linearis*, Illinois Americæ borealis (SEYMOUR).

228. *Æcidium tordillense* Speg. Fungi Argentini pug. IV, n. 97. — Maculis nullis v. foliis infectis incrassatulo-flavescentibus; pseudoperidiis hypophyllis, sæpe totum folium occupantibus, densiuscule gregariis primo subsphæricis, tectis, dein erumpentibus vix exsertis, margine latiusculo, integro, non v. vix reflexo, pallide flavo-fulvescentibus, contextu cellulis pulchre elongato-hexagoniis, acutiuscule angulatis, 20 $\approx$ 12-14, crassiuscule tunicatis, ubique verruculosis, granuloso-faretis, hyalinis composito; æcidiosporis globosis v. subelongatis, 12-15 $\approx$ 10-12, e mutua pressione angulatis, episporio tenui, levissimo, hyalino, protoplasmate parco, granuloso, vix flavescente repletis.

Hab. in foliis *Euphorbiæ serpentis*, ad ripas lacunæ subsalsæ del Rincon de Fierro, in silva Tordillo Amer. australis. — Facile cum *Uredine tordillensi* Speg. in eadem planta vigente metagenetice connexum.

229. *Æcidium Populi* Hornem. Fl. Dan. t. 1319, Wallr. Fl. Crypt. germ. n. 1774. — Pseudoperidiis dense congestis, hypophyllis, patiniformibus, macula rubro-lutea cinctis; æcidiosporis cæsiis.

Hab. ad *Populum tremulam* rarius saltem ex initiis in Dania et Germania. — «Vix hujus generis».

230. *Æcidium strobilinum* (Alb. et Schwein.) Reess Rostp. pag. 105, 2 t. II, f. 7-10, Linhart F. Fung. exs. n. 45, Winter Die Pilze p. 260, Schroet. Pilz. Schles. p. 381, *Licea strobilina* Alb. et Schwein. Consp. p. 109, *Perichæna strobilina* Fr. S. M. III, p. 190, Corda Icon. Fung. V, p. 56, t. III, f. 30, *Phelonites strobilina* Fr. Summa Veg. scand. pag. 459. — Æcidiis dense gregariis, numerosis,

plerumque superficiem internam squamarum fere ex toto obtegentibus, pallide cinnamomeis vel luride fuscis, hemisphæricis, ellipticis vel e mutua pressione polygoniis, usque ad 1 mm. diam.; pseudoperidiis brunneolis, circumscisso-dehiscentibus; æcidiosporis irregularibus, rotundatis vel ellipticis, rarius oblongis, 18-35 $\approx$ 16-22, episporio hyalino, plasmate sordide flavo-rufescente, dein expallescente fartis.

Hab. in strobilis *Abietis excelsæ*, in Helvetia, Austria, Germania, Britannia, Fennia, Hungaria, Bohemia, Suecia.

231. *Æcidium Balansæ* Cornu in Pat. Champ. Nouv. Calédonie p. 6, 2931
n. 84. — Pseudoperidiis magnis, 1 mm. diam., in folii contextu hypertrophico sparsis; æcidiosporis angulatis, echinatis, 40-46 $\approx$ 25-33, pallide flavescentibus; spermogoniis contraposis.

Hab. ad folia *Dammarae ovatae*, in Nova Caledonia (BALANSA).

232. *Æcidium elatinum* Alb. et Schwein. Consp. p. 121, Winter Die 2932
Pilze p. 261, Schroet. Pilz. Schles. pag. 381, Linh. Fungi Hung. exs. n. 142, *Cavoma elatinum* Link Sp. II, p. 66, *Peridermium elatinum* Kunze et Schm. D. Schwämme n. 141. — Spermogoniis immersis, conoideo-prominulis, flavo-melleis; æcidiis hypophyllis, secus series 2 v. 1 dispositis, latis; pseudoperidiis albis, tunica circ. 500 μ . lata, irregulariter laceratis; æcidiosporis ellipsoideis vel polygoniis 16-30 $\approx$ 14-17, episporio hyalino, grosse verrucoso, plasmate aurantiaco-rufescente.

Hab. in acubus *Abietis albæ*, balsameæ, pectinatae et excelsæ, quæ abbreviata, incrassata, flavo-viridula fragiliaque fiunt, in Germania, Belgio, Hungaria, Britannia, America boreali.

233. *Æcidium bermudianum* Farlow in Botanical Gazette 1887, p. 206. 2933
— Tuberculis pereunantibus, globosis aut subreniformibus, juventute sæpius distincte lobatis, primo rufo-fusculis, dein obscurioribus, 7-12 mm. diam.; æcidiis minutis, 200-250 $\approx$ 200; pseudoperidii cellulis ovatis vel ellipsoideis 50 $\approx$ 38, ruguloso-sinuosis; æcidiosporis plerumque polygoniis, raro sphaeroideis, 19-23 μ . diam., levibus v. leniter rugulosis, brunneis.

Hab. in ramulis *Juniperi Bermudianæ* et *J. virginianæ*, Bermuda (FARLOW).

234. *Æcidium fragiforme* Ces. Fungi Born. p. 26. — Pseudoperidiis 2934
margine acuto integro donatis; æcidiosporis (in sicco) hyalinis v. flavidulis, globosis, grosse nucleatis, episporio minutissime granulato, 40 μ . diam.

Hab. in pagina superiore folii coriacei, illa *Podocarp*i latifolii vel *Dammarae* robustae referentis, ad Sarawak in ins. Borneo. — Pustula pisi magnitudinem metiens.

235. *Æcidium Ephedrae* Speg. Fungi argentini pug. IV, n. 90. — 2
Pseudoperidiis urceoliformibus, majusculis, 1,5 mm. diam., e matrice incrassatulo-carnosa et carneo-fuscescente subseriatim erumpentibus, candidis, longiuscule exsertis, involucre tenui membranaceo, albo-hyalino, contextu parenchymatico, cellulis magnis, oblongo-irregularibus, 60–80 $\approx$ 22–26, tunica crassa, grosse verrucosa donatis, composito, fragili, margine mox oblitterato fissoque; æcidiosporis globosis, e mutua pressione ellipticis v. irregulariter ovoides, 25–40 $\approx$ 18–22, episporio hyalino densissime minuteque granuloso-verruculoso, protoplasmate fulvello, nubiloso donatis.

Hab. in ramulis vaginisque *Ephedrae Tweediana*e, in montuosis Sierra Famatima pr. Vallecito, provinciae la Rioja, in Amer. australi (Dr. Hieronymus).

236. *Æcidium myricatum* Schwein. Syn. N. Amer. Fungi pag. 294, 24
n. 2894 (sub *Cæomate*), Ellis North Amer. Fungi n. 230. — Maculis valde intumescensibus, ex atro purpurascensibus, sparsis, variae formae et magnitudinis, saepe angulatis; pseudoperidiis brevibus, subimmersis, sparsis vel subgregariis, late apertis, brunneis; æcidiosporis laete aurantiacis, subglobosis, 25–32 μ . diam.; spermogoniis epiphyllis.

Hab. in foliis petiolisque *Myricae ceriferae*, New York (Torrey) Riverhead (Peck) Massachussets (Farlow) et Newfield (Ellis) Americae borealis.

237. *Æcidium pseudo-columnare* Kühn in Hedwigia 1884, pag. 168, 29
— *Æcidii* hypophyllis, biseriatis, decolorantibus at non deformantibus; pseudoperidiis albidis, 0,5–2 mm. altis, margine irregulariter laceratis; æcidiosporis albidis, rotundatis, ovatis, elongato-ellipticis vel irregularibus, subinde obtuso-conoideis vel rotundatis, (in sectione trigonis), 22–37 $\approx$ 18–26, subtiliter verrucosis.

Hab. in acubus ligni brasiliensis «Blauen» pr. Badenweiler in Silva nigra.

B) Species in Monocotyledoneis vigentes.

238. *Æcidium Hydrocharidis* Rabenh. D. Krypt. Fl. p. 16, n. 155. — 292
Pseudoperidiis vix infossis, margine crenulatis, orbiculariter dispositis; æcidiosporis rufescentibus.

Hab. in foliis *Hydrocharidis Morsus-Ranæ*, in Longobardia Italiae borealis.

239. *Æcidium Hartwegiæ* Thüm. in Flora 1877, p. 411, Myc. univ. 2930 n. 824, *Æcidium Chlorophyti* Mac Owan mscr. — Pseudoperidiis hypophyllis, dense gregariis, concentrice dispositis, in macula vix decolorata, luteis, parvis, margine sublevi, pallidiore, subasperato; æcidiosporis globoso-ellipticis, regularibus, episporio subcrasso, levi, hyalino, dilute flavidis, intus similaribus, 20-34 μ 18-20.

Hab. in foliis vivis *Hartwegiæ elatæ et comosæ* (*Chlorophyti Sternbergiani*), in Africa australi (Mac Owan et Fuck).

240. *Æcidium Iridis* Gerard in Peck 24 Rep. of St. Bot. pag. 93, 2940 Thüm. Myc. univ. n. 1519. — Maculis ovalibus vel orbicularibus, flavis; pseudoperidiis amphigenis, brevibus, seriatis; æcidiosporis 20-25 μ . diam., aurantiacis; spermogoniis numerosis, centralibus, amphigenis.

Hab. in foliis *Iridis versicoloris*, ad Poughkeepsie (GERARD) et Buffalo (CLINTON) Americae borealis.

241. *Æcidium tuberculatum* Ell. et Kell. in Journ. of Mycol. 1888, 2941 p. 26. — Amphigenum at copiosius hypophyllum, maculis nullis; æcidiis primo tuberculato-hemisphaericis, 500-750 μ . diam., confertis; pseudoperidiis cupulatis, margine leniter dentato; æcidiosporis subglobosis, 18-20 μ . diam., vel subellipticis, oblongis ovatisve, 20-27 μ 18-23.

Hab. in foliis *Callirhœes involucratae*, Rooks Co. Kansas Americae borealis (E. BARTHOLOMEW). — Ab *Æcidio Callirhœes* E. et K. omnino distinctum.

242. *Æcidium Crini* Kalchbr. in Grevillea XI, p. 26. — Pseudoperidiis amphigenis, plerumque hypophyllis, in maculis olivaceo-fuscis, 1 cm. et ultra latis, rotundis vel ellipticis, dense circinatum congestis, ochraceis, profunde urceolatis, margine reflexo, pulverulento, albo-crenulato; æcidiosporis....

Hab. in foliis vivis *Crini capensis* et *Cooperi* (?) ad P. Natal Africae. — Ab *Æcidio Orchidearum* habitu parum distinctum.

243. *Æcidium Leucoji* Bergam. Bals. et De Not. in Erb. Critt. ital. 2943 ser. II, n. 99 et in Bibl. ital. XLIV, n. 90, Linhart in Hedwigia 1883, p. 9, F. Hung. n. 48. — *Æcidiis* in foliis, caulibus pedicellisque greges magnitudine varios formantibus, circa spermogonia concentrice disperse dispositis; pseudoperidiis albis seu albo-flavis, orbiculatis, patelliformibus, margine reflexo, lobato; æcidiosporis polygoniis, rotundatis, verrucosis, aurantiacis, 16-31 μ 15-24 μ .

Hab. ad folia viva Leucoji æstivi, Padova (SACCARDO) et Pavia (DE NOTARIS, PENZIG) Italiæ borealis nec non ad ripam fluminis Leitha Hungariæ (LINHART). — Exemplaria authentica speciei homonymæ a Linhart descriptæ, quæ in herbario Saccardiano vidi, cum speciminibus italicis perfecte congruunt ideoque diagnosin Linhartianam transcripsi.

244. *Æcidium capense* Berk. et Curt. Fungi of the North Pacif. Exped. n. 141. — Maculis nullis; pseudoperidiis elongatis, cylindricis, apice dilatatis, dentatis.

Hab. in fructibus Asparagi vel plantæ cujusdam affinis, ad Caput Bonæ Spei Africæ australis.

245. *Æcidium Convallariæ* Schum. Enum. Pl. Saell. II, p. 224, Linh. F. Hung. exs. n. 139, Winter Die Pilze pag. 259, Schroet. Pilz. Schles. p. 380, *Æcidium Majanthæ* Schum. l. c. *Cæoma elegans* Schlecht. Fl. Berol. II, p. 115, *Cæoma polygonatum* Link Sp. II, p. 44, *Cæoma convallariatum* Link Sp. II, p. 42, *Æcidium flavum* Bon. Con. p. 43, p. p. — Spermogoniis numerosis, in area centrali maculæ insidentibus, obscure rufescenti-brunneis; maculis distinctis, plus minus confluentibus, flavo-citrinis, vix incrassatis; æcidiis laxè confertis, hypophyllis, irregularibus vel subcircinatis; pseudoperidiis cupulatis, margine laciniato-dentato, reflexo, albido, flavidis vel pallidis; æcidiosporis polygoniis, 15-30 = 14-22, subtiliter verruculosus, aurantiaco-rufis; spermogoniis secus parvos greges dispositis, numerosis, exiguis, conoideis, flavo-melleis.

Hab. in foliis aliisque partibus viridibus *Convallariæ majalis*, *Majanthemi bifolii*, *Polygonati multiflori*, *biflori* et *verticillati*, *Paridis quadrifoliæ*, *Lilii canadensis*, *Streptopti amplexifolii*, *Smilacinæ stellatæ* et *racemosæ*, in Belgio, Britannia, Germania, Hungaria, Fennia et America boreali.

246. *Æcidium Callixenis* Berk. in herb. n. 5163, Cooke in *Grevillea* 294 XI, p. 97 (nomen).

Hab. in *Callixene marginata*, in ins. Falkland Australiæ.

247. *Æcidium Dioscoreæ* B. et Br. Fungi of Ceyl. n. 853. — Maculis rufis, amphigenis; pseudoperidiis peritheciiformibus, in pagina superiore sero ruptis.

Hab. in foliis *Dioscoreæ*, ad Peradeniya ins. Ceylon.

248. *Æcidium Trillii* Burrill Paras. Fungi of Illinois p. 233. — Hypophyllum; maculis distinctis vel subinde confluentibus, circularibus, effusis, flavescentibus; æcidiis circa aream centralem circula-

rem vacuum dense aggregatis; pseudoperidiis brevibus, tenuibus fragilibusque, mox pulverulentis; æcidiosporis subglobosis, episporio tenuissimo, levibus, 19-24 μ . diam.; spermogoniis numerosissimis, prominulis, centralibus, amphigenis.

Hab. in foliis *Trillii recurvati*, Illinois Americæ borealis. — Ab *Æcidio Convallariæ* pseudoperidiis fragilioribus evanidisque æcidiosporis levibus episporio tenuissimo præditis differt.

249. *Æcidium macrosporum* Peck 23 Rep. St. Mus. p. 61. — Macu- 2949
lis parvis, orbicularibus, flavescentibus, haud incrassatis; pseudoperidiis elongatis, cylindraceis, paucis, secus orbes dispositis æcidiosporis subglobosis, 40-50 μ . diam., rugulosis, flavis vel dilute aurantiacis; spermogoniis numerosis, distinctis, epiphyllis.

Hab. in foliis *Smilacis rotundifoliæ*, Riverhead Amer. bor. — Ab *Æcidio Smilacis* Schwein. distinctum, *Æcidio hydnoides* B. et C. proximum.

250. *Æcidium Smilacis* Schwein. Syn. Fung. Carol. pag. 69, n. 452, 2950
Burrill Fung. Illin. p. 238. — Hypophyllum; maculis magnis, circularibus, subinde effusis, pallide flavescentibus, incrassatulis; æcidiis irregulariter sparsis gregariisve; pseudoperidiis brevibus, margine, lato recurvato, grossiuscule inciso; æcidiosporis irregularibus, plerumque angulatis, ellipticis aut oblongis, episporio crasso, conspicue tuberculatis, 18-22 $\approx$ 15-18; spermogoniis numerosiusculis, sparsis, plerumque epiphyllis, flavo-melleis.

Hab. in foliis *Smilacis herbacææ*, in America boreali.

251. *Æcidium Safianoffianum* Thüm. Pilzfl. Sibir. n. 506. — Pseudo- 2951
peridiis hypophyllis, breviter tubiformibus, postremo plus minusve corrugatis, dilute luteis, margine crassissimo, subcrenulato; æcidiosporis plus minusve globosis v. subovoideis et plerumque compressis, hyalinis, homogeneis, episporio levi, tenuissimo donatis, 24-34 μ . diam.

Hab. in foliis vivis *Lilii Martagonis*, in subalpinis prope fluvium Uss Sibiricæ (SAFIANOFF).

252. *Æcidium scillinum* Dur. et Mont. Fl. Alg. I, p. 307, Syll. n. 1148. 2952
— Pseudoperidiis in folio vix decolorato sparsis, minutis, pallide flavis, subcompressis, margine aperto integris; æcidiosporis pedicellatis, initio concatenatis, demum solutis, sphaericis, flavis, episporio crasso, levi.

Hab. in foliis *Scillæ autumnalis*, circa La Calle Algeriæ (DURIEU).

253. *Æcidium Muscari* Linhart in Hedwigia 1883, p. 22 et F. Hung. 2953

exs. n. 49 et 138. — *Æcidii*s ad maculas flavidas vel pallidas secus plagulas elongatas plerumque sparsim vel lineari modo dispositis; pseudoperidiis margine introrsum vergenti, subintegro donatis; æcidiosporis rotundatis, ellipticis vel piriformibus, 19-32 = 15-20, verrucosis, aurantiacis.

Hab. ad folia viva *Muscari* comosi, in Hungaria.

254. *Æcidium alliicolum* Winter in Hedwigia 1885, pag. 260, F. E. n. 3317. — Pseudoperidiis dense stipatis, greges elongatos plerumque caulem ambientes sæpeque eum parum tumefacientes efformantibus, breviter cylindræis, sursum sæpe parum dilatatis, margine crenato, subinciso, erecto vel parum recurvato, albidis, circ. 500 μ . altis; æcidiosporis rotundato-angulatis, 21-26 μ . diam., aurantiacis, minutissime denseque verruculosis.

Hab. in foliis scapisque vivis *Allii stellati*, in America boreali (C. H. DEMETRIO).

255. *Æcidium reticulatum* Thüm. Pilzfl. Sibir. n. 682. — Pseudoperidiis hypophyllis, gregariis, orbiculatim dispositis, pallide luteis, mediis, margine continuo, levi, applanatis; æcidiosporis valde irregularibus, plerumque polygoniis, numquam globosis et regularibus, dense reticulatis, episporio crassissimo, hyalinis, 16-32 μ . diam.

Hab. ad folia viva *Allii victorialis*, in silvis alpinis montis Kerlygan Sibiriae.

256. *Æcidium Asphodeli* Cast. Observ. I, pag. 34, Cat. plant. Mars. p. 216, Thüm. Mycoth. Univ. n. 1027. — Caulicolum et amphigenum; maculis pallidis; pseudoperidiis numerosis, approximatis, subelongatis, dilute flavis, apice albidis, margine lacero, extus fimbriatulo, villosa; æcidiosporis subglobosis, flavescenti-brunneis.

Hab. in foliis caulibusque *Asphodeli fistulosi*, pr. Marseille Galliae (CASTAGNE) et *Asphodeli tenuifolii*, sociâ sæpe *Pucciniâ Asphodeli*, in ins. Salamis Græciæ (HELDREICH).

257. *Æcidium Barbeyi* Roum. in Revue Mycologique 1881, n. 9, p. 25, *Oomyces Barbeyi* Roum. Revue mycol. 1880, p. 196 t. XV, f. 3. — Cellulis pseudoperidii angulatis, 20-25 μ . diam., punctulatis, subhyalinis; æcidiosporis globoso-inæqualibus, 18-20 μ . diam., subhyalinis, guttis 1-4 aureis fœtis.

Hab. in caulibus et foliis vivis *Asphodeli fistulosi*, Palestina, Syria, Jericho et Asfaltide. — Cfr. *Pucciniam Asphodeli* Duby.

258. *Æcidium Uvulariæ* Schwein. Syn. Carol. p. 69, n. 453, *Cwoma* (*Æcidium*) *uvulariatum* Schwein. Syn. North Amer. Fungi p. 292,

n. 2858. — Orbiculare, candidum, tenue; pseudoperidiis secus circulos concentricos congestis, in ipso centro nullis; pulvere albo.

Hab. in foliis *Uvulariæ perfoliatæ* et *sessilifoliæ*, in America boreali. — Maculæ 6-7 mm. diam.

259. *Æcidium incarcerationum* B. et Br. Ann. N. H. n. 1469 et Rabenh. 2959
F. E. n. 1492. — *Æcidii* minutis, confertis, maculæ irregulari insidentibus; pseudoperidiis in parenchymate folii inclusis; *æcidiosporis* pallidis.

Hab. in foliis *Sagittariæ*, ad Bungay Britanniae (Strock). — Verisimiliter idem ac *Doassansia Sagittariæ* (West.) Fisch.

260. *Æcidium Ari* Desmaz. Catal. plant. omiss. 1823, p. 26, Oudem. 2960
F. Neerl. exsicc. n. 262, Cooke F. Brit. exs. n. 84, Wint. Die Pilze p. 260. — *Æcidii* in maculis flavidis vel pallidis, sine ordine v. orbiculariter secus greges plerumque rotundatos dispositis; pseudoperidiis cupulatis, flavo-pallidis, margine lacinulato, revoluti; *æcidiosporis* sphaeroideo-angulatis, 16-24 $\approx$ 15-19, subtiliter verruculosus, aurantiaco-flavis.

Hab. in foliis *Ari maculati* et *italici*, in Gallia, Germania, Italia, Dania, Britannia, Belgio, Neerlandia nec non Rhode Island et Georgia Amer. bor. — Plerumque hypophyllum, maculæ contrapositæ.

261. *Æcidium aroideum* Cooke in Grevillea VIII, p. 71. — Pseudo- 2961
peridiis in cæspitibus congestis, parvulis, semiimmersis, margine leniter dentato; *æcidiosporis* subglobosis, levibus, 15-18 μ . diam., coloratis.

Hab. in foliis *Stylochitonis natalensis*, ad Natal Africae. — Ab *Æcidio Ari* distinctum videtur.

262. *Æcidium Dracontii* Schwein. Syn. N. Amer. Fungi p. 291, n. 2861 2962
(sub nom. *Æc. Dracontinati*) Cooke Handb. n. 1611. — Maculis pallidis, in folio (quod fere totum occupant) late extensis; pseudoperidiis magnis, sparsis, crebris, sine ordine in macula dispositis; *æcidiosporis* aurantiacis.

Hab. in foliis petiolisque *Ari triphylli* et *Arisæmæ Dracontii*, in America boreali.

263. *Æcidium Vignæ* Cooke in Grevillea VIII, p. 71. — Pseudoperi- 2963
diis sparsis, semiimmersis, margine albo dentatis; *æcidiosporis* levibus, subglobosis, 15-17 $\approx$ 20-22, coloratis.

Hab. in foliis *Vignæ marginatæ*, ad Natal Africae. — *Æcidiosporæ* probabiliter flavæ; pseudoperidia maximam folii partem stipulæque occupantia.

264. *Æcidium graminellum* Speg. Dec. Myc. Arg. n. 29, Fungi Argentini pug. IV, n. 91. — Maculis nullis; pseudoperidiis amphigenis lineatim interrupte laxèque dispositis, primo subglobosis, clausis, dein elongato-cylindraceis, 0,5-0,7 mm. long. 0,15-0,25 mm. crass., apice irregulariter ac frustulatim lacero-dehiscentibus, albo-flavescentibus, tenui-membranaceis, contextu parenchymatico, e cellulis subhexagoniis, elongatis, 30-40 $\approx$ 15-20, hyalino-flavidis, levibus composito; æcidiosporis sphaericis, 20-24 μ . diam., episporio crassissimo dense ruguloso-striolato, protoplasmate amœne aurantiaco, grosse guttulato donatis.

Hab. ad folia viva *Stipæ* speciei cujusdam vulgatissimum pr. Buenosayres in Rep. Argentina.

265. *Æcidium Rusbyi* Gerard in Bull. Torrey botan. Club. 1881, p. 34. — Hypophyllum; pseudoperidiis elongatis, gracilibus, cylindraceis, albidis, basi roseolis, margine dentato-fimbriato; æcidiosporis obscure aurantiaco-flavis; spermogoniis circinatis, subiculo incrassato, purpureo-brunneo.

Hab. in foliis Fendleræ rupicolæ, New Mexico Amer. bor. (H. H. Rusby). — *Æcidia* plerumque series parallelas secus nervos primarios efficientia.

C) Species in Equisetaceis vigens.

266. *Æcidium? Equiseti* DC. Fl. Franç. VI, p. 99. — Gregarium, supra articulos evolutum protrudensque; pseudoperidiis 4-5-congestis, subcupulatis, peziziformibus, margine vix distincto, subdentato, flavo-aurantiellis, materie compacto impletis.

Hab. in stipitibus Equisetorum, prope Neuchâtel Helvetiæ (CHAILLET). — «An *Stictis* cujusdam status initialis?»

Species minus notæ vel quarum diagnosis mihi haud innotuit.

267. *Æcidium Stellaræ* Kirchn. in Lotos 1856, p. 180. — Hypophyllum; pseudoperidiis poculiformibus, margine lacerato donatis; æcidiosporis dilute flavis, dein aurantiacis.

Hab. in foliis *Stellaræ* graminæ, pr. Kaplitz Bohemiæ.

268. *Æcidium Æthusæ* Kirchn. in Lotos 1856, p. 180. — Amphigenum; maculis determinatis; pseudoperidiis poculiformibus, brunneis, margine lacerato, subrevoluto; æcidiosporis cinnamomeo-brunneis.

Hab. in foliis *Æthusæ* Cynapii, pr. Kaplitz Bohemiæ.

269. *Æcidium sarawacense* Ces. Mic. Born. p. 26. — Hypophyllum, 290

effusum, sine macula (saltem in sicco); pseudoperidiis profundis margine denticulato; æcidiosporis hyalinis (in sicco), irregulariter oblongis, grosse nucleatis, levibus, $15 \approx 8$.

Hab. ad paginam inferiorem foliorum siccando nigrefactarum herbæ v. suffruticis non determinandi, ad Sarawak in insula Borneo.

270. **Æcidium cystoseiroides** Berk. Fl. Tasm. p. 270. — Pustulatum, 2970
folia deformans; pseudoperidiis immersis; æcidiosporis aurantiacis, subangulatis.

Hab. in foliis plantæ ignotæ in Tasmania.

271. **Æcidium Saxifragarum** Voss in Verhand. K. K. Zool. bot. Ge- 2971
sellsch. in Wien 1876, p. 132 (nomen).

Hab. in foliis Saxifragæ muscoides, in Austria inferiori.

272. **Æcidium Cymbonoti** Thüm. in Müll. Supp. Phyt. Austr. p. 96, 2972
Cooke in Grevillea XI, p. 97.

Hab. in foliis Cymbonoti, in Victoria.

273. **Æcidium Angelicæ** Rostr. Svamp. fra Finmarken p. 230. 2973

Hab. in foliis Angelicæ silvestris, Tromsø Norvegiæ. —
Forte pertinet ad *Pucciniam Angelicæ* Fuck.

RÆSTELIA Rebert. Fl. Neom. p. 330 (1804) (Etym. a cl. pharmaco-
pola Landsbergensi RÆSTEL.) *Cancellaria* Brongn. Dict. V, 33, p. 521
(1824) *Ceratitium*. Rabenh. — Pseudoperidium elongatum, plerum-
que cylindraceum v. conicum, mox sursum fimbriatum; sporæ (æci-
diosporæ) globosæ, continuæ, brunneæ vel aurantiacæ, catenulatæ.

1. **Ræstelia polita** Berk. in Berk. et Br. Fungi from Brisbane p. 67, 2974
n. 233, t. XV, f. 1-5, Australian Fungi n. 199. — Pseudoperi-
diis ochraceis, primo obtusis, cylindricis, politis, levibus vel subti-
liter tomentosis, margine angusto, candido, denticulato, contextu
cellulis angulatis, transverse striatis composito; æcidiosporis glo-
bosis, $7-7,5 \mu$. diam.

Hab. in ramulis Muehlenbeckiæ Cunninghamii et Ja-
cksoniæ scopariæ, Bombamero Lake et Brisbane Australiae.
— Primo habitu *Soleniam* referens; pseudoperidia e basi villosa,
crassa oriunda, vix 2 mm. alta.

2. **Ræstelia guaranitica** Speg. Fungi guaranitici I, n. 157 (sub *Cerati-* 2975
tio). — Maculis 1-2,5 mm. diam., quandoque pallescentibus inde-
terminatis, quandoque fusciscenti-subarescentibus determinatis, per
ætatem sæpius incrassatulis ac subbullosis; pseudoperidiis centro
macularum insidentibus, 5-15 subfasciculatim congestis, subcylindra-
ceis, $300-350 \approx 100-150$, longe exsertis, deorsum subconfluentibus,

sursum liberis, divaricatulis, margine integro v. erosulo, longitudinaliter fissis, pallescentibus vel flavescenti-albis, membranaceis, contextu irregulariter elongato-hexagonio, cellulis 25-30 $\approx$ 10-20, radiatim rugulosis, subhyalinis; æcidiosporis globosis v. e mutua pressione subangulatis, 20-26 $\approx$ 16-20, episporio tenui, densissime minutissimeque granuloso-papilloso, hyalinis.

Hab. ad folia viva *Salviæ* cujusdam, in uliginosis pr. Carapaguâ Americæ australis.

3. *Ræstelia Cydoniæ* (Lenorm.?) Thüm. Fung. Parenzo n. 278, *Æcidium Cydoniæ* Lenorm. in Duby Bot. gall. II, p. 903? — Pseudoperidiis longissimis usque 2 cm. longis, filiformi-cylindræis, e globo magno, fere libero, fusco, amphigeno oriundis, margine inæqualiter lacerato, erecto; maculis supra luteis, centro fusciscentibus; æcidiosporis globosis, luteis.

Hab. in foliis vivis in fructibus immaturis et in ramulis vivis *Cydoniæ* vulgaris, in Gallia et pr. Parenzo Austriæ.

4. *Ræstelia hyalina* Cooke in Rav. Fung. Amer. n. 37 et in Hedw. 2
gia 1878, p. 38. — Epiphylla v. amphigena; maculis rufis; æcidiosporis convexis, brunneis; pseudoperidiis cylindrico-acuminatis, longitudinaliter et unilateraliter dehiscens; æcidiosporis globosis, 20-22 μ . diam., aurantiacis.

Hab. in foliis *Cratægi*, in Carolina australi (RAVENEL). — «Verisimiliter cum *Gymnosporangio* quodam connexa».

5. *Ræstelia phæospora* Ces. Mic. Born. p. 26 (sub *Ceratitio*). — Spar-
sa; pseudoperidiis columnaribus pallide ochraceis, apice parum dilatatis erosis, pulverulentis, contextu granulati, basi cingulo quodam concolori limitata; æcidiosporis castaneis, globosis, opacis, centro subdiaphano, levibus, 14 μ . diam.

Hab. ad caulem ignotæ stirpis, ad Sarawak in insula Borneo.

6. *Ræstelia interveniens* Peck in Bull. Torrey bot. Club. 1883, p. 74. 2
— Maculis suborbicularibus, pallidis vel flavescentibus; pseudoperidiis hypophyllis, brevibus vel modice elongatis, albidis vel pallide flavidulis, laceratis et e basi subfissis, contextu cellulis crassis, ruguloso-striatis composito; æcidiosporis (in sicco) pallidissimis hyalinisve, subglobosis, 20-30 μ . diam., subtiliter rugulosis, episporio 4-6 μ . crasso; spermogoniis in eadem macula impositis, epiphyllis.

Hab. in foliis vivis *Malvastri* *Thurberi* et forte *Erodii* cujusdam in California et Carolina Americæ borealis.

PERIDERMIIUM Lév. in Mém. Soc. Linn. de Paris 1826, IV, p. 212 (Ety. *peri* circa et *derma* cutis) Thümen Die Blasenrost Pilze der Coniferen in Mittheil. forstl. Versuchsw. Oesterr. II. heft, III, Wien 1880. — Pseudoperidia corticola, conigena v. foliicola, erumpentia, liberata, saccata vel tubuliformia, vertice lacerato dehiscencia; sporæ (æcidiosporæ) varie catenulatæ sed cito (post maturitatem) solitarie deciduæ, globosæ v. ellipticæ v. oblongo-polyhedricæ, aurantiaco-rufescentes, episporio semper plus minus regulariter verrucoso-reticulato; spermogonia (an semper?) truncato-conoidea. — Species vigentes in Coniferis.

1. **Peridermium piriforme** Peck in Bull. Torrey bot. Club vol. VI, 2980 1875, p. 13, Thüm. Monogr. pag. 311. — Pseudoperidiis magnis, usque 2,5 cm. diam., erumpentibus, gregariis et plerumque confluentibus, cuticula irregulariter lacerata, membranacea, pallida tectis, demum liberis, pulverulentis, pallide flavo-aurantiacis, applanato-compressis, cellulis contextus radiato-striatis; æcidiosporis obovatis, piriformibus vel ovoideo-oblongis, vertice dilatato-rotundatis, basi angustato-acutatis, 38-55 μ . diam., episporio crasso, minute denseque verruculoso, pallide luteis.

Hab. in ramulis vivis Pini cujusdam, in Georgia Americæ borealis (J. B. ELLIS).

2. **Peridermium coruscans** Fr. Summa Veget. Scand. p. 510, *Æcidium coruscans* Fr. in Phys. Sällsk. Arb. 1824, pag. 92, Reess Rostp. deutsch. Conif. p. 52. — Pseudoperidiis numerosis, semper fere longitudinaliter dispositis, primo clausis, ellipsoideis, dein membranaceis, elongatis, albidis, tubulosis, vertice divaricatis, pallide rubris; æcidiosporis plerumque globosis, subglobulosis v. subellipsoideis, regularibus, flavido-aureis, 30-35 $\approx$ 20-24, episporio tenui, obsolete at dense verruculoso donatis.

Hab. in foliis vivis Abietis excelsæ, in Germania, Suecia et Fennia. — Cfr. Bot. Zeit. 1879, p. 806,

3. **Peridermium Ephedræ** Cooke in Indian Forester III, part. 2, Thüm. 2982 Monogr. p. 323, *Peridermium Pini* var. *minor* Berk. et Curt. in Grevillea III, p. 39. — Pseudoperidiis densissime gregariis, numerosis, sine ordine dispositis, sæpe confluentibus, elongatis, plus minus utriculi-vel tubuliformibus, alutaceis (in sicco), vertice irregulariter crenulato rumpentibus; æcidiosporis globosis vel plerumque anguste ellipticis vel ovoideo-ellipticis, utrinque rotundatis, numquam acutatis, hyalinis (in sicco) 20-24 $\approx$ 16-20, episporio subtenui dense verruculoso donatis.

Hab. in ramulis squamisque *Ephedrae* antisiphyliticæ, in Carolina inferiori (RAVENEL) et Texas (WRIGHT).

4. **Peridermium conorum** Thüm. Monogr. pag. 313, *Æcidium conorum-Piceæ* Reess in Abhand. Nat. Ges. zu Halle XI, pag. 102, t. II, f. 1-4 non Peck, Winter Die Pilze p. 260, *Æcidium conorum-Abietis* Nees in Tag. 42. Vers. deutsch. Naturf. 1868, p. 189. — *Æcidii* ambitu irregulariter rotundatis, circiter 4-6 mm. diam., parce numerosis, ad latus externum squamarum adhærentibus; pseudoperidiis irregulariter convexis, albis, stratis pluribus (brunneo-rufis) contextus squamarum more tectis; æcidiosporis oblongo-polyhedricis, circiter 24-33 $\approx$ 18-22, verrucosis areolatis aurantiaco-flavis.

Hab. in squamis conorum Pini *Abietis* (*Abietis pectinatae*), in Germania et Fennia.

5. **Peridermium orientale** Cooke in Indian Forester III, p. 91, Thüm. Monogr. pag. 317. — Pseudoperidiis solitariis v. sparsis, magnis, primo longe diu clausis et triquetris, demum vertice (ut videtur regulariter) disrumpentibus, utriculiformibus, pallide aurantiacoseis, postremo cuticula membranacea, expallida cinctis, sine macula in folio; æcidiosporis plerumque subglobosis vel late ellipsoideis vel oblongo-ellipticis, eximie regularibus, utrinque rotundatis, aurantiacis vel expallescentibus, 15-15 $\approx$ 10-12, episporio tenui, dense verruculoso donatis.

Hab. in acubus vivis Pini longifoliæ, pr. Annadale, Simla in India orientali 2000-2300 m. alt. (I. S. GAMBLE). — Verisimiliter ex errore in *Pino excelsa* indicatur ex eodem loco.

6. **Peridermium balsameum** Peck 27 Rep. pag. 104, t. II, f. 24-26, Burrill Paras. Fungi of Illinois p. 212, Thüm. Monogr. pag. 319. — Maculis indeterminatis, albidis vel pallide flavescentibus; pseudoperidiis subrotundatis, leniter prominulis, plerumque biseriatis, dense gregariis, primo integris, dein apice laceratis; æcidiosporis subglobosis vel oblongis, circiter 26-35 $\approx$ 22-25, rugulosis, albidis.

Hab. in foliis vivis et non deformatis *Abietis balsameæ*, ad M. Adirondack Americæ borealis (PECK).

7. **Peridermium Engelmannii** Thüm. Monogr. Periderm. p. 314, *Peridermium Conorum-Piceæ* Peck mscr. non Reess. — Pseudoperidiis sparsis vel subsolitariis, pallide luteis, primo clausis et convexis, demum liberis pulverulentisque, mediis et cuticula irregulariter lacerata cinctis; æcidiosporis eximie subglobosis vel late oblongis, raro ellipticis, utrinque rotundatis, dilute aureis et cito

expallescens, intus homogeneis, 36-42 $\approx$ 26-32, episporio subcrasso, densissime sed minute verruculoso, verrucis, hemisphaericis.

Hab. in conis maturis Pini Engelmannii, Colorado Americae borealis (PECK).

8. **Peridermium Thomsoni** Berk. in Indian Forester III, p. 94, Thüm. 2987
Monogr. p. 320 (nomen) *Aecidium Thomsoni* Berk. in Gard. Chron.
1852, p. 627 cum iconc.

Hab. in acubus Abietis Smithianae, prope Mahasu, Simla, et Sikkim Himalaya in India orientali (I. S. GAMBLE).

9. **Peridermium Cerebrum** Peck 25 Rep. p. 91, Thüm. Monogr. p. 312. 2988
— Pseudoperidiis magnis, convexis, flavis, erumpentibus, dense gregariis, irregulariter confluentibus, circumvolutiones cerebriformes efformantibus, irregulariter ruptis, cellulis contextus granulatis margine radiato-striatis; aecidiosporis variabilibus, subglobosis, ovatis v. ellipticis, 24-33 $\approx$ 17-19, rugulosis, flavescentibus.

Hab. in truncis ramisque Pini rigidæ, Center (LINTNER) New York (PECK), New Jersey (ELLIS), Pennsylvania et Distr. Columbia (SEAMOND) Americae borealis. — Tubercula 1-5 cm. diam. naticulata, orculiformia, pallide aurantiaca, primo tecta dein libera efficit.

10. **Peridermium Strobi** Klebahn in Hedwigia 1888, p. 119. — *Aeci-* 2988*
diosporis episporio verrucoso, magna ex parte omnino levi.

Hab. ad cortices Pini Strobi, in Germania.

11. **Peridermium Peckii** Thüm. Monogr. Periderm. p. 320. — Pseu- 2989
doperidiis densissime gregariis, mediis, sine ordine dispositis, suboblongo-utriculosis, pallide luteis, cuticula vertice irregulariter crenulato-dilacerata, membranacea, expallida, suboblunga in folii parte decolorata straminea; aecidiosporis aut globosis aut late ellipticoglobosis, utrinque rotundato-regularibus, pallide aurantiacis sed cito expallescens, 20-24 $\approx$ 14-19, episporio subcrasso, dense minutissimeque verruculoso donatis.

Hab. in acubus vivis Abietis canadensis, in America boreali (PECK). — *Peridermium decolorans* Peck 27 Rep. St. Mus. p. 104 videtur ad *Chrysomyxam* referendum.

12. **Peridermium filamentosum** Peck in Botan. Gazette 1879, p. 56. — 2990
Pseudoperidiis numerosis, irregulariter dispositis, erumpentibus, 6-9 mm. longis, 2-4 mm. latis, cylindraceis v. subcompressis, apice obtusis, membranaceis, vacuis albidis, filamentis longitudinalibus, concoloribus laxè intus percursis; aecidiosporis subglobosis, late ellipticis, oblongo-ovatis vel oblongo-ellipticis, flavo-aurantiacis, 25-32 $\approx$ 16-20, episporio crasso, subtiliter ruguloso donatis.

Hab. in ramulis vivis Pini ponderosæ, Arizona Americæ bor. (PRINGLE). — «An huic identicum est *P. Harknessi* Moore?»

13. **Peridermium Harknessi** Moore in Ell. et Harkn. New Calif. Fungi p. 17, Thüm. Monogr. Perid. p. 313. — Pseudoperidiis aggregatis, irregularibus, ramulos circumambientibus; æcidiosporis irregularibus, aurantiacis, demum albidis, 35-40 μ . d., subtilissime echinulatis.

Hab. in truncis ramulisque Pini ponderosæ, insignis, Sabinianæ et contortæ, in cacuminibus Sierra Nevada California Americæ borealis. — «Forte a *P. filamentoso* Peck haud diversum».

- ? **PERICLADIUM** Pass. in N. Giorn. botan. ital. VII, p. 185, Martelli Fl. Bogos. p. 136 (Etym. *peri* circa et *clados* ramus). — Pseudoperidium (?) coriaceo-suberosum, irregulariter subglobosum, perfecte clausum, tandem vertice fissum vel varie ruptum; sporæ (æcidiosporæ?) subglobosæ vel irregulares, liberæ (an primitus?). — Genus vix Uredineis affine; teste auct. forte *Trullulæ tropicæ* proximum.

2. **Pericladium Greviæ** Pass. in N. Giorn. botan. ital. VII, pag. 185, t. 4, f. 4. — Pseudoperidiis circa ramulos stipatis, subglobosis vel e mutua pressione angulosis aut a latere applanatis, extus badiofuscis, ruguloso-furfuraceis; æcidiosporis (?) innumeris, globosis v. subangulatis, levibus, primo hyalinis, deinde fuliginoso-opacis, nucleatis, 4 μ . latis, striola laterali signatis.

Hab. circa ramulos vivos Greviæ (mollis?), quos longe obducit, ad Sciotel Abyssiniæ (O. BECCARI).

- UREDIO** Pers. *) in Usteri n. Ann. IX, p. 16 (1795), Syn. Fung. p. XV et 214 (1801). (Etym. ab *uro*) *Trichobasis* et *Lecythea* Lév. (1849) in D'Orbigny Dict. Class. XII, p. 785 pro maxima parte, *Pucciniola* March. in Linnæa V, litterat. p. 185, *Cæomatis*, *Coleosporii* et *Æcidii* sp. auct. nonnull. *Ascospora* Fuck. Symb. myc. II, App. p. 19, *Erysibe* Wallr. ex maxima parte. — Sori plerumque aurantiaco-flavi, subpulverulenti, superficiales vel erumpentes, pseudoperidio nullo; sporæ (uredosporæ) apice pedicelli solitariae. In hoc genere ad interim genus *Cæoma* Link in Berl. Magaz. III, p. 5 (1809), Sp. II, pag. 1 (1825), ut subgenus, includitur tantum sporis subcatenulatis, vix aliis characteribus ab *Uredine* diversum.

1. **Uredo Dissotidis** Cooke in Grevillea X, p. 124. — Maculis fuscis, 2

*) Cfr. notam p. 77³.

hypophyllis, orbicularibus; uredosporis subglobosis, fuscis, asperulis, 20 μ . diam.

Hab. in foliis *Dissotidis* incanæ, in Africa australi. — Cum *Æcidio Dissotidis* Cooke forte connexa.

2. **Uredo? æcidiiformis** Speg. Fungi Fuegiani p. 51, n. 143 nec Strauss. 2994

— Soris hypophyllis, melleis, hinc inde 3-8-aggregatis, maculæ pallescenti fusco-marginatæ 2-8 mm. diam. insidentibus, parvulis, conoideis, 300-500 μ . latis, parenchymati innatis, apice discoideo-apertis, pulvinatulis, subconfluentibus, pseudoperidio nullo; uredosporis ovato-elongatis vel subclavulatis, antice acutatis vel rotundatis, rarius truncatis, postice attenuatis, acutato-obtusatis, 50-60 $\approx$ 20, episporio crassiusculo, minute denseque ruguloso donatis, ex hyalino pallidissime subfulvescentibus.

Hab. in foliis vivis *Berberidis* ilicifoliæ, in silvis prope Penguin rookery in Staten Isl. Americæ australioris. — In senectute folia perforata evadunt ob caducitatem macularum fungilliferarum. «An idem ac *Æcidium magelanicum* Berk.?»

3. **Uredo affinis** Speg. Fungi Argentini pugillus II, p. 15, n. 47, Dec. 2995

myc. Argent. n. 23. — Soris hypophyllis, maculam primo pallescentem, dein fusco-arescentem efficientibus, erumpentibus, pulverulentis, intense fuligineis, 0,5-1,5 mm. diam.; uredosporis ovoideo-trigonis, superne rotundato-truncatis, 22-24 $\approx$ 20, pedicello hyalino, cylindraceo, 40-50 $\approx$ 5 fultis.

Hab. in foliis vivis *Verbesinæ* auriculatæ, circa la Charita in Republica Argentina Americæ australis.

4. **Uredo Agrimonie** (DC.) Schroet. Pilz. Schles. p. 374, Rabenh. F. 2996

E. n. 2189, *Uredo Potentillarum* var. *Agrimonie-Eupatorie* DC. Fl. Franç. VI, p. 81, *Coleosporium ochraceum* Bonord. Coniomyc. p. 20, *Uredo Agrimonie-Eupatorie* Wint. Die Pilze p. 252, *Cæoma Agrimonie* Schwein. N. Am. Fungi p. 291, n. 2835, Burdill Paras. p. 220. — Soris primo pustuliformibus, pseudoperidio hemisphærico, tenui tectis, dein late apertis, flavo-rufis, sæpe confluentibus, hypophyllis; uredosporis globosis, ellipticis aut ovoideis, 15-23 $\approx$ 11-17, breviter aculeatis, aurantiaco-rufescentibus.

Hab. in foliis *Agrimonie* *Eupatorie*, odoratæ, dauricæ, parvifloræ, pilosæ, in Italia, Austria, Germania, Gallia, Britannia, Hungaria, America boreali. — Forte ad *Melampsoræ* speciem quamdam pertinet.

5. **Uredo Alismatis** Thüm. Pilzfl. Sibir. n. 194. — Pustulas solitarias 2997
vel raro confluentes, sine ordine in nervo medio vel rarissime

etiam in pagina inferiore folii distributas, plumbeas, primo epidermide tectas, deum disrumpentes, ellipsoideas formans; uredosporis globosis vel ovoideo-globosis, episporio tenui, levi, fuscis, 30-45 μ . diam.

Hab. in foliis languidis *Alismatis Plantaginis*, sociâ *Doassansiâ Alismatis*, in aquis prope Minussinsk Sibiriae asiaticae.

6. **Uredo alpestris** Schroet. in 53. Jahresb. Schles. Ges. 1875, p. 117, 2 Winter Die Pilze p. 253, Thüm. Myc. Univ. n. 2040, *Puccinia alpina* Fuck. Symb. myc. II, p. 13, p. p. — Soris hypophyllis, minutis, hemisphaericis vel irregularibus, sparsis vel subgregariis saepeque confluentibus, flavo-ochraceis; uredosporis fusiformibus vel irregularibus inaequalateralibusque, medio plus minus ventricosis, vertice conico-apiculatis, 26-28 $\approx$ 8-12, dilute flavis, pedicello brevi.

Hab. in foliis *Violæ bifloræ*, in Helvetia, Germania et Lapponia rossica.

7. **Uredo angiosperma** Thüm. Symb. Myc. Austral. IV, n. 95. — Soris amphigenis, magnis, plerumque secus orbem dispositis, semper epidermide dehiscente, subsoluta, lacerata et elevata tectis, pulveraceis, fuscis; uredosporis ovalibus vel ellipsoideis, vertice rotundatis, basi plerumque subangustatis, 45 $\approx$ 30, episporio levi, 5-7 μ . crasso, dilute fuscescentibus, intus irregulariter nucleolatis.

Hab. in foliis vivis *Hackeæ*, in Australia occidentali (F. DE MÜLLER).

8. **Uredo Anguillaræ** Cooke in *Grevillea* XIV, p. 11. — Amphigena; soris gregariis, ellipticis, bullatis, diu epidermide tectis; uredosporis globosis vel globoso-ovalibus, levibus, fuscis, episporio tenui, 20-22 $\approx$ 20, pedicello brevi, hyalino, deciduo.

Hab. in foliis *Anguillaræ dioicæ*, Guntawang Upper Macquarie River, Australiae (HAMILTON).

9. **Uredo Anodæ** Lév. in Ann. Scienc. Nat. 1845, p. 70. — Hypophylla; soris fusco-nigrescentibus, epidermide cinctis, orbiculatim confertis, maculae pallidae insidentibus; uredosporis ovatis, obtusis, pedicellatis, levibus.

Hab. in foliis *Anodæ hastatae*, in Peruvia Americae australis. — Maculae flavescens 3-6 mm. latae « An potius *Uromyces*? »

10. **Uredo antarctica** Speg. Fungi Fuegiani p. 51, n. 141 nec Berkeley. — Maculis nullis vel minutissimis, amphigenis, fuscescentibus, indeterminatis; soris hypophyllis, plus minusve laxè gregariis, minutis, 300-500 μ . diam., diu epidermide tectis, fulvescentibus,

per ætatem deciduis ac folium perforatum relinquentibus; uredosporis globosis vel ovoideis, sæpe e mutua pressione angulatis, 20-24 $\approx$ 18-20, tenui tunicatis, granuloso-farctis, minutissime et subimperspicue papillulosis (?), hyalinis.

Hab. ad folia primaria (numquam in cotyledonibus) *Berberidis* cujusdam, prope Ushuvaja Americæ australioris.

11. **Uredo aperta** Winter in Hedwigia 1887, p. 24 (ad interim). — 3003

Soris sparsis vel subgregariis, plerumque hypophyllis, orbicularibus vel angulato-rotundatis, demum sæpe subirregularibus, 0,5-1 mm. latis, primo epidermide inflata velatis, demum erumpentibus et denudatis, fragmentis epidermidis ruptæ cinctis, late apertis, fere disciformibus, pallide flavidulis; uredosporis subglobosis vel late ovatis, dilutissime flavis, 19-25 μ . diam., dense minuteque verrucosis, pedicello fragili, hyalino suffultis.

Hab. in foliis vivis *Compositæ* cujusdam, prope S. Francisco Brasilicæ (ULE).

12. **Uredo Artocarpi** B. et Br. Fungi of Ceylon n. 832. — Maculis 3004

fuscis; soris minutis, hypophyllis; uredosporis cuticula fusca in-carceratis, ovatis, echinulatis.

Hab. in foliis *Artocarpi* Lakoochæ, in insula Ceylon.

13. **Uredo asperata** Berk. et Curt. North Pacif. Exped. n. 136. — 3005

Maculis obsoletis; soris sparsis gregariisque, hypophyllis; uredosporis oblongis vel fusiformibus, pallidis, granulatis.

Hab. in foliis *Xanthoxyli*, in insulis Bonin.

14. **Uredo aterrima** Thüm. in Flora 1878, p. 114. — Soris amphi- 3006

genis, gregariis, submagnis, quasi patelliformibus, primo epidermide tectis, demum cito liberis, concavis, pulveraceis, aterrimis; uredosporis exacte globosis, episporio levi, tenui, brunneis, 24-32 μ . diam.

Hab. ad folia viva *Ipomœæ argyreoidis*, sæpe socia *Æcidii Ipomœæ* Thüm., pr. Klyn Visch River juxta Somerset-East, Promont. Bonæ Spei Africæ australis (P. MAC-OWAN). — «Videtur forte cum *Æcidio Ipomœæ* Thüm. in Flora 1878, n. 23, p. 107, connexa atque (etsi sporæ sint aberrantes) *Uromycetis* speciem *U. sphaeropleo* Cooke affinem sistens.

15. **Uredo? Avenæ** Cast. Obs. I, p. 25, Cat. pl. Mars. p. 208. — Ma- 3007

culis flavis, amphigenis, rotundatis vel oblongis; soris rotundatis vel elongatis, luteis, epidermide rupta subcinctis, secus nervos excurrentibus; uredosporis numerosis, sphaericis, maxima ex parte sessilibus.

Hab. in foliis Arrhenatheri elatioris et nonnullarum Graminacearum, prope Marseille Galliae.

16. **Uredo Azaleæ** Schwein. Syn. North Amer. Fungi p. 291, n. 2838, 3 Ellis N. A. F. n. 1081, Rav. F. Car. n. 846, *Uredo minima* Schwein. Syn. Carol. p. 70, n. 470. — Hypophylla; maculis oblitteratis; soris primum subconicis, minutis, aurantiacis, demum effusis; uredosporis minutissimis, decolorantibus et inæqualibus, piriformibus, nempe immixtis globosis.

Hab. in foliis Azaleæ nudifloræ et viscosæ, in America boreali.

17. **Uredo Baccharidis** Speg. Fungi Guaranitici I, n. 136, an Lèveillé in A. S. N. 1846, p. 269 (ex Chili). — Maculis nullis v. vix perspicuis, parvulis, amphigenis, pallescentibus; soris epiphyllis, sparsis vel hinc inde 2-3-aggregatis, mediocribus, 300-400 μ . diam., primo tectis, dein erumpentibus, pallide testaceis vel fulvescentibus; uredosporis globosis, ellipticis vel obovatis, 24-32 $\approx$ 18-24, episporio subtenui, laxe subgrosse verrucoso-hirto, nubiloso-farctis, ex hyalino dilutissime flavidis, pedicello nullo vel vix evoluta, hyalino.

Hab. in foliis vivis Baccharidis cujusdam, in campis prope Guarapi et Pirayú Americæ australis.

18. **Uredo Balsamitæ** Cooke in Grevillea VIII, p. 94. — Hypophylla; 30 soris sparsis, oblongis, aurantiacis, epidermide hyalina cinctis; uredosporis ellipticis, asperulis, 25-30 $\approx$ 15, aureis.

Hab. in foliis Impatientis rosmarinifoliæ, in insula Ceylon (MORRIS).

19. **Uredo Balsamorhizæ** Peck in Botanical Gazette 1881, pag. 276 30 (*Trichobasis*). — Maculis indeterminatis, brunneolis; soris sparsis, subinde confluentibus, amphigenis, rufescenti-brunneis; uredosporis globosis vel subglobosis, 26-30 μ . longis, subtiliter rugulosis, 1-3 nucleos sæpe continentibus, pedicello uredosporam subæquante, mox deciduo.

Hab. in foliis vivis Balsamorhizæ macrophyllæ, Utah Americæ borealis (JONES). — Forte *Uromycetis* seu *Puccinia* status uredosporifer.

20. **Uredo barbara** Speg. Fungi guaranitici I, n. 137. — Maculis nul- 30 lis; soris epiphyllis, sparsis, orbicularibus, concentrice evolutis, 0,5-1,5 mm. diam., epidermide disrupta annulatim cinctis, testaceis; uredosporis globosis vel inferne leniter depressis, 24-28 $\approx$ 20-24, episporio crassissimo, hyalino, grosse laxissimeque papilloso, protoplasmate granuloso-nubiloso, aureo vel aurantiaco repletis.

Hab. ad folia viva Senecionis ejusdam, in silvaticis prope S. Barbara et Villa Rica Americæ australis.

21. **Uredo Bauhiniae** Berk. et Curt. Fungi North Pacif. Exped. n. 138. 3013
— Hypo-epiphylla; maculis obsoletis; uredosporis fuscis, subglo-
bosis, echinulatis, membrana sæpe polyhedrico-contracta.

Hab. in foliis Bauhiniae, Nicaragua.

22. **Uredo Bellidis** Durieu et Mont. Syll. Crypt. n. 1170. — Amphi- 3014
gena; macula nulla; soris minutis, punctiformibus, tandem epider-
mide rupta cinctis, fuscis; uredosporis sessilibus, globosis, fuscis,
opacis, episporio minute papilloso.

Hab. in foliis Bellidis silvestris, circa Mascara Algeriæ (DURIEU).

23. **Uredo beticola** Bell. in Bull. Acad. Belg. II, t. XI, n. 6, West. 3015
Herb. crypt. Belg. n. 1170. — Soris majusculis, obscure coloratis;
uredosporis *Uromyc. Betæ* majoribus, pedicellatis, levibus.

Hab. in foliis et caulibus Betæ, socio *Urom. Betæ* (cui forte adscribenda), in Belgio.

24. **Uredo bonariensis** Speg. Fungi Argentini pugillus I, n. 40. — 3016
Amphigena; soris mediocribus, 0,5–1 mm. diam., rotundatis, hinc in-
de sparsis, areola flavescenti circumdatis, primo tectis, dein epi-
dermide fissa cinctis, cinnamomeis; uredosporis ovoideis vel sub-
sphæroideis, ochraceo-fuligineis, granuloso-farctis, tuberculato-mu-
ricatis, 30–35 μ . diam.

Hab. ad folia viva *Hydrocotyles bonariensis*, in Repu-
blica Argentina Americæ australis. — «An *U. Hydrocotyles* Mont.
f. *U. bonariensis* Gay Fl. Chil. VIII, p. 50 eadem?»

25. **Uredo Boutelouæ** Arth. Prelim. List of Jowa Uredineæ p. 164, 3017
n. 81. — Soris epiphyllis, maculæ flavæ insidentibus, minutis, flavis,
ellipticis vel oblongis, irregulariter sparsis, diu tectis, epidermide
rupta obsolete cinctis; uredosporis rotundatis, oblongis vel ellipti-
cis, raro ovatis, subtilissime sparseque echinulatis vel omnino le-
vibus, 20–30 $\approx$ 15–25, aurantiaco-flavis, episporio tenuissimo, pa-
raphysibus numerosis, gracilibus, clavatis, superne constrictis, pe-
dicello valido, crasso fultis, hyalinis, apice rotundatis ibique 13 μ .
crassis, 38–75 μ . longis.

Hab. in foliis *Boutelouæ racemosæ*, Jowa Americæ bo-
realis. — Verisimiliter *Uromycetis Brandegei* Peck status ure-
dosporus.

26. **Uredo Cannæ** Wint. in Hedwigia 1884, p. 172. — Soris ple- 3018
rumque hypophyllis, rarius etiam epiphyllis, sine maculis per to-

tam folii superficiem dense sparsis seu hinc inde gregariis, minutis, rotundatis v. ellipticis, interdum confluentibus, vix 0,5 mm. diam., pallide luteis, diu ab epidermide velatis, demum erumpentibus; uredosporis ovatis, piriformibus oblongisve, achrois (an semper?), 25-45 $\times$ 16-23, echinulatis.

Hab. in foliis vivis Cannæ, pr. S. Paulo in Brasilia Americæ australis (ULE).

27. **Uredo? Camphorosmæ** Cast. Suppl. Cat. pl. Mars. p. 88. — Amphigena, maculis nullis; soris orbicularibus, violaceis, epidermide rupta cinctis; uredosporis globosis, magnis, sessilibus, violaceis.

Hab. in foliis Camphorosmæ monspeliacæ, pr. Marseille Galliæ.

28. **Uredo Caraganæ** Thüm. Contrib. fl. myc. Lusit. III, n. 478, Mycoth. Univ. n. 1641. — Soris hypophyllis, minutis, sparsis, liberis, planis, pulveraceis, ferrugineis, sine macula; uredosporis plus minusve globosis vel interdum oblongato-globosis, episporio levi, æquali sed vertice semper incrassato, plasmate subgrumuloso, fuscidulis, 20-24 μ . longis.

Hab. ad folia viva Caraganæ arborescentis, pr. Coimbra Lusitaniæ (MOLLER).

29. **Uredo Cassandræ** P. et C. in 30 Rep. St. Mus. p. 54. — Epiphylla; maculis parvis, irregularibus, flavis vel castaneis; soris plerumque secus greges parvos confertis, ut plurimum angulatis v. irregularibus, epidermide disrupta cinctis; uredosporis ellipticis, ovatis vel subglobosis, 20-25 μ . longis, rugulosis, flavis.

Hab. in foliis vivis Cassandræ calyculatae, Center, Sandlake aliisque Americæ borealis locis.

30. **Uredo Celmisiæ** Cooke in Grevillea XIV, p. 89. — Epiphylla; maculis oblitteratis; soris ellipticis, pallidis, epidermide diu clausa, demum disrupta; uredosporis ovalibus, subpellucidis, verruculosiss, 30-35 $\times$ 20-22.

Hab. in foliis Celmisiæ coriaceæ, Arthur's Pass in Nova Zelandia (KIRK).

31. **Uredo Ciceris-arietini** Grog. Crypt. cell. p. 157. — Pustulis brunneolis, subvirescentibus, subnitentibus; uredosporis...

Hab. in foliis Ciceris arietini, Saone et Loire Galliæ.

32. **Uredo Cisneroana** Speg. Fungi guaranitici I, n. 130. — Maculis nullis vel vix manifestis, pallescentibus; soris epiphyllis, sparsis, subminutis, 250-300 μ . diam., pallide fulvis vel aureis, epidermide diu velatis ac parum conspicuis; uredosporis dense constipatis, elon-

gato-clavatis, 25-45 $\approx$ 18-22, antice plus minus acutatis vel obtusatis, deorsum validiuscule attenuatis, truncatis, episporio crassiusculo, laxe verruculoso-papilloso donatis, hyalino-fulvellis.

Hab. ad folia viva Sapii aucuparii, in dumetis pr. Guarapi Americæ australis. — Ex ipso auctore species forma sororum nec non uredosporarum fere sine dubio generi *Melampsoræ* adscribenda.

33. **Uredo citrina** Cooke in Grevillea VI, p. 138 (sub nomine *Uredinis citri*). — Epiphylla; soris minutis, flavis, epidermide cinctis; uredosporis subglobosis, ovatis v. leniter asperulis, luteis, 20-25 $\approx$ 15. 3025

Hab. in foliis Macluræ aurantiacæ, Aiken Carolinæ inferioris.

34. **Uredo Spegazzinii** De-Toni, *Uredo Commelinæ* Speg. Fungi Argentinæ I, n. 48, Dec. Argent. n. 24, nec Kalchbr. — Hypophylla, macula amphigena, pallescenti-ochracea; soris vivide fulvo-aurantiacis, 300-500 μ . diam., erumpentibus, pulverulentis, parum prominulis; uredosporis elliptico-ovoideis vel subsphæroideis, levibus, crassiuscule tunicatis, 30-35 μ . diam., granuloso-farctis, pluriguttulatis, pallide fulvo-aurantiacis. 3026

Hab. ad folia viva languidave Commelinæ sulcatæ, secus Rio de le Plata a la Recoleta in Republica Argentina.

35. **Uredo Commelinæ** Kalchbr. in Grevillea XI, p. 24 nec Spegazz. — Soris hypophyllis, secus greges oblongos congestis, ochraceo-fuscis; uredosporis variis, subglobosis, ovatis piriformibusve, 21 $\approx$ 15, pellucidis, glabris, flavidis. 3027

Hab. in foliis Commelinæ sp., ad P. Natali Africæ.

36. **Uredo constellata** B. et C. Fung. North Pac. Exped. n. 139. — Maculis pallidis, oppositis nullis; soris minutis, tarde ruptis, constellatis; uredosporis argillaceis decolorantibus verrucoso-aculeatis. 3028

Hab. in foliis vivis plantæ ignotæ, ad Hong Kong Japoniæ.

37. **Uredo cristata** Speg. Fungi guaranitici I, n. 131. — Maculis vix manifestis, minutis, 1-2 mm. diam., indeterminatis, pallescentibus; soris amphigenis, sæpius epiphyllis, centro macularum insidentibus, solitariis vel paucis laxè gregariis, punctiformibus, 300-350 μ . d., compactiusculis, sordide pallideque ferrugineis; uredosporis obovato-lanceolatis, antice rotundatis, postice attenuato-truncatis, 45-47 $\approx$ 18-20, e latere compressiusculis, episporio margine cristam hyalinam, latiusculam, apice acutissime productam, denticulato-erosam, paullo supra basim exsurgentem efformante, levi donatis pallide fulvescentibus. 3029

Hab. ad folia viva Sapindaceæ cujusdam, prope Villa Rica Americæ australis. — Species pulcherrima distinctissima, cum nulla alia comparanda, facile status uredosporus cujusdam *Melampsoræ*.

38. **Uredo Cucubali** Desmaz. Pl. Crypt. Fr. (1855) et in Ann. Scienc. Nat. 1855, pag. 124. — Soris amphigenis, rufis, minutis, rotundatis, sparsis vel subgregariis, epidermide rupta, albida cinctis; uredosporis globosis, 20-25 μ . diam., semiopacis, asperulis, breviter pedicellatis.

Hab. in foliis Cucubali Behenis, Jersey ex insulis Normandiæ (ROBERGE).

39. **Uredo Cussoniæ** Cooke in Grevillea XVI, p. 70. — Hypophylla; soris minutis, hemisphæricis, demum fissuratis, pallide fuscis; uredosporis ellipticis, spinulosis, subhyalinis, demum fuscis, 25 $\approx$ 18.

Hab. in foliis Cussoniæ, ad Inanda Natali Africæ (WOOD).

40. **Uredo cyclogena** Speg. Fungi Argentini pugillus I, n. 45, Dec. myc. Argent. n. 21. — Hypo-, rarius epiphylla; soris secus orbem dispositis, areola flavescenti insimul circumdatis, majusculis, 2-3 mm. diam., vivide cinnamomeis; uredosporis ovoideis, rarius subsphæroideis, episporio tenui, levi, sursum parum incrassato atque vix minutissime tuberculato, primo hyalinis, dein roseo-fuliginis.

Hab. ad folia viva Cassiæ corymbosæ, pr. Boca del Riachuelo in Republica Argentina Americæ australis.

41. **Uredo domingensis** Berk. Fung. Doming. p. 9. — Hypophylla; maculis nullis; soris sparsis, orbicularibus, epidermide persistente cinctis; uredosporis obovatis, granulatis, pallidis.

Hab. in foliis probabil. Solanaceæ cujusdam, S. Domingo. —

42. **Uredo Dorymopsidis** Thüm. Contr. fl. Lusit. p. 11, n. 63. — Soris amphigenis, parvulis, sparsis, liberis, orbiculatis, epidermide cinctis, fuscis; uredosporis exacte globosis, fuscidulis, episporio levi, subtenui, 30 μ . diam.

Hab. in foliis vivis Dorymopsidis Gerardi, in silvis montosis prope Bussaco Lusitaniæ (MESNIER). — Fortasse *Uromyctis* cujusdam status uredosporifer.

43. **Uredo exasperata** Cooke in Grevillea VII, p. 95 (*Trichobasis*). — Hypophylla; soris purpureo-brunneis, minimis, pulverulentis, hinc illinc confluentibus, epidermide cinctis; uredosporis ovato-globosis, supra papillato-asperulis, læte brunneis, 28 $\approx$ 20.

Hab. in foliis arboris ignotæ, Belgaum Indiæ (HOBSON).

44. **Uredo Ectadiopsidis** Cooke in Grevillea X, p. 128. — Hypophyl-

la; soris in maculis suborbicularibus, pulverulentis, confluentibus; uredosporis globosis, levibus, flavidis, 18-20 μ . diam.

Hab. in foliis Ectadiopsidis oblongifoliae, Inanda Africae australis (Wood).

45. **Uredo Ecteinanthi** Kalchbr. in Grevillea XI, p. 25. — Soris hy- 3037
pophyllis, sparsis, minutis, ochraceis; uredosporis ovato-rotundatis
et irregularibus, 30 $\approx$ 24, flavis, episporio levi.

Hab. in foliis Ecteinanthi prolixae, Grahamstown (Mac-OWAN).

46. **Uredo euphorbicola** B. et C. Cuban Fungi n. 598 (*Trichobasis*). 3038
— Soris sparsis, brunneolis, epidermide demum rupta; uredosporis
pallidis, obovatis, 12 μ . longis, echinulatis.

Hab. in foliis Euphorbiae cujusdam, in insula Cuba.

47. **Uredo Evolvuli** Speg. Fungi Argentini pugillus IV, n. 74. — Ma- 3039
culis nullis vel tantum epiphyllis, minutis, fusciscenti-violaceis;
soris amphigenis v. cauliculis, erumpentibus, minutis, 300-400 μ . d.,
pulverulentis, pallide cinnaomoeis; uredosporis sphaeroideis v. ova-
tis, minute granuloso-papillulatis, praecipue superne crassiuscule
tunicatis, dilute fulvo-fuligineis, 20 $\approx$ 15-18.

Hab. in foliis languidis Evolvuli sericei, in aridis pr. Belgrano in Republica Argentina Americae australis.

48. **Uredo Facelidis** Speg. Dec. Myc. Arg. n. 22, Fungi Argentini 3040
pugillus IV, n. 76. — Maculis nullis; soris hypophyllis, saepius so-
litariis, compactiusculis, hemisphaerico-prominulis, fuligineo-rubigi-
nosis, 300-500 μ . diam.; uredosporis globosis, crassiuscule tunica-
tis, praecipue superne, levissimis, densissime granuloso-farctis, 20-
24 μ . diam., vivide aurantio-fuligineis.

Hab. ad folia, caules nec non bracteas florales Facelidis apiculatae, in aridis prope la Chacarita in Republica Argentina Americae australis.

49. **Uredo Festucae** DC. Fl. Franç. VI, p. 82, Winter Die Pilze p. 225. 3041
— Soris minutis, oblongis, inter plicas paginae superioris sitis; ure-
dosporis elongato-piriformibus, rufo-brunneis, dein atro-brunneis.

Hab. in foliis Festucae glaucae, in Gallia et Germania. — Species valde dubia, forte Ustilaginea.

50. **Uredo Fici** Cast. Cat. pl. Mars. II, p. 87, Speg. F. Guaran. I, 3042
n. 132, *Uredo Ficus* Rav. in F. Am. exs. n. 485, Hoffm. Ind.
p. 146. — Uredosporis globoso-obovatis vel cuneatis vel obovoi-
deis, 18-85 $\approx$ 12-22, minutissime verruculosus, ex hyalino luteolis,
intus minute granulosus.

Hab. in pagina inferiore foliorum Fici Caricæ, Belluno (SPEGGAZZINI), Licata Siciliæ (BELTRANI), in Carolina (RAVENEL), nec non pr. Villa Rica et Boca del Rachuelo Americæ australis (SPEGGAZZINI), Alger (TRUBUT) et Ramleh (THÜMEN) Africæ borealis. — Var. **guarapiensis** Speg. Fungi Guaranitici I, n. 133: maculis vix manifestis, amphigenis, indeterminatis, dilute pallescentibus; soris hypophyllis, numerosissimis, laxe gregariis, minutissimis, 50–80 μ . d., oculo nudo vix perspicuis, primo epidermide velatis, dein erumpentibus, flavescentibus; uredosporis globosis vel obovatis, 24–27 $\approx$ 20–24, episporio pro ratione tenui, ubique dense minuteque papilloso-verruculoso, subhyalinis vel dilutissime fulvis. In foliis vivis Fici ibapopy, in silvis prope Guarapi Americæ australis.

51. **Uredo ficicola** Speg. Fungi Guaranitici I, n. 134. — Maculis 30
hypophyllis, parvulis, 1–2 mm. diam., indeterminatis, parum manifestis, fuscescentibus; soris minutis, 150–180 μ . diam., solitariis vel 2–5 ad centrum macularum, aggregatis primo tectis dein erumpentibus, sordide fuscis; uredosporis globosis vel obovatis, 22–25 $\approx$ 18–20, episporio tenui, ubique dense valideque papilluloso-hirto, grosse guttulatis, fulvis.

Hab. ad folia viva Fici cujusdam, in silvis montosis pr. Peribebuy Americæ australis.

52. **Uredo flavidula** Winter in Hedwigia 1885, p. 260. — Soris ple- 30
rumque hypophyllis, folia juniora sæpe tota occupantibus, in foliis provectoribus maculicolis, dense gregariis, sæpe confluentibus, rotundatis, ellipsoideis vel irregularibus, minutis, primo epidermide albida velatis, demum erumpentibus epidermideque cinctis, pallide flavidulis; maculis sparsis v. confertis, sæpe confluentibus, fuscis, rotundato-irregularibus, indeterminatis usque ad 2 cm. latis; uredosporis subglobosis, piriformibus vel ellipsoideis, minutissime echinulatis, pallide flavidulis, 17–23 μ . diam. vel usque 28 μ . longis, 12–17,5 μ . latis.

Hab. in foliis vivis Myrtaceæ cujusdam pr. S. Francisco Brasilæ (ULE).

53. **Uredo Frankeniae** Mont. Canar., p. 90, Syll. crypt. n. 1164, Thüm. 30
Myc. Univ. n. 1934. — Hypophylla; soris hemisphæricis, epidermide sero disrumpente tectis; uredosporis fusco-brunneis, globosis, levibus.

Hab. in foliis Frankeniae pulverulentæ, in Canariis nec non pr. Sersena in Fajum Africæ (DESPRÉAUX).

54. **Uredo gaurina** Peck in Botan. Gazette 1879, p. 218 (*Trichobasis*). 30

— Soris paucis, sparsis, erumpentibus, obscure brunneis; uredosporis subglobosis vel ellipsoideis, 20-25 μ . longis, subtiliter rugulosis, plerumque nitentem sistenter continentibus.

Hab. in foliis *Gauræ coccinæ*, Colorado Americæ borealis (JONES).

55. **Uredo Glaucis** Rabenh. Krypt. Fl. I, p. 5, Winter Die Pilze 3017 p. 255. — Soris oblongis; uredosporis ellipticis, pedicello brevi donatis, rufo-brunneis, dein atro-brunneis.

Hab. in *Glaucæ maritima*, in Germania. — Species perdubia.

56. **Uredo glumarum** Rob. in Desm. Exs. fasc. III, n. 1477, Kickx 3048 Fl. Fland. II, p. 89, *Trichobasis glumarum* Lév. in Cooke Handb. n. 1582. — Soris minutis, rotundatis, convexulis, sparsis, dein confluentibus, læte aurantiaco-flavis; uredosporis globulosis v. subovoideis, sessilibus, episporio levi instructis.

Hab. in glumis *Zeæ Maydis*, in Belgio et Britannia.

57. **Uredo Gnaphalii** Speg. Dec. Myc. Arg. n. 19, Fung. Argentini 3049 pugillus IV, n. 77, Dec. myc. Argent. n. 19. — Maculis amphigenis, orbicularibus, minutis, 1-3 mm. diam., superne subviolaceo-fuscescentibus, inferne pallescentibus ac sæpe deficientibus; soris hypophyllis, sparsis v. concentrice aggregatis, erumpentibus parvulis 200-500 μ . diam., subcompactiusculis, pallide cinnamomeis; uredosporis globosis, levissimis, dense granuloso-fartis, 18-22 μ . diam., obscure fuligineo-aurantiis.

Hab. ad folia viva *Gnaphalii americani*, prope la Charita in Republica Argentina Americæ australis.

58. **Uredo guarapiensis** Speg. Fungi guaranitici I, n. 139. — Maculis 3050 parum manifestis, quandoque subnullis, quandoque latissimis, obscure determinatis, fuscescentibus; soris epiphyllis, minutis, 150-250 μ . diam., albescentibus v. pallide flavescentibus, dense gregariis, æcidioli spermogonia simulantibus, primo hemisphæricis tectis, dein lacero-erumpentibus; uredosporis subglobosis vel obovatis, 16-26 $\approx$ 13-20, antice obtuse rotundatis, postice subattenuato-truncatis, episporio subtenui, laxe grosseque papilluloso, subhyalinis.

Hab. ad folia viva *Rubiaceæ* cujusdam, in silvis pr. Guarapi Americæ australis. — Maculæ subpellucidæ sorique utrinque prominuli; species ob habitum mox distinguenda.

59. **Uredo Helianthellæ** Peck in Botan. Gazette 1882, p. 45 (*Tri-* 3051 *chobasis*). — Maculis pallide virescentibus; soris hypophyllis, numerosis, plerumque secus nervos congestis, rufescenti-brunneis; uredosporis globosis vel subglobosis, 30-35 μ . diam., uninucleatis.

Hab. in foliis vivis *Helianthellæ californicæ*, in California Americæ borealis (JONES).

60. **Uredo Helianthemii** Rabenh. in Flora 1850, p. 626. — Soris flavis, dein ferrugineis, hypophyllis; uredosporis rotundatis, dilute flavescenti-roseis, pallucidis, apiculo hyalino, episporio celluloso, nucleo granuloso, 18-20 μ . diam.

Hab. in foliis *Cisti* et *Helianthemii* imprimis *H. guttati*, Otranto et Gargano Italiæ.

61. **Uredo Helianthi** Schwein. Syn. Amer. bor. n. 291, n. 2828, (sub *Cœomate*) Speg. Fungi Argen. I, n. 46. — Maculis obliteratis; soris aggregatis, nudis, pulvinatis, densis, flavo-rubris, primo subsolidis, dein pulverulentis; uredosporis sphaeroideis vel subsphaeroideis, tenui tunicatis, muriculato-asperulis, granuloso-farctis, 1-2-guttulatis, 22-25 μ . diam., fulvo-ochraceis, pedicello hyalino, facillime secedente fultis.

Hab. in foliis vivis *Helianthi gigantei* et *Verbesinæ helianthoidis*, Bethlehem in Pennsylvania Amer. bor. (SCHWEINITZ) et in Republica Argentina Amer. australis (SPEGAZZINI).

62. **Uredo Holmbergii** Speg. Fungi Argentini pugillus IV, n. 79. — Maculis nullis; soris hypophyllis, sparsis, minutulis, 200-300 μ . d., erumpentibus, pulverulentis, cinnamomeis; uredosporis obovatis, 22-25 $\approx$ 18-20, amœne fulvis, episporio præcipue antice incrassatulo ac granuloso-muriculato, pedicello minuto, hyalino, mox secedente fultis.

Hab. in foliis vivis *Mitracarpî Sellowiani*, in uliginosis, Tigre (HOLMBERG), et Concordia del Uruguay (CISNEROS), in America australi.

63. **Uredo Holoschæni** Cast. Suppl. Cat. pl. Mars. p. 88. — Soris flavis, ovatis, epidermide subbullata, rumpente cinctis; uredosporis subrotundis, sessilibus.

Hab. in foliis *Scirpi Holoschæni*, sociâ sæpe *Darluca Filo* pr. Marseille Galliæ.

64. **Uredo Hydrangeæ** Berk. et Curt. Cat. p. 122 sine descriptione, Burrill Paras. Fungi of Illinois p. 219. — Hypophylla; maculis parvis, flavescentibus, plus minus confluentibus; soris minutis, sparsis; uredosporis obovatis, pedicellatis, 16-24 $\approx$ 12-18, subtiliter tuberculatis.

Hab. in foliis *Hydrangeæ arborescentis*, in Amer. boreali.

65. **Uredo Hypoëstis** Cooke in Grevillea X, p. 138 (*Trichobasis*). — Epiphylla; soris paucis, sparsis, fuscis, epidermide cinctis; ure-

dosporis subglobosis ovalibusve, 35-40 $\approx$ 32, fuscis, episporio spinuloso.

Hab. in foliis *Hypöestes aristatæ*, Inanda Natal (Wood).

66. **Uredo? Ilicis** Cast. Cat. pl. Mars. p. 209. — Hypophylla; maculis nullis; soris minutissimis, irregularibus, luteis; uredosporis magnis, globosis. 3058

Hab. in foliis *Quercus Ilicis*, pr. Marseille Galliae. — « Videtur *Uredini Quercus* Brondeau affinis ideoque verisimiliter generi *Melampsoræ* adscribenda ».

67. **Uredo involucrorum** Rabenh. Krypt. Fl. I, p. 7, Winter Die Pilze p. 255. — Soris rotundatis vel oblongis, mox denudatis; sporis plerumque ovatis, basi angustatis, brunneolis, demum sordide flavis. 3059

Hab. in involucris *Dipsaci pilosi* et *Knautiæ arvensis* in Germania. — Species dubia.

68. **Uredo Isiacæ** Thüm. in Grevillea VII, p. 50. — In foliis vaginisque soros maximos, latissime effusos, usque ad 6 cm. longos, et 1,5 cm. latos formans; soris ferrugineis, pulveraceis, primo tectis, demum liberis, inquinantibus; uredosporis ellipsoideis, utrinque æqui-rotundatis, episporio levi, crassissimo, dilute fuscidulis, 22-26 $\approx$ 16-20, episporio 5-6 μ . crasso. 3060

Hab. in foliis vaginisque vivis *Arundinis Isiacæ*, in piscina aquæ sulphurææ, ad Heluan pr. Cairo in Africa boreali.

69. **Uredo Janiphæ** Wint. in Grevillea XV, pag. 86 et in Hedwigia 1887, p. 167. — Soris solitariis gregariisve, plerumque hypo-, rarius etiam epiphyllis, sæpe ad petiolos ramulosque minores evolutis, ad folia maculis irregularibus rotundatisve, sæpe confluentibus, indeterminatis, fuligineis insidentibus, rotundatis vel angulatis, minutis, 0,5-1 mm. latis, ad nervos foliorum petiolos ramulosque juniores plus minusve elongatis, sæpe confluentibus, 5 mm. longis, primo ab epidermide pustulatim inflata, luteola velatis, mox autem nudis, applanatis, epidermidis fissæ fragmentis cinctis, pallide luteolis; uredosporis globosis vel ellipticis, interdum ovatis, dense minutissimeque aculeolatis, 28-29 $\approx$ 19-25, fuligineis. 3061

Hab. in foliis vivis *Jatrophæ Manihot*, in Brasilia (ULE).

70. **Uredo japonica** B. et C. North Pacif. Exped. n. 134. — Maculis orbicularibus; soris solitariis vel circinantibus; uredosporis ovatis, apiculo terminali hyalino; pedicello brevi, externa membrana evanescente. 3062

Hab. in foliis *Orchideaceæ?*, in Japonia.

71. **Uredo Jonesii** Peck Torr. Bot. Club, Vol. XII, n. 4, p. 36. — Soris hypophyllis, numerosis, orbicularibus, compactis, nitidis, aurantiacis, epidermide rupta cinctis; uredosporis subglobosis, rugulosis, 23–28 μ . latis, luteo-fulvis, demum pallidioribus.

Hab. in foliis Ribis, New Mexico Amer. borealis (JONES).

72. **Uredo iridicola** Peck in 24 Rep. of Stat. bot. p. 89, t. III, f. 17–19 (*Trichobasis*). — Soris amphigenis, rotundatis, ovalibus v. oblongis, raro linearibus, leniter elevatis, epidermidis ruptae fragmentis cinctis; uredosporis globosis, 25 μ . diam., subtiliter echinulatis, brunneis.

Hab. in foliis vivis languidisve Iridis versicoloris, Sandlake Americae borealis. — «An idem ac *U. Iridis* Schwein.?»

73. **Uredo Kleiniae** Mont. Syll. crypt. n. 1165. — Hypo-, rarius epiphylla; maculis nullis; soris sparsis confertisque, primo subrotundis, dein confluentibus, maximis, linearibus, flexuosis, aurantiacis, epidermide rupta, tandem involuta cinctis; uredosporis subglobosis, aurantiacis.

Hab. in utraque pagina foliorum Cacaliae Kleiniae, Teneriffa (WEBB et BERTHELOT).

74. **Uredo lathyrella** Speg. Fungi Argentini pugillus IV, n. 80. — Maculis nullis; soris saepius hypophyllis, sparsis, erumpentibus, pulverulentis, 200–450 μ . diam., pallide fulvo-badiis; uredosporis sphaericis, 22–25 μ . diam. episporio levissimo, vix superne incrassatulo, protoplasmate granuloso, amœne fulvo-fuligineis.

Hab. ad folia viva Lathyri pubescentis, in arenosis maritimis prope Cabo Corrientes in America australi.

75. **Uredo ledicola** Peck 25 Rep. St. Mus. p. 90. — Epiphylla; maculis parvis, determinatis, raro confluentibus, suborbicularibus, rufescenti-brunneis, obscure marginatis; soris subrotundatis vel irregularibus, epidermide rupta cinctis; uredosporis subglobosis, 30 μ . diam., aurantiacis, episporio ruguloso, hyalino, crasso donatis.

Hab. in foliis Ledi latifolii, in America boreali.

76. **Uredo Lupini** B. et C. F. North Pac. Exped. n. 137, Thüm. Myc. Univ. n. 852. — Hypo-epiphylla; maculis nullis; soris sparsis, irregularibus, epidermide rupta cinctis; uredosporis brunneolis, subglobosis, levibus.

Hab. in foliis Lupini, in California.

77. **Uredo Lynckii** Berk. in Gard. Chron. 1887, p. 25 (*Trichobasis*) Berk. et Br. Ann. Nat. Hist. n. 1706. — Maculis parvis, pallidis,

sparsis, raro confluentibus; uredosporis flavis, obovatis, breviter pedicellatis, eximie echinulatis.

Hab. in foliis *Spiranthes* ejusdam exoticæ, in Britannia.

78. **Uredo Gynandrearum** Corda Icon. Fung. III, p. 3, t. 1, f. 9. 9. 3070

— Maculis pallidis, fusciscentibus, irregularibus, diffusis vel nullis; soris bullatis, ovalibus, irregulariter positis; uredosporis coffeeiformibus, ovalibus, episporio albo, hyalino, tenuissime verrucoso, nucleo albo vel fusco, 16-22 μ . diam.

Hab. in foliis *Orchideæ* ejusdam, in Amer. australi (FIEBER).

79. **Uredo Amsoniæ** Cooke in Ravenel Fungi Americani exsiccati 3071

n. 489 (*Trichobasis*). — Soris hypophyllis, pulvinatis, flavis, sparsis vel gregariis; uredosporis globosis, sublevibus, chlorinis, 18-22 μ . diam.

Hab. in foliis *Amsoniæ*, in Carolina australi.

80. **Uredo Andromedæ** Cooke in Ravenel Fungi Americani exsiccati 3072

n. 747. — Soris hypophyllis, maculæ rotundatæ, brunneolæ insidentibus, gregariis, brunneo-cinnamomeis, pulvinatis; uredosporis e globoso angulatis, 14-18 μ . diam., sublevibus, episporio hyalino, siccis chlorinis.

Hab. in foliis *Andromedæ* nitidæ, Darien in Georgia Americæ borealis.

81. **Uredo Macluræ** Speg. Fungi guaranitici I, n. 141. — Maculis 3073

nullis; soris hypophyllis, sparsis vel hinc inde parce laxè aggregatis, minutis, 200-300 μ . diam., albedo-flavescentibus; uredosporis limoniformi-ellipticis vel obovatis, 14-30 $\approx$ 10-18, utrinque obtusiuscule rotundatis, episporio tenuissimo, minute denseque papilloso, nubiloso-farctis, fuscidulis vel chlorino-fulvellis.

Hab. ad folia viva *Macluræ* ucoræ, in silvis subvirgineis pr. Guarapi Amer. australis. — «Forte eadem ac *U. citrina* Cooke».

82. **Uredo macrosora** Peck in Botan. Gazette 1880, p. 35 (*Lecy-* 3074

thea). — Soris amphigenis, magnis, pulvinatis, flavis, epidermide rupta cinctis, sæpe gregariis vel confluentibus; uredosporis obovatis vel subglobosis, 15-20 μ . diam., rugulosis, paraphysibus levibus, capitatis, apice 25-28 μ . crasso.

Hab. in foliis vivis *Epilobii* tetragyni, Colorado Americæ borealis (BRANDEGE).

83. **Uredo macrosperma** Cooke in Grevillea VIII, pag. 71. — Hypo- 3075

phylla, sparsa; soris hemisphæricis, aurantiacis, demum pallescentibus; uredosporis sublanceolatis, utrinque obtusis, levibus, 45 $\approx$ 16-18.

Hab. in frondibus Pteridis, ad Natal Africae.

84. **Uredo malvicola** Speg. Fungi guaranitici I, n. 151. — Maculis nullis vel amphigenis, parum manifestis, parvulis, indeterminatis, superne fuscescentibus, inferne pallescentibus; soris laxè gregariis v. sparsis, hypophyllis, minutis, 120-150 μ . diam., pulverulentis, lateritiis, ab indumento foliorum suboccultatis; uredosporis globosis vel obovatis, 15-18 μ . diam., episporio modicè incrassato, minute densissimeque papilloso, protoplasmate oleoso-guttulato farctis, pallide fulvis.

Hab. in foliis vivis Abutilonis ejusdam, in dumetis collinis Cerro Hu pr. Paraguari Americæ australis.

85. **Uredo Marrubii** Rabenh. in Flora 1850, p. 626. — Maculis sorisve irregulariter sparsis, læte aureis; uredosporis ovatis, ellipticis vel angulatis, flavescentibus, 25 μ . diam., subtiliter granulatis.

Hab. in foliis Marrubii, in Italia.

86. **Uredo Microcelis** Mont. Syll. Crypt. n. 1167, l. c. pag. 91. — Amphigena; maculis orbicularibus diametro æquantibus brunneis; soris punctiformibus, 1 mm. circ. d., epidermide primo tectis, tandem apice rupto luteo-croceis; uredosporis conformibus, subglobosis.

Hab. in foliis Statices macrophyllæ, in Canariis (WEBB).

87. **Uredo Moreæ** Kalchbr. in Grevillea XI, p. 24. — Soris epiphyllis, ellipsoideis, rima longitudinali dehiscentibus, epidermide pallide flava cinctis; uredosporis globosis, 18-20 μ . diam., flavo-fusculis.

Hab. in foliis vivis Moreæ gracilis, ad Somerset East Africae australis.

88. **Uredo Muelleri** Schroet. Pilz. Schles. p. 375, *Uredo acidoides* I. Müll. in Bull. Soc. Bot. Fr. 1886, pag. 104, non DC. nec Peck. — Amphigena; soris minutis, aureo-flavis, secus annulos 1 mm. latos medio plerumque spermogonium gerentes confluentibus; uredosporis solitarie evolutis, plerumque globosis, 18,9 μ . diam., episporio subtiliter breviterque echinulato, aurantiaco-rufis.

Hab. in foliis Rubi fruticosi, in Silesia. — Sporulæ ellipsoideæ, circ. 2 μ . longæ.

89. **Uredo neurophila** Speg. Fungi guaranitici I, n. 143. — Maculis nullis vel parvulis, pallescentibus, indeterminatis; soris minutissimis vix perspicuis, 50-60 μ . diam., hypophyllis, hinc inde densiuscule gregariis, præcipue secus nervos tertiarios, maculam aurantiacam, pulverulentam mentientibus; uredosporis ellipticis vel globoso-obovatis, 15-18 μ . diam., episporio præcipue antice valde incrassato.

ubique irregulariter ruguloso subpapilloso, protoplasmate nubiloso farctis, ex hyalino dilute fulvellis.

Hab. ad folia viva Myrtaceæ ejusdam, in silvaticis pr Villa Rica Americæ australis.

90. **Uredo Oxalidis** Lév. in Ann. Scienc. Nat. 1841, p. 240, Speg. F. 3082 Argent. II, n. 81, *Uredo Oxalidcarum* Cooke in Grevillea X, p. 123. — Hypophylla; soris sparsis, punctiformibus, fuscis, epidermide rupta cinctis, macula albo-flavescente circumscriptis, pulverulentis; uredosporis globosis, levibus, nebulosis, centro subopacis, 15-20 μ . diam., pedicellatis.

Hab. in foliis Oxalidis strictæ, corniculatæ et Martianæ, prope Nivernum (LÉVEILLÉ), pr. Caracas (Dr. ERNST), et Buenos-Ayres Argentinae (SPEGAZZINI). — Sori minuti, 1-2 mm. d., uredosporæ crassiuscule tunicatæ, protoplasmate grosse granuloso, aureo foetæ. « Videtur *Æcidio Oxalidis* Thüm. cognata et potius generi *Uromyceti* adscribenda. »

91. **Uredo Oxytropidis** Peck in Botan. Gazette 1879, p. 218 (*Trichobasis*). 3083 — Maculis nullis; soris sparsis vel gregariis, amphigenis, rufescenti-brunneis; uredosporis obovatis vel late ellipticis, minute rugulosis, 25 $\approx$ 18.

Hab. in foliis Oxytropidis Lamberti, Colorado Americæ borealis (BRANDEGEE).

92. **Uredo Palmarum** Cooke in Grevillea V, p. 102, t. 86, f. 9 (*Trichobasis*). 3084 — Epiphylla; soris minutis, in maculis decoloratis, fuscis; uredosporis globosis, verrucosis, fuscis, 35-40 μ . diam., ad basim hyalino-apiculatis.

Hab. in foliis Cocos nuciferæ, Demerara Amer. australis.

93. **Uredo Pamparum** Speg. Fungi Argentini pugillus I, n. 51, Dec. 3085 Myc. Argent. n. 20. — Hypophylla, macula nulla; soris minutis, 200-350 μ . diam., prominulis, sparsis v. inordinate gregariis, pulverulentis, atro-ochraceis; uredosporis crassiuscule tunicatis, subsphæroideis, primo hyalinis, protoplasmate flavo-aurantiaco foetis dein fulvo-ochraceis, 20-26 μ . diam., non vel vix minutissime asperulis.

Hab. ad folia viva Rhynchosia, in Republica Argentina Americæ australis. — Forma **major**: *Uredo pamparum* Speg. F. Argent. IV, n. 82. Forma præsens nonnihil a typo differt soris prominulis, compactiusculis, majoribus, 0,5-1 mm. diam., diu epidermide cinerescenti tectis, dein erumpentibus, hypophyllis, atro-cinnamomeis; uredosporis sphæroideis, v. ovatis, 24-25 μ . diam. evidenter

sed minute papilloso-granulatis, crassiuscule tunicatis, saturate fulvo-fuligineis. Ad folia viva *Rhynchosia* speciei cujusdam majoris pr. Chacabuco (F. LYNCH-ARRIBALZAGA).

94. **Uredo paraguariensis** Speg. Fungi guaranitici I, n. 145. — Maculis amphigenis, suborbicularibus, definitis, subparvulis, 1-2 mm. diam., pallescentibus vel obscure virescentibus; soris hypophyllis, subminutis, 250-300 μ . diam., solitariis, centro macularum insidentibus, pallide fulvescentibus; uredosporis ellipticis vel e mutua pressione subirregularibus, utrinque late rotundato-subtruncatis, 20-24 $\approx$ 15-20, episporio tenui, ubique dense et minutissime (subimperspicue) rugoso-striatis, protoplasmate nubiloso fartis, subhyalinis.

Hab. ad folia viva *Monesia* cujusdam, in collinis Cerro Hu prope Paraguari in America australi.

95. **Uredo peribebuyensis** Speg. Fungi guaranitici I, n. 146. — Maculis vix manifestis, amphigenis, pallescentibus, indeterminatis; soris hypophyllis, rarissime epiphyllis, laxe gregariis, primo tectis, dein erumpentibus, pulchre aurantiacis vel pallide miniatis, submajusculis, 500 μ . ad 1 mm. diam., sæpeque confluentibus; uredosporis globosis vel globoso-obovatis, 18-24 $\approx$ 16-20, episporio pro ratione tenui, obscure subdenseque punctulato-asperulo, protoplasmate guttulato-oleoso fartis, aurantiacis, pedicello nullo v. brevissimo, crassiusculo, hyalino.

Hab. ad folia viva *Monnina* cujusdam, in montuosis Cordillera de Peribebuy Americae australis.

96. **Uredo Petroselini** DC. Fl. Fr. II, p. 597, *Trichobasis Petroselini* Berk. Outl. p. 332, *Uredo acidiiformis* Grev. Fl. Ed. p. 411. — Maculis flavescens; soris subrotundatis vel ovalibus, confluentibus, amphigenis, epidermide demum rupta; uredosporis globosis vel subglobosis, subinde obsolete pedicellatis, pallide flavescens.

Hab. in foliis Umbelliferarum, imprimis *Smyrnia*, Scandicis etc., in Gallia et Britannia. — Forte *Puccinia Smyrnia* status uredosporus. «Cfr. etiam *Cyoma Aegopodii* Wint.»

97. **Uredo? peziziformis** Berk. et Curt. F. North Pacif. Exped. n. 140 (*Lecythia*). — Hypophylla; soris minutis, peziziformibus, extus albis, intus fuscis; uredosporis obovatis, echinulatis.

Hab. in foliis plantæ ignotæ, ad Nicaragua.

98. **Uredo Phillyrea** Cooke F. brit. exsicc. I, n. 592, Thüm. Myc. Univ. n. 1142 et 1935, Winter Die Pilze p. 251, *Cyoma Phil-*

lyreæ Thüm et Bagn. in Erb. Critt. lt. II, n. 729. — Maculis rotundis, luteis; soris solitariis in maculae centro seu gregariis secus circulos dispositis, aurantiacis, primo epidermide tectis, demum liberis; uredosporis obovato-globosis vel plerumque ellipticis, sublevibus, subtilissime spinulosis, epedicellatis, aurantiacis, 17-28 $\times$ 12-16, episporio subcrasso, hyalino.

Hab. in foliis vivis *Phillyreæ* mediae, in Italia (BAGNIS), Britannia (COOKE, FLOWRIGHT), Germania (WINTER) et Algeria (TRABUT).

99. **Uredo Phyllariæ** Cast. Cat. pl. Mars. p. 210 (*U. Phillyreæ*?). — 3091
Hypophylla; maculis flavo-fuscis, late emarginatis; soris minimis, sparsis, flavo-aurantiacis; uredosporis magnis, globosis, sessilibus, dilute flavis.

Hab. in foliis *Phyllariæ* (?) angustifoliae, prope Marseille Galliae.

100. **Uredo planiuscula** Mont. Fl. Chil. VIII, pag. 51, Syll. Crypt. 3092
n. 1168. — Amphigena; macula nulla; soris sparsis, minutis, epidermide primo tectis, tandem denudatis, planiusculis, pallidis; uredosporis globosis, ochraceis, episporio crasso, levi praeditis.

Hab. in foliis *Rumicis* indeterminati, in Chile Americae australis (GAY).

101. **Uredo Plantaginis** B. et Br. in Grevillea 1881, p. 48. — Macu- 3093
lis pallidis; soris minutis, mox apice ruptis; uredosporis ellipticis, flavis.

Hab. in foliis *Plantaginis* lanceolatae, in Britannia.

102. **Uredo Poæ-sudeticae** West. in Bull. Ac. Roy. Belg. II, t. XI, 3094
n. 6, Herb. crypt. belg. n. 1268 nec *Uredo Poæ* Rabenh. — Maculis pallide brunneolis vel vinosis, solitariis vel confluentibus elongatis; soris brunneis, elongatis, bullatis, epidermide longitudinaliter fissa subtectis; uredosporis brunneis, centralibus globulosis v. ovoideis, periphericis piriformibus, longe pedicellatis.

Hab. in foliis *Poæ* sudeticae, Luxemburg (CRÉPIN), Belgio (WESTENDORP).

103. **Uredo Polygalæ** Kalchbr. in Grevillea XI, p. 25. — Soris hy- 3095
pophyllis, sparsis confluentibusve, subprominulis, primum epidermide tectis, ochraceis, maculae flavae innatis; uredosporis ovato-rotundis, 15-18 μ . diam., episporio crasso, levi, flavis.

Hab. in foliis vivis *Polygalæ* Ohlendorffianae, pr. Somerset East Africae australis.

104. **Uredo Polypodii** (Pers.) DC. Fl. Franc. VI, p. 81, Winter Die 3096

Pilze p. 253, Schroet. Pilz. Schles. p. 374, *Uredo linearis* var. *Polypodii* Pers. Syn. Fung. p. 217, *Cavoma filicum* Link Sp. II, p. 36, *Uredo Aspidii* Poll. in Giorn. Fis. 9, p. 182, *Uredo Aspidiotus* Peck in 24 Rep. St. Mus. p. 88 (sec. Winter), *Uredo filicum* Desm. Exs. n. 530, *Pucciniastrum? Filicum* Karst. M. F. *Uredo globoso-flava* Bonord. Coniom. p. 31. — Soris rotundatis vel oblongis, primo epidermide bullata tectis, dein erumpentia apertis confluentibusque, aurantiaco-rufis, hypophyllis; uredosporis ellipticis vel ovoideis, 24-28 $\approx$ 13-20, episporio hyalino, inæqualiter crasso, vertice punctulato, ceterum levi, intus aurantiaco-rufescentibus.

Hab. in frondibus *Phegopteridis* *Dryopteridis*, *Cystopteridis* fragilis, *Aspidii* capensis, *Adianti* Capilliveneris, *Scolopendrii* officinarum, in Britannia, Italia, Germania, Bohemia, Austria, Belgio, Fennia, America boreali et Africa australi. — Forte huc pertinet *Cavoma nervisequum* Thüm. et absque dubio *Erysibe Filicum* var. *macrospora* Wallr. Fl. Crypt. Germ. II, p. 206. Forma *Phegopteris* Wint. Die Pilze p. 253, *Protomyces filicinus* Niessl in Rabenh. F. E. n. 1659, *Pucciniastrum? Filicum* Speg. Dec. myc. n. 63 bis. — Uredosporis plerumque angulatis, 17-30 μ . longis, isodiametricis vel plus minus elongatis, vix punctulatis. In *Phegopteride* polypodioides, in Germania et Italia.

105. **Uredo Pontederiæ** Speg. Fungi Argentini pugillus I, n. 49, Dec. 3 myc. Argent. n. 26. — Amphigena; maculis verticaliter ellipticis vel elliptico-elongatis, intense purpurascentibus; soris elongatis, primo tectis, dein erumpentibus, compactiusculis, 1-3 mm. longis, 0,5-1 mm. latis, fulvo-ochraceis; uredosporis subsphæroideis, episporio tenui, sæpe sursum incrassato, 28-30 μ . diam., granuloso-faretis vel uniguttulatis, fulvo-fuligineis.

Hab. ad folia *Pontederiæ* sagittatæ, in paludosis secus Rio de la Plata in Republica Argentina Americæ australis.

106. **Uredo Pruni** Cast. Obs. I, p. 27, Cat. pl. Mars. p. 212 vix Mont. 3 — Maculis flavis, rotundatis, hypophyllis, subinde confluentibus; soris rotundatis, numerosis, minutis, albido-marginatis; uredosporis subovatis, sessilibus, raro pedicellatis, flavis.

Hab. in foliis *Pruni*, *Amygdali* etc., pr. Marseille Galliæ. — «Cfr. *Pucciniam Pruni* Pers. n. 2252».

107. **Uredo punctoidea** Cooke in Grevillea III, p. 75. — Hypophylla, secus greges irregulares a venis folii circumscriptos disposita;

soris minutis, punctiformibus, primo subhemisphæricis, dein sursum ruptis; uredosporis subglobosis vel ovatis, tuberculatis, aurantiacis.

Hab. in foliis pinnatis fruticis Leguminosæ ejusdam, ad Hymalaya Asiæ.

108. **Uredo Pycnostachydis** Kalchbr. in Grevillea XI, p. 25. — So- 3100
ris hypophyllis, sparsis, minutis, prominulis, dilute ochraceis; uredosporis sphaeroideis et difformibus, 20-30 μ . diam. granulatis, flavidis.

Hab. in foliis Pycnostachydis reticulatæ, ad P. Natal, Inanda Africæ.

109. **Uredo Rhagodiæ** Cooke et Masee in Grevillea XV, pag. 99. — 3101
Hypophylla; soris sparsis, bullatis, diu tectis, demum laceratis, fuscis, epidermide cinctis; uredosporis globoso-ovatis, levibus, flavescens, 20 $\approx$ 15.

Hab. in foliis Rhagodiæ Billardieri, in Australia (WATT).

110. **Uredo rhombica** Speg. Fungi guaranitici I, n. 149. — Maculis 3102
nullis vel parvis, indeterminatis, pallescentibus; soris hypophyllis, sparsis vel laxe usque ad 5 gregariis, minutis, 200-400 μ . diam., testaceis; uredosporis elliptico-limoniformibus vel elliptico-rhomboides, utrinque obtusiusculis, 25 $\approx$ 15-20, episporio antice satis incrassato, ubique dense minuteque verruculoso-hirto, intus grosse unguitulatis, nubilosis, fulvis.

Hab. ad folia viva Astronii juglandifolii, in montanis Cordillera de Peribebuy Americæ australis.

111. **Uredo ribicola** C. et E. in Grevillea VI, p. 86. — Hypophylla; 3103
soris subglobosis, flaveolis, epidermide cinctis; uredosporis globosis, asperulis, 20-22 μ . diam.

Hab. in foliis Ribis, Rocky Mountains Amer. bor.

112. **Uredo Ruelliæ** B. et Br. Fungi of Ceylon n. 830. — Soris hy- 3104
pophyllis, sparsis, brunneis; uredosporis globosis, fortiter echinulatis, 25 μ . diam.

Hab. in foliis Ruelliæ prostratæ, in insula Ceylon.

113. **Uredo Scabies** Cooke in Grevillea XV, p. 18. — Epi- vel hy- 3105
pophylla; maculis bullatis, irregularibus, linea nigra cinctis; soris convexis, diu clausis, nitidis, demum fissis, in maculis sparsis vel concentricis dispositis; uredosporis ovalibus vel turbinatis, breviter pedicellatis, fuscis, episporio asperulo, 35-40 $\approx$ 28-30.

Hab. in foliis vivis Vanilla, ad Antioquia in Columbia (C. PATIN).

114. **Uredo? Scirpi** Cast. Cat. pl. Mars. p. 214. — *Amphigena*; maculis flavescentibus; soris seriatim elongatis, atris, raro confluentibus, epidermide rupta cinctis; uredosporis ovato-prismaticis, longe stipitatis, brunneis.

Hab. in foliis *Scirpi maritimi*, prope Marseille Galliae. — «Species perdubia, verisimiliter generi *Ustilagini* adscribenda».

115. **Uredo Scolopendrii** (Fuck.) Schroet. Pilz. Schles. p. 374, *Ascospora Scolopendrii* Fuck. Symb. myc. II App. p. 19, *Æcidium Scolopendrii* Oudem. sec. Schroet. l. c., *Uredo Polypodii* Wint. p. p. — Soris minutis, pustuliformibus, primo aqueose albidis, dein candidis, in maculis irregulariter limitatis, brunneolis dispositis, hypophyllis, pseudoperidio hemisphaerico, apice pertuso tectis; uredosporis ellipticis, ovatis v. clavatis, 30–38 $\times$ 17–20, episporio hyalino ubique aculeolato donatis, intus hyalinis.

Hab. in frondibus *Scolopendrii officinarum*, *Asplenii Rutæ-murariæ* et *Blechni*, in Germania et Neerlandia. — Forte *Melampsoræ* status uredosporus. Sec. Fuckel uredosporæ 48 $\approx$ 24.

116. **Uredo Sebastianæ** Wint. in Hedwigia 1887, pag. 12. — Soris plerumque hypophyllis, rarius etiam epiphyllis, haud raro ad petiolos ramulosque juniores, gregariis, sæpe confluentibus et folium totum occupantibus, magnis, primo rotundatis seu ellipsoideis, demum irregularibus flexuosis sinuosisque, ab initio epidermide vesiculose inflata velatis, mox autem erumpentibus et ab epidermidis fissæ laciniis cinctis, intense subaurantiaco-flavidis; uredosporis subglobosis seu irregulari-ellipsoideis vel ovatis, verruculis acutis, minutis dense obsitis, oleo flavido-aurantio repletis, 14–18 μ . diam. vel usque ad 25 μ . longis, 14–16 μ . latis.

Hab. in foliis, petiolis ramulisque junioribus vivis *Sebastianæ* cujusdam, prope Montevideo Uruguay Americæ australis (*ARCHAULETA*).

117. **Uredo sonchina** Thüm. in N. Giorn. botan. italiano p. 197. — Soris amphigenis, dense gregariis, parvis, subplanis, liberis, fuscis vel spadiceis, pulveraceis; uredosporis aut globoso-ovatis aut rotundato-ellipsoideis, episporio obsolete punctulato, tenui, 25–32 μ . diam., fuscidulis; paraphysibus nullis.

Hab. ad folia viva *Sonchi arvensis*, Ufa Orenburg.

118. **Uredo speciosa** Peck in Botan. Gazette 1878, p. 31 (*Lecythæa*). — Maculis suborbicularibus, 2–5 mm. diam., flavis; soris paucis, gregariis, prominentibus, aurantiacis, hypophyllis; paraphysibus

elongatis, incurvis, obtusis, subcylindraceis; uredosporis subglobosis ollipticisve 25-30 μ . longis, rugulosis, læte aurantiacis.

Hab. in foliis vivis Rubi deliciosi, in America boreali. — «Verisimiliter *Phragmidii* cujusdam status uredosporus».

119. **Uredo Spyridii** Cooke et Massee in *Grevillea* XV, p. 99. — Hy- 3111
pophylla; soris sparsis, flavescentibus, pulverulentis; uredosporis subglobosis, pallide flavidis, asperulis, 20-25 μ . diam.

Hab. in foliis *Spyridii* parvifolii, in Australia (Watt).

120. **Uredo Statices** Berk. et Curt. North Pacific Exped. Fungi 3112
n. 135 vix Desm. — Hypo-epiphylla; soris amplis, concentricis, epidermide cinctis; uredosporis obtusissimis.

Hab. in foliis *Statices*, in California Amer. bor. — «Cfr. *Uromyctem Limonii* Lév. n. 1922».

121. **Uredo subneurophila** Speg. Fungi guaranitici I, n. 144. — Ma- 3113
culis nullis; soris hypophyllis, minutissimis ac vix perspicuis, 60-80 μ . diam., hinc inde densiuscule gregariis, præcipue secus nervos secundarios et tertiarios, maculas aurantiacas pulverulentas mentientibus; uredosporis globosis, 15-18 μ . diam., episporio hyalino, pro ratione tenui, laxè submajusculè verruculoso, protoplasmate guttulado-oleoso, aureo vel luteo faretis.

Hab. ad folia viva *Psidii* cujusdam, in silvis montanis Cordillera de Peribebuy in America australi. — Species externa facie *U. neurophila* Speg. simillima.

122. **Uredo Symphyti** DC. *Encycl.* VIII, pag. 232, Rabenh. F. E. 3114
n. 2187, Winter Die Pilze p. 255, Schroet. Pilz. Schles. p. 374, *Trichobasis Symphyti* Lév. in *Ann. Scienc. Nat.* 1847, Cooke *Handb.* n. 1583, *Coleosporium Symphyti* Fuck. *Kickx Fl. Fl.* II, p. 88. — Soris minutis, numerosissimis, sparsis, dein confluentibus, rotundatis, epidermide rupta subcinctis, hypophyllis, aurantiaco-flavis; uredosporis rotundatis, ellipticis vel ovatis, aculeolatis, 22-35 $\approx$ 15-24, dilute aurantiaco-rufescentibus.

Hab. in foliis *Symphyti* officinalis, tuberosi, bulbosi et taurici, in Italia, Gallia, Britannia, Belgio, Austria, Hungaria, Neerlandia, Germania. — In caule folioque sæpius strias latiusculas efformat.

123. **Uredo Tephrosiæ** Rabenh. in *Fungi Europæi* n. 2375 (absque 3115
diagnosi).

Hab. in *Tephrosia* purpurea, in India orientali. — «An *Raveneliæ* cujusdam status uredosporus?»

124. **Uredo Tessariæ** Speg. *Fungi Argentini* pugillus IV, n. 85. — 3116

Soris ellipticis vel confluentibus, linearibus, 0,5-1,5 mm. long., 0,2-0,3 mm. lat., longitudinalibus, densiuscule sparsis, erumpentibus, non vel vix exserto-prominulis, fulvo-cinnamomeis; uredosporis globosis v. ellipticis, sursum plus minusve obtusatis, 32-38 $\approx$ 24-25, episporio antice sparse muriculato, vix incrassatulo, amœne fuliginosis, pedicello mox diffuente, brevi suffultis.

Hab. in caulibus Tessariæ absinthioidis, in montuosis «Cordillera de la Rioja», prope la Vega del Jaguel Americæ australis (Dr. Hieronymus).

125. **Uredo Thermopsisidis** Thüm. in Bull. Soc. Natur. de Moscou 1877, p. 139, Mycoth. univ. n. 1042. — Soris hyporaro etiam epiphyllis, orbiculatis, sparsis, liberis, fuscis, epidermide circumdati; uredosporis ovatis, nucleolatis, episporio tenui, levi, dilute fuscis, 22-25 $\approx$ 18-20, paraphysibus nullis.

Hab. ad folia viva Thermopsisidis lanceolatae, prope Minussinsk Sibiriae occidentalis (N. Martianoff).

126. **Uredo tordillensis** Speg. Fungi Argentini pugillus IV, n. 86. — Maculis nullis vel tantum epiphyllis, subcyaneo-fuscescentibus, minutis, indeterminatis; soris hypophyllis, primo epidermide tectis, dein erumpentibus eaque fissa cinctis, 0,3-0,5 mm. diam., plus minusve compactis, fulvo-lateritiis; uredosporis globosis vel ovoideis, 18-20 μ . diam., episporio crassiusculo ac minute verruculoso praecipue ad verticem, pulchre fulvo-fuliginosis, pedicello longiusculo, mox secedenti, subclavulato, hyalino fultis.

Hab. in foliis Euphorbiae hypericifoliae et repentis, in provincia Tucuman et ad ripas lacunae subsalsae, Rincon de Fierro, Silva Tordillo Amer. australis (Dr. Lorentz et Hieronymus).

127. **Uredo Tropaeoli** Desm. in Ann. Scienc. Nat. 1836, p. 243, Cooke Handb. n. 1578, West. Herb. belg. n. 839. — Hypophylla; maculis pallide flavescentibus; soris minutis, sparsis vel confluentibus; uredosporis ovoideis vel subglobosis, aurantiacis.

Hab. in foliis Tropaeolorum, in Gallia, Belgio et Britannia.

128. **Uredo valenzueliana** Speg. Fungi guaranitici I, n. 152. — Maculis nullis vel parum manifestis, indeterminatis, pallescentibus saepeque totum folium occupantibus; soris hypophyllis, laxe gregariis vel sparsis, minutis 250-300 μ . diam., tumidulis, primo tectis, dein erumpentibus, testaceo-fusculis; uredosporis globoso-ovatis vel e mutua pressione subirregularibus, 20-25 $\approx$ 13-16, episporio modicissime incrassato, levi vel vix superne laxe minutissimeque granuloso, nubiloso-farctis, pallide fulvo-melleis.

Hab. ad folia viva *Metastelmatis* diffusi, in dumetis inter Valenzuela et Paraguay Americæ australis. — Paraphyses periphericæ, elongato-subteretes, arcuato-incurvæ, apice subattenuato-rotundatæ, basi truncatæ, $20 \approx 7-8$, dense constipatæ, ex hyalino subchlorino-melleæ.

129. **Uredo Vitis** Thüm. Pilze des Weinstockes p. 182. — Soris hy- 3121
pophyllis, dense gregariis, nonnunquam in maculis fuscis sed plerumque sine maculis, in foliorum pagina superiore maculas parvas, stramineas formantibus, hemisphæricis, solitariis, nunquam confluentibus, duris, pallide aurantiaco-flavis (tamen in speciminibus exsiccatis), minutis, solidis; uredosporis guttuliformibus aut globosis, 15μ . diam., aut ovatis, $20 \approx 14$, aut ellipsoideis, $22 \approx 12-15$, subpedicellatis, basi propagulatis, dilutissime lutescentibus, episporio levi, crasso, inæquali, plerumque vertice crassissimo.

Hab. in foliis vivis vel sublanguidis *Vitis viniferæ*, Aiken Carolinæ australis (H. W. RAVENEL).

130. **Uredo Wyethiæ** Peck in Botan. Gazette 1882, p. 45 (*Tricho-* 3122
basis). — Maculis nullis; soris punctiformibus, numerosis, plerumque totam inferiorem folii paginam occupantibus, rufescenti-brunneis; uredosporis subglobosis lateve ellipticis, $30-40 \approx 20-30$.

Hab. in foliis vivis *Wyethiæ angustifoliæ*, Colorado Americæ borealis (BRANDEGEE).

131. **Uredo Zehneriæ** Thüm. Fungi austro-africani n. 83. — Soris 3123
hypophyllis, sparsis, interdum confluentibus, sæpe secus orbem dispositis, epidermide expallescens tectis, dein erumpentibus, mediis, planis, rufo-fuscis; uredosporis plus minusve globosis, plerumque basi subacuminatis, levibus, dilute brunneis, episporio tenui, 25μ . diam.

Hab. in foliis languidis *Zehneriæ scabræ*, juxta «Cookhuis Drift» Klyn Visch Rivier, Promont. Bonæ Spei Africae australis (P. MAC-OWAN).

Subgenus *Cæoma* Link. Sporæ (uredosporæ?) subcatenulatæ.

132. **U. Cæoma Chelidonii** Schwein. Syn. Amer. bor. p. 291, n. 2851, 3124
Magnus in Hedwigia 1875, p. 20, Winter Die Pilze p. 259, Schroet. Pilz. Schles. p. 376. — Spermogoniis orbiculatis, planis, flavidis, secus parvos greges congestis; soris rotundatis, plerumque orbiculatim dispositis, flavo-rufis, epidermide lacerata cinctis, maculis pallidis, sæpe brunneo-marginatis; sporis globosis vel ellipticis, subangulatis, $16-23 \approx 12-20$, subtiliter punctatis, aurantiaco-flavis.

Hab. in foliis Chelidonii majoris, in Germania et prope New York Americæ borealis (SCHWEINITZ).

133. **U. Cæoma Fumariæ** Link Sp. II, p. 24, Winter Die Pilze pag. 259, Schroet. Pilz. Schles. p. 376, *Uredo Fumariæ* Rabenh. D. Krypt. Fl. n. 54, *Uredo confluens Fumariæ* Kunze mscr. — Spermogoniis explanatis, orbiculatis, secus parvos greges dispositis, flavescentibus; soris plerumque irregularibus, explanatis, aurantiaco-rufescentibus, raro solitariis v. sine ordine sparsis, plerumque secus lineas ellipticas vel orbiculariter dispositis, sæpe confluentibus, maculis 1 cm. et ultra longis; sporis catenulatis, sphæroideis vel oblongis, subinde angulatis, 14-22 $\approx$ 10-17, subtiliter verruculosi, aurantiaco-rufis.

Hab. in Corydali cava, intermedia, fabacea, in Germania.

134. **U. Cæoma confluens** (Pers.) Schroet. Pilz. Schles. pag. 376, *Uredo confluens* Pers. et var. *Ribis alpini* Pers. Syn. pag. 214, *Cæoma Ribis-alpini* Wint. Die Pilze p. 258, *Cæoma Ribesii* Link Sp. II, pag. 28, p. p. — Spermogoniis explanatis, flavidis, orbiculatis, parce gregariis, soris rotundatis, ellipticis vel irregularibus, planis, solitariis vel sine ordine, sæpe orbiculariter in greges congestis, haud raro confluentibus, dilute aurantiacis; sporis catenulatis, rotundatis vel ellipticis, sæpe subangulatis, 16-30 $\approx$ 13-18, subtiliter denseque punctato-verruculosi, aurantiaco-rufuli.

Hab. in foliis Ribis Grossulariæ, alpini, rubri, nigri, atropurpurei, in Germania Sibiria asiatica.

135. **U. Cæoma Saxifragarum** (DC.) Schlecht. Fl. Berol. II, p. 121, Schroet. Pilzfl. Schles. p. 375, *Uredo Saxifragarum* DC. Fl. Franc. VI, p. 87, Cooke Handb. n. 1568, *Cæoma Saxifragæ* Wint. Die Pilze p. 258, *Uredo polymorpha* var. *Saxifragæ* Strauss in Wett. Ann. II, pag. 87, *Erysibe polymorpha* var. *d.* Wallr. Fl. Crypt. Germ. II, p. 197. — Spermogoniis sparsis, flavidis, explanatis; soris minutis, orbiculatis vel ellipticis, solitariis vel per totam folii superficiem sparsis, subaurantiacis; sporis catenulatis, rotundatis, 17-28 μ . diam., subtiliter verrucosis, aurantiaco-flavis.

Hab. in foliis Saxifragæ aizoidis, moschatae, granulatae, in Gallia, Austria, Germania, Britannia. — Forte *Melampusora vernalis* Niessl forma æcidiospora, suadente cl. Schroeter.

136. **U. Cæoma Laricis** (Westend.) Hartig Wicht. Krankh. der Waldbäume p. 93, Phil. et Plowr. in Grev. XIII, p. 73, Winter Die Pilze p. 256, *Uredo Laricis* West. 7 Notice n. 34. — Soris angustis,

500 μ . ad 5 mm. longis, maculae flavae insidentibus, epidermide lacerata, albida cinctis; sporis rotundatis vel ellipticis, saepe subangulatis, 16-24 $\approx$ 12-17, subtiliter verrucosis, aurantiaco-flavis.

Hab. in Pino Laricio, in Belgio, Britannia et Germania. — Ad peripheriam sori exstant cellulae numerosae, clavatae, subvacuae. Spermogonia globosa.

137. **U. Cæoma Ligustri** (Rabenh.) Wint. Die Pilze p. 258, *Uredo Li-* 3129
gustri Rabenh. Krypt. Fl. I, p. 8. — Soris rotundatis vel irregularibus, plano-convexis, siccitate pallide flavido-brunneis, sine ordine vel circinatum in greges rotundatos maculae flavescenti insidentes congestis, saepe confluentibus; sporis rotundatis vel late ellipticis, plerumque leniter angulatis, 20-30 $\approx$ 17-23, subtilissime verruculosi, fere hyalini.

Hab. in Ligustro vulgari, in Germania.

138. **U. Cæoma superficialis** Speg. Fungi guaranitici I, n. 129. — Ma- 3130
 culis nullis; soris minutissimis, 50-60 μ . diam., densiuscule sparsis, pulvisculum pallide fulvescentem simulantibus, superficialibus; sporis globosis v. ovatis, 22-25 $\approx$ 20-24, episporio tenui, laxissime verruculoso-asperulo donatis, hyalini vel vix fulvescentibus.

Hab. ad folia viva Blechni cujusdam in silvis prope Mbatobi Americae australis.

139. **U. Cæoma mbatobiensis** Speg. Fungi guaranitici I, n. 128. — Ma- 3131
 culis nullis; soris minutissimis, 50-80 μ . diam., hypophyllis, sparsis v. saepius secus nervum primarium irregulariter laxaque aggregatis, pallidissime fulvis, subpulverulentis; sporis globosis vel subhemisphaericis (in sicco) majusculis, 15-28 μ . diam., episporio ubique crassissimo, 3-5 crasso, laxe verruculoso-papilluloso donatis, protoplasma nubiloso faretis, ex hyalino perdilute fulvescentibus.

Hab. ad frondes languentes Pteridis? cujusdam, in nemorosis prope Mbatobi Americae australis.

140. **U. Cæoma Ægopodii** (Rebent.) Winter Die Pilze p. 258, *Æci-* 3132
dium Ægopodii Rebent. Fl. Neom. pag. 353, *Uredo Petroselinii* DC. Fl. Franç. II, p. 597? — Soris rotundatis, oblongis vel irregularibus, diu epidermide velatis, albidis, secus greges rotundatos, ellipticos vel irregulares seriatim ordinatis saepeque confluentibus; sporis plerumque polygoniis, aequae longis ac latis vel oblongis aut oblongo-clavatis, 17-35 $\approx$ 11-26, verrucosis, hyalini.

Hab. in Ægopodio Podagraria et Chærophyllo aromatico, in Gallia et Germania.

141. **U. Cæoma Martianoffiana** Thüm. Pilzfl. Sibir. n. 198. — Soris hy- 3133

pophyllis, aut solitariis aut longe confluentibus, pustulatis, orbiculatis, elevatis, flavis vel aurantiacis, subfirmis, sine macula sed in pagina superiore maculam indeterminatam, fuscam formantibus; sporis irregularibus, aut ellipsoideis aut quadrangulis aut polyhedris, hyalinis, episporio tenui, verruculoso, verruculis minimis, gregariis, plerumque $25 \approx 20$.

Hab. in foliis vivis Delphinii intermedii, pr. Tajga Sibiriae occidentalis. — Fortasse melius *Coleosporii* species.

142. **U. Cæoma nitens** Schwein. Syn. Carol. p. 69, n. 458 (sub *Æcidio*) Burrill Paras. Fungi of Illinois p. 220, *Cæoma* (*Æcidium*) *luminatum* Schwein. Syn. N. Am. Fungi p. 293, n. 2887, *Uredo luminata* Thüm. Pilzfl. Sibir. — Hypophyllum; soris irregularibus, explanatis, plerumque crassiuscule consociatis confluentibusque, plus minus folium! obtegentibus læte, aurantiaco-flavis; sporis subglobosis, ellipticis vel oblongis, episporio tenui, subtiliter tuberculato donatis, $18-35 \approx 12-24$; spermogoniis sparsis, numerosis, flavis, plerumque epiphyllis.

Hab. in foliis Rubi saxatilis, occidentalis, villosi, canadensis, cuneifolii et strigosi, in America boreali et Sibiria asiatica. — Forte *Pucciniae Peckianae* cognatum.

143. **U. Cæoma Galanthi** (Unger?) Schroet. Pilz. Schles. p. 377, Winter Die Pilze p. 256, *Uredo Galanthi* Unger Exanth. p. 88, 182, 234, 247 (1833), aptius *Uredo Galanthi* Kirch. in Lotos 1856, p. 169. — Spermogoniis explanatis, orbiculatis, flavescentibus, secus parvos greges dispositis; soris explanatis, sæpe confluentibus, ambitu ellipsoideis vel irregularibus, annulatim dispositis, flavo-aurantiacis; sporis subangulatis, globosis aut ellipticis, $14-26 \approx 10-22$, subtiliter verrucosis, e flavo aurantiaco-rufescentibus.

Hab. in Galantho nivali, in Germania et Bohemia meridionali.

144. **U. Cæoma Abietis-pectinatae** Reess in Abhandl. Nat. Ges. zu Halle XI, p. 115, Winter Die Pilze p. 257 (sub *Cæomate*). — Soris rotundatis, secus series duas in inferiore acuum pagina dispositis, aurantiaco-flavis; sporis oblongo-polyhedricis v. ovatis, subpellucidis, $20-22 \approx 12-14$, verrucosis, flavis.

Hab. in acubus Pini Piceae, in Germania. — «An potius *Peridermium*?»

145. **U. Cæoma Ulmariae** Thüm. Pilzfl. Sibir. n. 197. — Soris plerumque nervos sequentibus, longis, fere pliciformibus, elevatis, magnis, pallide aurantiacis, hypophyllis, sine macula, sed in pagina superiore

maculam indeterminatam stramineam formans; sporis globosis, interdum fere catenulatis, hyalinis, episporio tenui, sublevi vel subundulato, circ. 20 μ . diam.

Hab. ad folia viva Spirææ Ulmariae, in silvis prope Tajga Sibiriae asiaticæ. — «An *Triphragmii Ulmariae* status æcidiosporus?»

146. **U. Cæoma nervisequa** Thüm. in Flora 1876, p. 412, Myc. univ. 3138 n. 1141 (*Caeoma*). — Soris hypophyllis, gregariis, semper internerviis, mediis, confluentibus, subfirmis, tectis, pro maxima parte seriatis, pallide ochraceo-luteis, in frondium pagina superiore maculam rufo-fuscam formantibus; sporis valde irregularibus, oblongis, ovatis, subglobosis, ellipticis sed semper plus minusve compressis, in catenulis rectis, longissimis, 8-20-sporis conjunctis, hyalinis, intus granulosis, episporio tenuissimo, levi, 20-22 $\approx$ 16-18.

Hab. in frondibus vivis languidisve Cheilanthis hastatae, Somerset East in silvis ad pedem montis Boschberg Africae australis (P. MAC OWAN). — Cfr. *Uredinem Polypodii* n. 3096.

147. **U. Cæoma Clematidis** Thüm. in Mycoth. Univ. n. 539. — Soris 3139 hypophyllis, aut solitariis aut gregariis, pallide flavidis, plus minus rotundatis, applanatis; sporis irregularibus, ovoideis, clavatis, fere quadrangulis vel etiam polygoniis, episporio tenui, granuloso, granulis minimis, hyalinis, pallidissime flavescentibus, diaphanis, 24-28 $\approx$ 16-20.

Hab. in foliis vivis Clematidis brachiatae, ad pedem montis «Boschberg» prope Somerset-East, Promont. Bonae Spei (P. MAC OWAN). — *Cæoma Vitalbatum* Link est *Æcidium Clematidis* DC.

148. **U. Cæoma Evonymi** (Gmel.) Schroet. Brand. und Rostp. p. 30, 3140 Pilze Schles. p. 375, Wint. Die Pilze p. 259, *Æcidium Evonymi* Gmel. in L. Syst. Nat. II, p. 1473, *Uredo Evonymi* Mart. Fl. Mosq. p. 230, p. p., *Cæoma Ribesii* Link Sp. II, p. 28 p. p. — Spermogoniis planis, orbiculatis, flavescentibus, secus parvos greges dispositis; soris 500 μ . ad 1 mm. latis, rotundatis v. irregularibus, planis, pallide aurantiacis, sine ordine vel orbiculariter dispositis, sæpe confluentibus; sporis catenulatis, globosis, ellipticis vel ovatis, 1728 $\approx$ 12-24, subtiliter punctatis, pallide rufo-flavidis.

Hab. in foliis, petiolis ramulisque Evonymi europæi, verrucosi, latifolii, in Germania, Italia, Helvetia, Belgio, Russia. — Sori zonis latis, aurantiacis cincti.

149. **U. Cæoma pinitorqua** A. Br. in De Bary Monatsb. Berl. Akad. 3141

1863, p. 624, Winter Die Pilze p. 257 (sub *Cæomate*). — Soris ut plurimum linearibus, usque ad 2 cm. longis, diversæ magnitudinis, solitariis vel per plures congestis, aurantiaco-flavis; sporis rotundatis vel ovoideis, polygoniis, 15–20 μ . diam., verrucosis, pallide flavo-rufescentibus.

Hab. in Pino silvestri, in Germania.

150. **U. Cæoma Orchidis** (Mart.) Wint. Die Pilze p. 256, Schroet. Pilz. Schles. p. 377, *Uredo Orchidis* Mart. Fl. Mosq. p. 229, *Cæoma chrysoides* Schlecht. Fl. Berol. II, p. 118, *Cæoma Orchidum* Link Sp. II, p. 9, *Uredo confluens* var. *Orchidis* Alb. et Schwein. Consp. p. 122, n. 339, vix *Erisybe chrysoides* Wallr. Fl. Crypt. Germ. II, p. 195. — Spermogoniis orbiculatis, explanatis, flavescentibus, secus parvos greges dispositis; soris plerumque irregularibus, ellipticis, sæpe annulatim dispositis, flavido-rufis sæpeque confluentibus; sporis polygoniis, 16–26 $\approx$ 10–20, subtiliter punctatis, aurantiacis.

Hab. in Orchide militari, sambucina, latifolia, et *Gymnadenia conopea*, in Germania et Russia.

151. **U. Cæoma Alliorum** Link Sp. II, p. 43, Schroet. Pilz. Schles. pag. 377, *Cæoma Allii-ursini* Wint. Die Pilze pag. 255, *Uredo confluens* var. *Allii-Ursini* DC. Fl. Franç. VI, pag. 86, *Erisybe areolata* Wallr. Fl. Crypt. Germ. II, pag. 203?? — Spermogoniis explanatis, flavescentibus, orbiculatis, secus parvos greges congestis; soris rotundatis vel irregulariter oblongis, sæpe tortis, solitariis vel gregariis sæpeque confluentibus, ad peripheriam massa sterili valde evoluta cinctis; sporis globosis vel ellipticis, 17–26 $\approx$ 10–20, subtiliter punctatis, pallide aurantiacis.

Hab. in Allio ursino, acutangulo, Porro, oleraceo, Cepa, fistuloso, vineali, in Germania, Gallia, Helvetia. — Cum *Melampsora populina*, sec. Schroeter, connexum.

152. **U. Cæoma Ari-italici** (Requ.) Rud. in Linnæa IV, p. 512 (*Cæoma Ari*), Winter Die Pilze pag. 256, *Uredo Ari-italici* (Requ.) Duby Bot. Gall. II, p. 899. — Hypophylla; soris plerumque irregularibus, explanatis, aurantiaco-flavescentibus, sine ordine vel orbiculariter dispositis, sæpe confluentibus; sporis rotundatis vel ellipticis, sæpe leniter angulatis, 16–30 $\approx$ 14–20, verrucosis, aurantio-flavis.

Hab. in foliis Ari-italici et maculati, in Gallia et Germania. — Maculæ late lutescenti-albidæ sparsæ.

153. **U. Cæoma Mercurialis** (Martius) Link Sp. II, p. 35, Pass. et Beltr. Fungi siculi novi n. 6, Schroet. Pilz. Schles. p. 376, *Cæoma Mercurialis-perennis* Wint. Die Pilze p. 257, *Uredo confluens* var. *Mer-*

curialis Mart. Prodr. Fl. Mosq. p. 229, *Uredo confluens* Schum. Pl. Saell. II, p. 227. — Spermogoniis orbiculatis, flavidis, explanatis, secus parvos greges congestis; soris hypophyllis, ellipticis vel elongato-linearibus, aurantiaco-rufis, sine ordine vel orbiculariter dispositis, sæpe confluentibus, numerosis; sporis ellipticis vel piri-formibus, sæpe subpolygoniis, 17-26 $\approx$ 8-17, subtiliter punctatis, aurantiacis.

Hab. in foliis *Mercurialis perennis* et *annuæ*, in Italia, Austria, Helvetia, Germania, Lusitania, Belgio, Rossia. — Maculæ sæpe 1-2 cm. longæ.



REPERTORIUM UREDINEARUM

SECUNDUM MATRICES

Obs. A. indicat *Aecidium*. — *Æ. Aecidiolum*. — C. *Calypso*spora — Ch. *Chrysomyxa*. — Co. *Coleosporium*. — Cr. *Cronartium*. — D. *Diorchidium*. — E. *Endophyllum*. — G. *Gymnosporangium*. — H. *Hemileja*. — M. *Melampsora*. — Me. *Melampsorella*. — Mi. *Milesia*. — P. *Pericladium*. — Pe. *Peridermium*. — Ph. *Phragmidium*. — Pu. *Puccinia*. — Pucc. *Pucciniastrum*. — R. *Ravenelia*. — Rœ. *Ræstelina*. — S. *Sarcorhopalum*. — T. *Thecopsora*. — Tr. *Triphragmium*. — U. *Uredo*. — Ur. *Uromyces*. — Uro. *Uropyxis*. — X. *Xenodochus*

Numeri 1921-1999 citantur 921-999; numeri 2000-3145 citantur 2000-3145.

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| Abies — Co. 233. — Ch. 2659, 2664, C. 2674. — A. 2930, 2932. — Pe. 2941, 2983, 2985, 2987, 2989. | Æsculus — A. 2755. |
| Abutilon — Ur. 2024, 2025, 2069. — Pu. 2403, 2404. — U. 3076. | Æthusa — Pu. 2211. — A. 2968. |
| Acacia — Ur. 980, 982, 2086. — M. 2125. — Tr. 2682. — R. 2687, 2689, 2696. — A. 2765, 2766. | Agrimonia — U. 2996. |
| Acer — Pu. 2406. | Agropyrum — Pu. 2191, 2192. |
| Achillea — Pu. 2370, 2546. — A. 2835. | Agrostemma — Pu. 2361. |
| Achyrophorus — Pu. 2210. | Agrostis — Pu. 2191, 2192, 2194. |
| Acicarpa — Pu. 2471. | Aira — Pu. 2191, 2192. |
| Acnista — A. 2878. | Albizzia — R. 2692. |
| Aconitum — Ur. 2000. — Pu. 2318. — Co. 2652. — A. 2711. | Albua — Ur. 993. |
| Acorus — Ur. 2032. | Alchemilla — Ur. 971. |
| Actæa — A. 2712. | Alectorolophus — Co. 2637. |
| Actinodaphne — A. 2915. | Alepidea — A. 2797. |
| Adenophora — Co. 2636. | Aletris — Pu. 2283. |
| Adenostylis — Ur. 996. — Pu. 2195, 2313. — Co. 2634. | Alisma — U. 2997. |
| Adesmia — Pu. 2266. | Allium — Ur. 943, 974, 2002, 2006. — Pu. 2155, 2193, 2275, 2557. — A. 2954, 2955. — U. 3143. |
| Adiantum — U. 3096. | Alnus — M. 2128. |
| Adoxa — Pu. 2168. | Alopecurus — Pu. 2191, 2192, 2194, 2207. |
| Ægopodium — Pu. 2342. — U. 3132. | Ambrosia. — Pu. 2455. — A. 2815. |
| | Alsine — Pu. 2361, 2399. |
| | Althæa — Pu. 2368. |
| | Alyxia — Pu. 2494. |
| | Amelanchier — G. 2607, 2609, 2611. |

- Ammi — Pu. 2542.
 Amorpha — Uro. 2599. — A. 2760.
 Amsonia — Co. 2641. — U. 3071.
 Amygdaleaceæ — Fr. 2685.
 Amygdalus — Pu. 2224. — U. 3098.
 Anagyris — Ur. 989.
 Anchusa — Pu. 2194.
 Andromeda — U. 3072.
 Andropogon — Pu. 2191, 2204, 2296, 2305, 2573.
 Androsace — Pu. 2528.
 Anemone — Pu. 2316, 2371, 2381. — Co. 2638. — A. 2705, 2706.
 Anethum — Pu. 2211. — A. 2794.
 Angelica — Pu. 2258, 2436. — A. 2973.
 Anguillaria — U. 3000.
 Anisacanthus — A. 2908.
 Anisotome — A. 2861.
 Anoda — Pu. 2368. — U. 3001.
 Anthoxanthum — Pu. 2191, 2306.
 Anthriscus — Pu. 2179, 2251.
 Anthyllis — Ur. 966.
 Apargia — A. 2825.
 Apium — Pu. 2211, 2234.
 Apocynum — A. 2857.
 Aquilegia — A. 2710.
 Arabis — Pu. 2390. — A. 2720.
 Arachis — Pu. 2415.
 Aralia — Fr. 2685.
 Arauja — R. 2499.
 Archangelica — Pu. 2211.
 Arctostaphylos — M. 2121.
 Arenaria — Pu. 2361, 2538, 2539.
 Argyreia — A. 2885.
 Arisaema — Ur. 931. — A. 2962.
 Aristida — Ur. 2036.
 Aristolochia — Pu. 2173.
 Armeria — Ur. 922.
 Arnica — Pu. 2228, 2247.
 Aronia — G. 2607.
 Aronicum — Co. 2651,
 Arrhenatherum — Pu. 2191, 2192. — U. 3007.
 Artemisia — Pu. 2215, 2370. — A. 2837, 2838.
 Artocarpus — U. 3004.
 Arum — A. 2960, 2962. — U. 3144.
 Arundinaria — Pu. 2572.
 Arundo — Pu. 2192, 2204. — U. 3066.
 Asarum — Pu. 2343.
 Asclepias — Ur. 2058, 2095. — Cr. 2137. — A. 2859, 2860.
 Asparagus — Pu. 2147, 2584. — A. 2944.
 Asperula — Pu. 2146, 2222.
 Asphodelus — Pu. 2310. — A. 2956, 2957.
 Aspidium — S. 2144. — U. 3096.
 Asplenium — U. 3107.
 Aster — Pu. 2370. — Co. 2634. — A. 2829, 2830.
 Astragalus — Ur. 963, 2077. — A. 2762.
 Astrantia — Pu. 2342, 2433.
 Astronium — U. 3102.
 Athamanta — Pu. 2179, 2312.
 Atragene — Pu. 2360, 2371.
 Atropa — Pu. 2511. — A. 2873.
 Avena — Ur. 939. — Pu. 2191, 2192, 2194, 2207.
 Azalea — U. 3008.
 Baccharis — Pu. 2151. — U. 3009.
 Bahia — A. 2824.
 Balsamina — Cr. 2138.
 Balsamorhiza — U. 3011.
 Bambusa — Pu. 2290.
 Baptisia — A. 2771.
 Barbarea — Pu. 2394. — A. 2719.
 Barekhausia — A. 2823.
 Bassia — Ur. 2053.
 Batatas — Pu. 2322.
 Bauhinia — Ur. 2057. — R. 2694. — U. 3013.
 Bellidiastrum — Pu. 2321.
 Bellis — Pu. 2202. — U. 3014.
 Berberis — Ur. 2083. — Pu. 2187, 2191, 2384, 2385. — A. 2715, 2716. — U. 2994, 3002.
 Berchemia — A. 2752.
 Beta — Ur. 928. — U. 3015.
 Betonica — Pu. 2339.
 Betula — M. 2118.
 Bidens — A. 2815.
 Bigelovia — A. 2822.

- Bignoniaceæ — Pu. 2552. — A. 2897.
 Blainvillea — Ur. 2050.
 Blechnum — U. 3107, 3130.
 Blephilia — Pu. 2180.
 Boisduvalia — Pu. 2421.
 Borraginaceæ — Pu. 2194.
 Borrago — Pu. 2194.
 Borricchia — Ur. 2084.
 Bougainvillea — A. 2911.
 Bouteloua — Pu. 2585. — U. 3017.
 Bowlesia — Ur. 2040.
 Brachypodium — Ur. 939. — Pu. 2290.
 Brassica — Ur. 2094. — Pu. 2593.
 Brickellia — Pu. 2271.
 Briza — Pu. 2191.
 Brizopyrum — Ur. 939, 958. — Pu. 2191.
 Brodiaea — Ur. 2005. — Pu. 2560.
 Bromus — Pu. 2191, 2192, 2194, 2277.
 Bulbine — Ur. 2033.
 Buphthalmum — Ur. 940.
 Bupleurum — Pu. 2165.
 Buxus — Ur. 2096. — Pu. 2372.
 Cacalia — Ur. 996. — Pu. 2313. — Co. 2635. — U. 3065.
 Caladium — Ur. 931.
 Calamagrostis — Pu. 2192, 2194, 2575.
 Calamintha — Pu. 2180.
 Calandrina — Ur. 2009.
 Calimeris — Pu. 2370.
 Callirhoë — A. 2742, 2941.
 Callixene — A. 2946.
 Calocorthum — Pu. 2319, 2583.
 Calophanes — A. 2898.
 Calpurnia — R. 2689, 2690.
 Caltha — Pu. 2149, 2190.
 Campanula — Pu. 2250, 2340. — Co. 2636. — A. 2847.
 Campanumœa — Pu. 2488.
 Camphorosma — U. 3019.
 Campulosa — Pu. 2570.
 Canna — U. 3018.
 Canthium — H. 2104.
 Capparis — Cr. 2142.
 Caragana — Ur. 965. — U. 3020.
 Cardamine — Pu. 2537.
 Cardiospermum — Pu. 2405. — A. 2754.
 Carduus — Pu. 2210.
 Carex — Ur. 2027, 2090. — Pu. 2196, 2197, 2198, 2199, 2200, 2201, 2203, 2298, 2299, 2569.
 Carlina — Pu. 2210, 2215.
 Carpesium — Co. 2634.
 Carpinus — M. 2120.
 Carthamus — Pu. 2244.
 Carum — Pu. 2312.
 Caryophyllaceæ — Pu. 2361.
 Cassandra — U. 3021.
 Cassia — R. 2694, 2698. — U. 3032.
 Ceanothus — A. 2807.
 Celmisia — U. 3022.
 Centaurea — Pu. 2184, 2199, 2209, 2210, 2236, 2370, 2466, 2467. — A. 2845.
 Centranthus — Pu. 2317.
 Cephalandra — Pu. 2171.
 Cephalanthus — A. 2813.
 Cerastium — Me. 2135. — Pu. 2361. — A. 2729.
 Cerasus — M. 2134.
 Cerinthe — Pu. 2194. — Co. 2639.
 Ceropegia — A. 2862.
 Cestrum — Ur. 2093. — A. 2876.
 Chærophyllum — Pu. 2179, 2357. — U. 3132.
 Chamæsaracha — Pu. 2509.
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