

*Hab.* in pane nigro in Guestphalia.

50. **Mucor brevipes** Riess in botan. Zeitung 1863, p. 136. — Hyphis 664  
 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, 665  
 persistens; floccis densis, fulvo-luteis, semiuncialibus, cæspitosis,  
 apice divaricato-ramosis, quasi laxum capitulum sistentibus, onu-  
 stis 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, 666  
*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 oliva-  
 ceo-fuscescente, exiguo; sporis . . . . .

*Hab* in pasta e sulphure et seminibus Anisi composita, in car-  
 nibus, pane mucido etc. in Germania.

b) Sporæ ovoideæ.

53. **Mucor Floræ** (Corda) Berl. et De Ton., *Ascophora Floræ* Corda 667  
 Icon. V, f. 27, p. 54. — Cæspitibus late effusis, tenuibus; hyphis  
 primariis, altis, primum simplicibus, dein furcatis, demum subra-  
 mosis; sporangiis globosis, fuscis, nitidis, punctatis; columella mi-  
 nuta spherica; sporis minutis ovatis, 7  $\mu$ . longa.

*Hab.* in glutine cocto farinae putri in Bohemia.

54. **Mucor flavidus** Pers. Syn. 199, Wallr. Fl. Crypt. n. 2020. — 668  
 Hyphis erectis parce ramosis, bi-aut trifidis, crassis, curtis, albi-  
 dis, cæspitosis; sporangiis primum flavis, dein fusco-flavis, levi-  
 bus; columella globosa seu ovata hyalina, subtus applanata; spo-  
 ris plerisque globosis seu ovato-globosis, hyalinis.

*Hab.* in Agaricis putridis in Germania. — «*Mucori bifido*  
*affinis*».

55. **Mucor Rhizopogonis** (Corda) Berl. et De Ton. *Ascophora Rhi-* 669  
*zopogonis* Corda Icones VI, fig. 30, pag. 11. — Cæspitulis laxis,  
 effusis candidis; stipite recto 5-7 mm. longo, tenui, simplici, ra-  
 rius dichotomo, hyalino, albo; sporangio minuto, spherico, flavo-  
 fuscescente; columella magna obovata; sporis ovoideis, inæquali-  
 bus, albis, binis ternisve, sæpius lateribus inter se cohærentibus.

*Hab.* in Rhizopogone albo putri in Bohemia.

56. **Mucor Candelabrum** (Corda) Berl. et De Ton., *Ascophora Candelabrum* Corda Ic. III, fig. 44, p. 15, *Pleurocystis Candelabrum* Bonorden. — Cæspitibus minutissimis, albis; stipite erecto, rigido simplici vel furcato, hyalino, albo; ramulis lateralibus adscendentibus; sporangiis globosis, luteis; columella primum globosa dein pileata; sporis ovoideis albis interstitiis minutissimis concatenatis.  
*Hab.* in acervulis Melanconii bicoloris, Prag Bohemiæ. 670
57. **Mucor Castaneæ** Rabenh. Deutsch. Krypt. Fl. p. 132, n. 1208. — Mycelio arachnoideo, tenui, effuso, laxo, candido; hyphis sporangiferis erectis dichotomo-furcatis, diaphanis, sordide lutescentibus, basi ramorum dilatatis; ramulis primo strictis, demum subcernuis; sporangiis fere obovatis, impellucidis, nubilosis; sporis concoloribus, longiusculis, numerosis, diaphanis. 671  
*Hab.* in fructibus frictis Castaneæ sativæ, Milano in Italia.
58. **Mucor Artocarpi** B. et Br. Fungi of Ceyl. n. 1184, — Fuscus, congestus; hyphis inarticulatis; sporangiis globosis vel obovatis; sporis subellipticis. 672  
*Hab.* in Artocarpi integrifoliæ fructibus, Ceylon. — An species bona? Columella nulla.
59. **Mucor curtus** B. et C. North Am. Fungi n. 703. — Hyphis sporangiferis brevibus nigris; sporis fusiformibus, utrinque subappendiculatis,  $11 \approx 2$ . 673  
*Hab.* in Cucurbitæ Melonis fructibus putridis in Carolina inferiore.
60. **Mucor lateritius** Lk. Sp. I, p. 83, Wallr. Fl. Crypt. n. 2024. — Hyphis arachnoideis dense intertextis, aurantiacis, sporangium globosum minutissimum sustentibus. 674  
*Hab.* ad panem mellitum in Germania (EHRENBERG).
61. **Mucor circinelloides** Van Tiegh. Nouv. Rech. sur le Muc. p. 94, Ann. des scienc. Nat. 1873. — Minutus; hyphis sporangiferis erectis, ramosis, ramis alternis brevibus recurvatis, sporangium minutum gerentibus; sporangiis minutis, globosis; sporis ovoideis,  $4-5 \approx 3$ . 675  
*Hab.* in fimo equino, Paris Galliæ. — Habitu valde affinis *Circinellæ simplici*.
62. **Mucor pruinosis** B. et Br. Ann. Nat. Hist. n. 1495. — Minutus, niveus; sporangiis reticulatis, globosis; sporis irregularibus,  $17-30$ . 676  
*Hab.* in ollis plantarum, Sibbertoft Britanniæ.
63. **Mucor subtilis** (Corda) Berl. et De Ton., *Ascophora subtilis* Corda Ic. II, fig. 81, pag. 20. — Cæspitibus minutissimis, albidis; stipite 677

gracili, tenuissimo, albo; sporangiis 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* 678  
Handb. Riv. Parass. Veg. p. 495, f. 271, non Schum. — Sporangiis nigro-punctatis; columella magna; sporis griseo-fuscis, ovato-acuminatis

*Hab.* in . . . . . in Italia.

65. **Mucor nigrescens** Schum. Saell. II, p. 237, nec Bonord. — Bys- 679  
sinus; hyphis sporangiferis simplicibus; sporangiis fusco-cinereis; sporis globosis.

*Hab.* in ramulis foliisque vivis Rhamni Frangulæ in Suecia.

B) Species sporangiis maturitate hyalinis instructæ.

66. **Mucor corymbifer** Cohn in Lichtheim Ueber path. Mucor., Schroe- 680  
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; sporangiis etiam maturitate hyalinis, piriformibus, majoribus usque ad 70  $\mu$ . diam., mediis 45-60  $\mu$ ., minoribus 10-20  $\mu$ . 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 noxius.

67. **Mucor Harzii** Berl. et De Ton., *M. corymbosus* Harz Einige 681  
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; sporangiis sphaericis faretis subhyalinis, maturitate erumpentibus; sporis minutis, globosis, 7  $\mu$ . diam., hyalinis.

*Hab.* in ovariis secalis Clavicipite purpureâ affectis in Berlino. — A *Mucore corymboso* Wallr. nobis distinctus videtur.

68. **Mucor hyalinus** Cooke Handb. n. 1890, Pop. Sci. Rev. Jan. 1861, 682  
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-diffluenti farcto exsurgentibus, sporangiola hyalina gerentibus; sporangiolis globosis, 15-30  $\mu$ . diam., membrana mox diffluenti; sporis sphæroideis, 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, fertilibus 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 tenacellis) persistentibus, hyalinis, in ramulos fertiles divulsis; ramulis corymbosis, brevibus, conformibus; sporangiis globosis, majusculis, candidis farctis; sporis sphæricis, pellucidis.  
*Hab.* ad corticem lichenosum Rhamni Frangulæ humi jacentem in sepimentis Thuringiæ.
72. **Mucor agaricinus** (Wallr.) Berl. et De Ton. *Pilophora agaricina* 686  
Wallr. Flor. Crypt. Germ. n. 2081. — Hyphis simplicibus continuis, tenerrimis, crystallinis, albis; sterilibus laxè implexis, crispulis; fertilibus erectiusculis brevioribus, præter apices crassiusculos conformibus, sporangio primum hemisphærico, albo dein in basim attracto, obconico, plicato-lamelloso; sporis globosis in discum tersum digestis aeneo-virentibus.  
*Hab.* ad panem ex oleo coctum mucidum in Germania (WALLROTH).
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 speciem 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. 688  
— 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* 689  
*cinerea* Preuss Fungi Hoyersw. n. 134. — Cæspitibus effusis cinereis; hyphasmate longo stipitibusque subfurcatis ramosis brevibus; sporangio sphærico 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* 690  
Berk. et C. North Am. Fungi n. 651. — Cæspitosus, fuscus, primitus albus; hyphis articulatis; sporangiis globosis, pellucidis dein collapsis, campanuliformibus; sporis sphæroideis, 10  $\mu$ . diam.  
*Hab.* in fructibus Artocarpi in Amer. bor.
77. **Mucor modestus** Bain. in Ann. Sc. Nat. 1884, pag. 210. — Spo- 691  
rangio hyalino; zygosporis nigris, striis radiantibus signatis.  
*Hab.* in . . . . . in Gallia.
78. **Mucor tristis** Bain. in Ann. Sc. Nat. 1884, p. 210. — Sporangio 692  
minuto; zygosporis notis.  
*Hab.* in . . . . . in Gallia.

Species tantum nomine notæ vel dubiæ.

79. **Mucor Dimiæi** Schulzer Pflanzen Slavoniens p. 36, n. 180-1865. 693  
— In carne suina recente in cellis Slavoniæ.
80. **Mucor scarlatinus** Hallier Zeitsch. t. III, 4, 1869, p. 124, Riv. 694  
Parass. Veget. p. 496, f. 239.
81. **Mucor Penicillium** Schnetzl. Obs. sur la maladie «Blanc» p. 1141. 695

**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 sphæroidea v. piriformia (in *P. splendenti*), fusca, tenuissima, ad maturitatem rupta et basi columellæ annulum relinquentia. Spora

ovoideæ vel sphaeroideæ, hyalinæ. Rami zygosporia arcuati et spinosi. Spinæ rigidæ, 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 = 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  $\mu$ . altam, sporangio minuto 25  $\mu$ . diam. terminatam, cujus sporæ sphaeroideæ episporio hyalino, tantum 16  $\mu$ . diam. metiuntur. Zygosporæ magnæ  $\frac{1}{3}$  mm. diam, globosæ fuscae. 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, subinæqualibus, minutis 8  $\mu$ . 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 piriformibus, 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 sporangiferae erectæ, simplices, primum hyalinæ 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, 699 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  $\mu$  8-12, griseis; zygosporis dolioliformibus, 200-400  $\mu$ . 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* 700 *macrocarpus* Corda Icon. II, p. 21, f. 84. — Hyphis sporangiferis simplicibus, erectis, albis, pellucidis, circiter 1 cm. longis; sporangiis sphæroideis, demum atris, 120-150  $\mu$ . diam.; sporis fusoidelongatis, sæpe inæquilateralibus, dilute flavescentibus, 39-65  $\mu$  12-20.

*Hab.* in pileis Mycenæ galericulatæ in Bohemia, Anglia, Germania, Italia et in agro Mustialensi Fenniæ. — A *Sp. fusigero* sporis majoribus diversus.

3. **Spinellus sphærosporus** van Tieghen Ann. des Scienc. Nat. 1875, 701 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  $\mu$ . diam. zygosporis, 100-150  $\mu$ . diam.

*Hab.* in Agaricis putrescentibus in Gallia.

**SPORODINIA** Link Spec. plant. VI, 1, p. 94. (Etym. a *spora* et *di-neo* volvo). — Hyphæ magnæ septatæ, erectæ, jodii ope violaceæ; sursum pluries dichotome ramosæ. Rami divaricati, extimi fu-

soidei. Sporangia globosa. Columella hemisphærica. Sporæ spheroidæ, magnæ, episporio crassiusculo donatæ, intus granulosa. Rami zygospori erecti, æquales. — In fungis carnosis parasitica. — Forma conjugationis est *Syzygites megalocarpus*.

1. **Sporodinia Aspergillus** (Scop.) Schröt. Krypt. Fl. Schl. p. 209, *Mucor 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  $\mu$ . 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, spheroidæis, 300  $\mu$ . diam. Inter hyphas Sporodiniæ grandis, eodem mycelio exoriens.

2. **Sporodinia Pouchetii** (Mont.) Berl. et De Ton. *Aspergillus Pouchetii* 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 spherico, membranaceo, levi, brunneo, 70  $\mu$ . diam., tandem evanido terminatis; sporis ovoideis, concoloribus, 3-8 = 3-5, primitus columellæ globosæ, 28  $\mu$ . diam. sessilibus, concatenatis.

*Hab.* in aqua aere prorsus destituta cauliculis Fœni affixa, Rouen Galliæ.

3. **Sporodinia Bellemontii** (Mont.) Berl. et De Ton. *Aspergillus Bellemontii* Mont. Plant. cellul. nouv. cent. VIII, p. 121. — Hyphis sterilibus laneis, procumbentibus, cinereis; fertilibus continuis, 20-30  $\mu$ . crassis, erectis, confertis, dichotome trichotomeve ramosis-

simis; ramis patentibus subdivaricatis, ultimis incrassato-rotundatis; sporangiis globosis, mox ruptis, 80  $\mu$ . diam.; sporis concoloribus, sphaericis, 10-20  $\mu$ . 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. 705  
— Hyphis obsoletis, fertilibus, erectiusculis, brevibus, in apicem globosum, illico in sporas primum albas dein carneas fatiscentem intumescensibus.

*Hab.* ad Pini silvestris folia putrida agri Berolinensis Germaniæ.

5. **Sporodinia candida** Wallr. Fl. Germ. n. 2008. — Hyphis vage 706  
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 nigræ 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 indehiscentia 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 707

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 cæruleo 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 (Etym. 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 spiritaliter 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  $\approx$  4-6.

*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. *Circinella 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  $\mu$ . latis, ramosis, sporangio verrucoso, sphæroideo, magno terminatis; columella lata, ovoidea subtus insertionem sporangii ex apophysi oriente; ramis longis, lateribus hyphæ primariæ opposite 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 distinguentus.

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, 711  
fig. 5-11. — Hyphis sporangiferis erectis, parce ramosis, ramis, gracilibus elongatis, sæpe sporangio globoso, magno 168  $\mu$ . diam., columella ovoidea, crassa prædito donatis, ramulis brevibus crassis, solitariis vel verticillatis, in pedunculis cylindricis, subtilibus, continuis, apice recurvatis, in sporangiolum piriforme, 21  $\mu$ . 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. 712  
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, sporangiolo piriformi præditis; sporis ovoideis, in utroque sporangio inæqualibus,  $12 \approx 10$ ; columella in utroque sporangio demum brunnea.

*Hab.* in face vini compressa, Paris Galliæ. — Hyphis sporangiferis repentibus et sporis inæqualibus, fortasse e genere removendum.

6. **Helicostylum? Saccardo** Berl. et De Ton. *Mucor helicostylus* 713  
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  $\mu$ . diam.; sporis ovato-oblongis,  $18-20 \approx 10-12$ , raro-15, perfecte hyalinis.

*Hab.* in stercore humano et felino, Selva Italiae 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, 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 cœrulescentibus, 8-10 = 6-8. 714

*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 sporangiolis 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. 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  $\mu$ . diam. 715

*Hab.* in fimo equino in Gallia. — Species perpulchra 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 paradoxus* Berk. et Curt. North Amer. Fungi n. 377. — Hyphis sporangiferis brevibus, hyalinis; sporangiis difformibus, majoribus apice 716

hyphæ longiori insertis, globosis; sporis 14  $\mu$ . longis, oblongis; minoribus vero obovatis apice hypharum e mycelio oriundarum, breviorum insertis, sporis 10  $\approx$  2 $\frac{1}{2}$  præditis.

*Hab.* in Boletis putridis in Pennsylvania Amer. bor.

**RHIZOPUS** Ehrenberg De Mycetog. (Nova Acta X, p. 198) (Etym. 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 sporangiferæ rectæ vel apice circinatæ, simplices, concolores. Sporangia globosa polyspora, apophysi membranacea basi prædita. Sporæ ovoideæ vel sphæroideæ plerumque coloratæ.

1. **Rhizopus circinans** Van Tiegh. Trois. Mem. sur les Muc. p. 369, 717 pl. 12, fig. 69-73. — Stolonibus curvatis super hyphas sporangiferas, subtus radículas emittentibus; hyphis sporangiferis solitariis, raro binis, apice recurvatis, 120-180  $\mu$ . altis; sporangiis globosis, verrucosis, apophysatis; columella globulosa; sporis angulatis, minutis, levibus, sphæroideis 5-6  $\mu$ . diam. brunneis.

*Hab.* in seminibus germinantibus Phœnicis dactyliferæ loco udo neglectis, Paris Galliæ. — Totus fungus primum albus dein nigrescens.

2. **Rhizopus echinatus** Van Tiegh. Trois. Mem. sur les Muc. p. 370, 718 pl. 12, fig. 64-68. — Hyphis sporangiferis erectis, simplicibus, 3-4 fasciculatis, præcedenti longioribus gracilibus, primum albis dein coloratis; sporangiis minutis, crasse apophysatis, sphæroideis, verrucosis; sporis globosis dense spiniferis, 15  $\mu$ . diam. brunneis.

*Hab.* ad muscas emortuas loco udo diu servatas, Paris Galliæ.

3. **Rhizopus nigricans** Ehrenberg De Mycetogenesi in Nova Acta X, 719 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. 44, a *Rhizopus* Ehr., *A. Cordana* Bon. p. 44, *A. Coëmansi* Bon. l. c. p. 44. — Hyphis sporangiferis erectis, simplicibus, 3-10 fasciculatis, rarissime solitariis, continuis, 2-3 mm. alt., basi longos stolonibus reptantes, ramosos emittentibus; sporangiis globosis, olivaceo-nigris, granulosis; columella hemisphærica; 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  $\mu$ . alt.; sporangiis globosis, apophysatis, columella globosa; sporis subangulatis, verrucosis, nigrescentibus, 4  $\mu$ . diam.

*Hab.* in fimo equino, Paris Galliæ. — «*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  $\mu$ . altis, nigrescentibus continuis, solitariis, sporangiis globosis, apophysatis, nigris columella obscura; sporis minutis spheroides, brunneis vel cœruleo-brunneis, subangulosis, verrucosis, 3  $\mu$ . diam.

*Hab.* in fimo equino, Paris Galliæ. — Species minima, *Rh. microsporo* affinis sed minor.

6. **Rhizopus Cohnii** Berl. et De Ton., *Mucor rhizopodiformis* 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 cæspitosis, rhizoidibus oriundis, brunneis, 120-125  $\mu$ . longis, haud ramosis; sporangiis globosis, circ. 66  $\mu$ . diam., maturitate nigris, tunica levi, opaca; columella ovata vel piriformi, 50-75  $\mu$ . lata; sporis globosis, levibus, 5-6  $\mu$ . diam., subhyalinis.

*Hab.* in pane udo, Bern Helvetiæ (LICHTHEIM), Breslau Germaniæ (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, cæspitulosus, basi e mycelio intricato exurgentibus; sporangiis terminalibus globosis, brunneis, 50-70  $\mu$ . diam., tunica eleganter denseque spinosa, hyalina; columella globosa, brunneola; sporangiis lateralibus minoribus, 33  $\mu$ . diam., globulo-

sis, brunneis; sporis sphaeroideis, levibus, 5-7  $\mu$ . diam., pallide brunneis.

*Hab.* ad semina germinantia Fabæ, Pisi et Maydis pr. Breslau Silesiæ (EIDAM).

8. **Rhizopus reflexus** Bain. Ann. Sc. Nat. 1883, p. 82, t. 4, fig. 1-4. 724  
 — Hyphis sporangiferis erectis simplicibus, apice recurvato, parvis, 2-2½ mm. altis, sporangiis globosis, 200  $\mu$ . diam.; columella globosa basi lata; sporis leviter angulosis, oblongis, minutissime striatis, 8-10  $\mu$ . longis.

*Hab.* in foliis Ari maculati loco udo putrefactis, Paris Galliæ.

9. **Rhizopus? fructicola** (Corda) Berl. et De Ton., *Ascophora fructicola* Corda Ic. 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. 725

*Hab.* in fructibus Sambuci nigræ in Bohemia.

**ABSIDIA** Van Tiegh. Trois. Mem. sur les Muc. Ann. Sc. Nat. 1876, p. 350 (Etym. *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 insertione et radicibus, *Rhizopodi* affine, quo a characteribus citatis aperte recedit.

1. **Absidia capillata** Van Tiegh. Trois. Mem. sur les Muc. Ann. des 726  
 Scienc. Nat. 1876, p. 362, pl. 11, fig. 23-36. — Hyphis sporangiferis 3-5 fasciculatis, continuis, rectis, simplicibus; sporangiis piriformibus; columella conica, cæruleo-nigra; sporis ovoideis, 2-5  $\approx$  2-2½; zygosporis dolioliformibus, nigris, verrucis conicis præditi, 80  $\mu$ . 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 727  
 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  $\mu$ . 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 sphæroideis, 2-3  $\mu$ . diam. hyalinis; zygosporis subsphæroideis, 50  $\mu$ . diam., nigris, verrucosis, ramis circinatis, verticillatis, simplicibus, brunneis obvallatis.

*Hab.* in fimo equino, Paris Galliaë.

**TIEGHEMELLA** Berl. et De Ton., *Absidia* Van Tiegh. p. p. (Etym. genus cl.<sup>o</sup> PII. VAN TIEGHEM dicatum). — Genus characteribus *Absidia* præditum, a quo nostro sensu recedit fructificatione quoque sporangiolifera. Vide characteres *Tiegh. repentis*.

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 sphæroideo-inflatum desinente; sporis ovoideo-elongatis, 7  $\approx$  3, hyalinis; sporangiolis elongatis ramis brevibus, solitariis gracilibus suffultis, oligosporis; columella acute conoidea; sporis sphæroideis vel subsphæroideis 3-4  $\mu$ . diam.

*Hab.* in fragmentis seminum Bertholletiaë excelsæ in Sphagno humido servatis Paris Galliaë. — Totus fungus primum albus demum brunneus

**CIRCINELLA** Van Tiegh. et Lemonnier in Ann. Scienc. Nat. 1873, p. 300 (Etym. a *circine* ob ramos circinatis). — Hyphæ sporangiferæ erectæ, ramosæ. Sporangia globosa, polyspora, ramis recurvatis (pedunculis) suffulta, columella instructa, tunica non diffluenti at medio in circulo lacerata. Sporæ sphæroideæ, hyalinæ vel coloratæ.

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 hyphæ primariæ continuationem emittente, ramo quoque apice flexo et ramulum apice flexum emittente, apicibus hyphæ et ramorum acutis, sæpe 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  $\mu$ . diam.

*Hab.* in stercore humano, Paris Gallia 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 decrescentibus; columella cylindro-conica; sporis minutis, sphaeroideis 3  $\mu$ . diam., hyalinis.

*Hab.* in stercore canino, Paris Gallia.

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  $\mu$ . diam.

*Hab.* in substantiis putrescentibus, socio *Mucore Mucedine*. Paris Gallia, Amsterdam Hollandia et prope Breslau Germaniæ. — Var. **Moreliæ** B. et Br. in Trans. Linn. Soc. 1878, pag. 406, n. 83: a typo differt sporis majoribus, dilutissime brunneis. — 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, hyænæ 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 *Circinella* 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  $\mu$ . 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 radicanti-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 conspicue 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 membranæis, fragilibus; sporis numerosissimis, globosis, microscopicis fœtis, viridi-cinereis.

*Hab.* ad culmos graminum male exsiccatum herbariorum pr. Erlangen Germaniæ. — *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. 738

*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, cylindræo-ovato; sporis globosis, levibus. 739

*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. 740

*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. 741

*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 cupulæ

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. — Al-  
bida, byssoidea, mycelio repente; stipite erecto, simplici, septato,  
hyalino, apice in cupulam dilatato; columella magna, ovata, cen-  
tro cupulæ insita; sporis oblongis, hyalinis, continuis, apice ob-  
tususculis.

*Hab.* in fructibus putridis Citri Limonum, Piri Mali et P. com-  
munis, in Italia et in Germania.

2. **Hemiscyphe stricta** Preuss F. Hoyersw. n. 131. — Cæspitulis mi- 743  
nutis albis; mycelio repente, ramoso, intertexto; hypha solitaria,  
erecta supra ramosa; sporangio terminali, globoso, fuscescente, ir-  
regulariter 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 ra- 744  
moso continuo dilute fusco; hyphis fasciculatis erectis, dilute fu-  
scis, sporangium globosum, glabrum, nitidum, circumscissum, fu-  
scum, intus turbidum gerentibus; columella centrali, glabra, con-  
ico-mammiformi; sporis globosis, episporio glabro, pellucido, nucleo  
fartis.

*Hab.* in Botryte (Polyactide) racemosa, Hoyerswerda.

4. **Hemiscyphe bicolor** (Corda) Bonord. Handb. p. 205, *Calyssospo-* 745  
*rium bicolor* Corda Anleit. t. C 23, f. 1. — Hyphis erectis, brun-  
neis; sporangiis subglobosis vel ovoideis; sporis globosis, albidis.

*Hab.* . . . . . in Bohemia. — «An a *Hemiscyphe rhizo-*  
*poide* Preuss. distincta?»

**AEROPHYTON** Eschweil. Syll. ad Flor. Rat. I, p. 163, Fries Syst. III,  
p. 328 (Etym. *aer* et *phyton* planta). — Hyphæ cœnotociæ, arti-  
culatæ, apice clavatæ. Clavulæ sporangiola subrotunda, adhæren-  
tia gerentes. Sporæ minutissimæ.

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 Casseliæ Brasiliensis in hortis Bavariciæ. — Etiam  
nudo oculo jam arbusculi imaginem præbens, marcescens funiculi  
ad instar collabascens.

*Subfam. 3. Chætocladieæ* VAN TIEGH.

Hyphæ mycelicæ crassæ, haud 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. 747 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  $\mu$ . diam.; sporis 6-8  $\mu$ . 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 748 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  $\mu$ . diam.; sporis globosis 2-4  $\mu$ . diam.; zygosporis globosis, 40-50  $\mu$ . diam., pallide brunneis.

*Hab.* inter *Mucoris Mucedinis* et *Rhizopodi nigricantis* hyphas in Germania et Gallia.

*Subfam. 4. Mortierelleæ* VAN TIEGH.

Hyphæ mycelicæ tennes, anastomosantes; sporangia sphærica, columellâ destituta, polyspora.

**MORTIERELLA** Coemans, Quelques Hyphom. nouv. Bull. Ac. Belg. 2<sup>e</sup> ser. t. XV, I<sup>re</sup> part., p. 536 (Etym. a B. DU MORTIER botanico belgico). — Mycelium dichotome ramosum, anastomosans, stylosporibus echinulatis præditum. Hyphæ sporangiferæ in cæspitulos congestæ, basi inflatæ, erectæ, sporangio crasso, sphæroideo, columel-

lâ carente, levi terminatæ, ramosæ. Rami graciles, primum horizontaliter expansi, demum erecti, sporangiolo 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. — 749  
Hyphis sporangiferis erectis, continuis, simplicibus,  $\frac{7}{10}$ -1 mm. altis, sursum lenissime attenuatis, sporangio magno, globoso, polysporo terminatis; sporis valde inæqualibus, præcipue sphæroideis vel ovoideis, granulosis, uni-magni-nucleatis, refrangentibus, episporio levi, hyalinis.

*Hab.* ad terram humosam, Paris Galliæ. — « An potius *Herpocladium?* »

2. **Mortierella fuispora** Van Tiegh. Trois. Mém. sur les Mucorinées 750  
Ann. Sc. Nat. 1876, pag. 385, tab. 13, fig. 105-107. — Mycelio effuso, arachnoideo, repente, fugaci; hyphis sporangiferis simplicibus, 0,5 mm. altis, subcylindræis, basi leniter incrassatis; sporangiis sphæroideis, majusculis; sporis ovato-elongatis, subfusiformibus, 22-24 = 5-6.

*Hab.* in fimo cuniculorum, Paris Galliæ. — Stylosporæ sphæroideæ, crasse tuberculosæ, 12  $\mu$ . diam. brunneæ (*Mycogone*).

3. **Mortierella strangulata** Van Tiegh. in Ann. Sc. Nat. 1875, p. 102, 751  
tab. 2, fig. 70-76. — Mycelio repente, dichotome ramoso, anastomosante, valido; hyphis sporangiferis erectis, ex rosula filamentorum mycelicorum, brevium et repetito dichotomorum oriundis, simplicibus, crassis, sursum leniter attenuatis, 800-1000  $\mu$ . longis et 75  $\mu$ . latis ad basim, superne 25  $\mu$ . crassis, hyalinis, protoplasmate granuloso repletis, vertice in collum breve, cylindricum, 1-septatum abrupte desinentibus, sporangium sphæroideum magnum, 80-120  $\mu$ . diam. gerentibus; sporis minutis ovoideis vel trinacriformibus vel quadrangularibus, obtusis, valde inæqualibus, 6-9 hyalinis; stylosporæ globosis, minute verrucosis, 18-20  $\mu$ . diam.

*Hab.* in fimo murino, Paris Galliæ.

4. **Mortierella pilulifera** Van Tiegh. Ann. Sc. Nat. 1875, pag. 105, 752  
tab. 2, fig. 63-69. — Mycelio repente, dichotome ramoso; hyphis 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 = 4-5, hyalinis.

*Hab.* in fimo cuniculorum, Paris Galliaë. — Vesiculis mycelicis et hypharum sporangiferarum longitudine species valde distincta.

5. **Mortierella tuberosa** Van Tiegh. in Ann. des Sc. Nat. 1875, p. 106, 753  
tab. 2, fig. 55-62. — Mycelio repente, dichotome ramoso, ramulis in vesiculam globosam, magnam, protoplasmate farctam, hinc inde circa basim hypharum fertiliū 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 = 6-8, hyalinis; stylosporis sphæroideis, 20-25  $\mu$ . diam., spinuligeris, apice filamentorum mycelicorum brevium insertis.

*Hab.* in stercore murino, Paris Galliaë.

6. **Mortierella arachnoides** Therry et Thierry Nouv. esp. de Muc. du 754  
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 Galliaë. — « Verisimiliter status abnormis *Spicaria arachnoideæ* Sacc. et Therr. Cfr. Syll. Hyph. p. 167 ».

7. **Mortierella polycephala** Coem. Quelq. Hyph. nouv. (Bull. Ac. Belg. 755  
2<sup>e</sup> ser., t. XV, 1<sup>re</sup> part. p. 536). — Mycelio tenui continuo, dichotome ramoso, ramis longis, gracillimis; hyphis sporangiferis erectis, fasciculato-conjunctis, fusiformibus, 250  $\mu$ . 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, 756  
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 sphæricis, 7-8  $\mu$ . diam., hyalinis, episporio crassiusculo.

*Hab.* in Tramete suaveolente nec non in foliis putridis Quercus et Fagi prope Berlin Germaniaë. — Mycelio deficiente et sporis æqualibus a *Mortierella polycephala* Coem. differt, sed sec. cl. Van Tiegh. Ann. Sc. Nat. 1873, p. 353 non distincta.

9. **Mortierella reticulata** Van Tiegh. et Le Mon. Rech. sur les Mucorinées p. 348, tab. 24, fig. 90-98, Ann. des Sc. Nat. 1873. — 757  
Hyphis sporangiferis erectis, continuis, 150  $\mu$ . altis, basi incrassatis, sursum parum attenuatis, sporangio crasso, sphæroideo terminatis et ramosis, ramis brevissimis, horizontalibus, sæpe 2 suboppositis, sporangio donatis; sporangiis globosis, 2-8, sæpe 4 sporas continuentibus; sporis magnis, pulcherrime reticulatis, valde inæqualibus, episporio distincto præditis, uni-magni-guttatis, 16-24  $\mu$ . longis.  
*Hab.* in fimo equino et in reliquiis cerevisiæ loco humido servatis, socio *Dictyostelio mucoroide*, Paris Galliæ.
10. **Mortierella echinulata** Harz Einige neu. Hyph. Bull. Soc. nat. Moscon. 1871, t. XLIV, p. 145, *Mortierellæ polycephalæ* affinis, a qua differt hyphis subinde e basi furcatis, sporangiis tantum, 4-6 rarius 8 sporas gerentibus; sporis crassioribus (12-15  $\mu$ . diam.), globosis vel subglobosis, episporio minute echinulato. 758  
*Hab.* gregarie in mycelio Mucorum plurimorum præsertim Mucoris stercorei prope Berlin Germaniæ et Wien Austriae.
11. **Mortierella nigrescens** Van Tiegh. Trois. Mém. sur les Mucor. Ann. des Sc. Nat. 1876, p. 380, tab. 13, fig. 91-104. — 759  
Mycelio arachnoideo, lanoso, albo, dichotome ramoso, demum brunneo, septato; hyphis sporangiferis ex filamentis mycelicis extremis oriundis, erectis, 1-1½ mm. altis, sursum sensim attenuatis, sporangio globoso terminatis, ramosis, ramis et ramulis basi leniter incrassatis, ut in *M. Candelabro* dispositis, in sporangium sphæroideum desinentibus; sporangiis ab hyphis sæptulo convexo divisis hyphisque adfixis; sporis minutis cylindraceo-rotundatis vel reniformibus, 6-8  $\approx$  3-4, inæqualibus, hyalinis.  
*Hab.* in fungis carnosis putrescentibus, Paris Galliæ.
12. **Mortierella minutissima** Van Tiegh. Trois. Mém. sur les Mucor. Ann. des Sc. Nat. p. 385, tab. 13, fig. 89-90. — 760  
Minuta, *M. reticulata* gracilior; hyphis sporangiferis erectis sursum attenuatis, 0,1 mm. altis, basi appendiculis mycelicis destitutis, sæpe biramosis, continuis, sporangio sphæroideo terminatis; ramis obclavatis, simplicibus, sporangium oligosporum gerentibus; sporis globosis, quandoque leniter irregularibus, levibus, granulosis vel nucleo magno repletis, 8-10  $\mu$ . diam., hyalinis.  
*Hab.* in *Dædalea* sub campana vitrea studio servata, Paris Galliæ.
13. **Mortierella Candelabrum** Van Tiegh. Le Monnier Rech. sur les Mucor. p. 348, tab. 24, fig. 99-102. — 761  
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  $\mu$ . diam. hyalinis, stylosporis sphaeroideis, echinatis, 16-20  $\mu$ . diam.

*Hab.* in reliquiis cerevisiæ loco udo servatis, Paris Galliaë. —

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  $\mu$ . diam., hyalinis. In lignis putrescentibus, Sutton Britanniaë.

14. **Mortierella biramosa** Van Tiegh. Ann. des Sc. Nat. 1875, p. 110, 762  
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  $\mu$ . diam., hyalinis; stylosporis globosis muricatis, 9-10  $\mu$ . diam.

*Hab.* in fimo murino, Paris Galliaë. — *M. Candelabro* affinis.

15. **Mortierella Ficariae** Therry et Thierry Nouv. espec. de Muc. du 763  
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 Ficariae ranunculoidis, Lion Galliaë.

16. **Mortierella diffluens** Sor. Ueber die Wirkung des Lichtes auf die 764  
Pilze. — Sporangiiis 15-18 sporas gerentibus, rimulosis, in aqua mox diffluentibus; sporis 9-10  $\mu$ . diam., episporio crasso, hyalinis.

*Hab.* ad Mucorem Mucedinem in Rossia.

17. **Mortierella Rostafinskii** Bref. in Sitz. Ges. naturf. Fr. Berl. 1876. 765  
— 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, artissime 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  $\mu$ . latis, ramis sæpe spiraliter contortis; sporangiis globosis, 200  $\mu$ . 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. Syncephalideæ* VAN TIEGH.

Hyphæ mycelicæ tenues, anastomosantes; sporangia cylindræa, simplicia vel ramosa, columellâ destituta; sporæ seriatæ.

**PIPTOCEPHALIS** De Bary et Woron in Bain. Observ. Mucor. p. 91 (Etym. a *pipto* cado et *cephale* caput). — Hyphæ sporangiferæ pluries furcatæ. Ramuli ultimi apice rotundati vel acuti, vesiculam inflatam gerentes. Vesicula plerumque tuberculigera, sporangia numerosa cylindræa gerens. Sporæ cylindræa vel sphæroideæ, subhyalinæ.

**Clavis analytica specierum.**

- A) Hyphæ sporangiferæ primo repentes, dein erectæ.  
† Sporæ cylindræa.  
*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 cylindræa. Vesicula sporangifera irregulariter tuberculosa.  
*P. arrhiza*. Ramuli ultimi bilobi. Sporæ 4-5  $\mu$ . latæ.  
*P. Freseniana*. Ramuli ultimi simplices. Sporæ 2,5-3,5  $\mu$ . latæ.  
*P. cylindrospora*. Ramuli ut in *P. Freseniana*. Sporæ 2  $\mu$ . latæ.  
†† Sporæ sphæricæ.  
*P. sphærospora*. Vesicula globosa, sursum tuberculigera. Sporæ 2-3  $\mu$ . latæ.

1. **Piptocephalis repens** Van Tiegh. et Le Monn. Rech. sur les Mucorinées p. 364, tab. 25, fig. 107-109. — Mycelio repenti, stolonibus 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  $\mu$ . crassis, hyalinis.

*Hab.* in fimo equino in Gallia (Cornu).

2. **Piptocephalis microcephala** Van Tiegh. Ann. des Sc. Nat. 1875, 768 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  $\mu$ . 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 Galliae. — Hyphæ fertiles basi septatæ, longitudinaliter brunneo-striatæ.

3. **Piptocephalis fuispora** Van Tiegh. Ann. des Sc. Nat. 1875, p. 146, 769 tab. 4, fig. 137-145. — Mycelio arachnoideo, albo, dichotome ramoso, repente; hyphis fertilibus erectis, 15  $\mu$ . diam., ramosis, ramis 4 inferioribus et 3 mediis subverticillatis, extimis 2 minutis, 1-2  $\mu$ . diam., apice vesiculoso-inflatis, vesicula globosa, ad basim septata, demum dilabente, 5-7  $\mu$ . diam., tubercula minuta gerente; sporangiis cylindraceutis tuberculis insertis, oligosporis; sporis late fusoideis 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 Mu- 770 cor. 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  $\mu$ . crassis.

*Hab.* in fimo equino, socio *Mucore Mucedine* et *Chaetocladio Jonesii*, Paris Galliae. — Affinis *P. Freseniana*, 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 771

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  $\mu$ . 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  $\mu$ . 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. — 773 Hyphis fertilibus erectis, demum brunneis, parce dichotome ramosis, 0,5 mm. altis, ramulis extimis apice vesiculoso inflatis, vesicula basi septata, sursum tuberculigera, sphæroidea, 6  $\mu$ . diam., demum caduca, sporangiis cylindræis, tuberculis insertis, radiantibus; sporis sphæroideis, hyalinis, 2-3  $\mu$ . diam.

*Hab.* in stercore felino parasitice in mycelio Mucorum nec non *Chætocladii 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 furcatæ 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. spherica*. Sporæ 8-9 ≈ 3-4; hyphæ sporangiferæ basi inflatæ, sursum at-  
tenuatæ.

*S. pendula*. Sporæ 4 ≈ 2; hyphæ sporangiferæ ut in *S. spherica*.

*S. fusigera*. Sporæ 35-44 ≈ 8,5; hyphæ sporangiferæ medio parum inflatæ.

\*\* Sporæ sphaeroideæ.

*S. ventricosa*. Sporæ 3 μ. diam.; hyphæ basi sphaeroideo-ventricosæ, apice  
haud furcatae.

*S. furcata*. Sporæ 6 ≈ 3; hyphæ basi sensim incrassatæ, apice furcatae.

§§ Sporangia omnia ramosa.

\* Dichotoma.

a) Spora basalis symmetrica.

*S. cordata*. Sporangia numerosa; sporæ 8-10 ≈ 5-6.

*S. tetrathela*. Sporangia tantum 4; sporæ 4 μ. diam.

b) Spora basalis unilateralis.

*S. asymmetrica*. Sporæ 5-6 ≈ 4.

\*\* Polytoma.

a) Spora basalis transverse linearis.

*S. depressa*. Sporæ 5-6 ≈ 3.

b) Spora basalis conica.

*S. minima*. Hyphæ cylindraceæ, continuæ; sporæ 6 ≈ 1-2.

*S. nodosa*. Hyphæ primo æquales, dein line illine annulatim nodosæ; sporæ  
8-10 ≈ 6.

§§§ Sporangia partim simplicia, partim ramosa, commixta.

*S. intermedia*. Tantum basi ramosa; sporæ 6-12 ≈ 6.

*S. ramosa*. Basi et sursum etiam ramosa; sporæ 6-12 ≈ 6-8.

†† Fasciculatæ.

*S. fasciculata*. Sporæ 6 ≈ 4.

B) Hyphæ sporangiferæ incurvæ.

*S. Cornu*. Hyphæ sporangiferæ e basi attenuata sursum dilatatæ et cornus  
ad instar incurvatæ; sporæ 10-12 ≈ 4-5.

*S. nigricans*. Hyphæ sporangiferæ subæquales, cornus fere ad instar incur-  
vatæ; sporæ 6 ≈ 4.

*S. reflexa*. Hyphæ sporangiferæ subæquales, lunatim mox curvatæ; sporæ  
7-8 ≈ 3-4.

1. **Syncephalis spherica** Van Tiegh. Nouv. Rech. sur les Mucorinées 774  
in Ann. Scienc. Nat. 1875, p. 125, t. III, 105-109. — Hyphis spo-  
rangiferis 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  $\mu$ . lat.), filamenta simplicia superne radiatim exerentem, dilatatis; filamentis intus sporas seriatas generantibus; sporis cylindricis, 8-9  $\times$  3-4, hyalinis.

*Hab.* in fimo equino, sociis Mucoribus, in Gallia. — *A. L. depressa* 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 cylindræis, tenuibus, longiusculis, primo erectis, dein pendulis, apice vesiculæ insertis, 20-40-sporis; sporis cylindræis, utrinque truncatis, catenulatis, minutis, 4  $\times$  2, hyalinis.

*Hab.* in Sphagno udo, parasitica in hyphis Absidiæ repentis, Paris Gallia. — 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 cylindræis, papilla insertis, bisporis; sporis fusoides, 35-44  $\times$  8,5.

*Hab.* inter muscos ad stipites Agaricorum, Paris Gallia.

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 cylindræis, verrucis insertis, in fasciculum cylindræo-conicum collectis; sporis minutis, sphaeroideis, catenulatis, 3  $\mu$ . diam., hyalinis.

*Hab.* in mycelio Mucorum in stercore canino evolutorum, Paris Gallia. — 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  $\mu$ . alta; hyphis sporangiferis erectis, basi sensim incrassatis, apice furcatis; ramis apice vesiculoso-inflatis, vesiculis sursum minute verrucosis; sporangiis brevibus 4-5-sporis, cylindræis, radiantibus, verrucis insertis, sporis ovoideo-truncatis, 6  $\times$  3, hyalinis.

*Hab.* in fimo equino parasitica in hyphis Mucorum, Paris Gallia. — 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  $\mu$ . latis, e rhizoidibus dichotomis, uncinatis, stipatis exsurgentibus, sursum attenuatis, apice conico-inflatis, usque ad 66  $\mu$ . diam., flavidis; vesicula sursum tuberculigera, monosporangifera, sporangio in ramos duos cylindræcos diviso; basidiosporis ovatis vel cuneatis, subinde cordatis; sporangiis cylindræcis 60-80  $\approx$  5-6 flavis; sporis 8-10  $\approx$  5,6, episporio levi, flavescente. 779

*Hab.* plerumque in fimo, Paris Galliaë et Breslau Germaniæ. — 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  $\mu$ . alta; hyphis sporangiferis, erectis, cylindræcis, apice vesiculoso-inflatis, vesiculis sursum applanatis, hemisphæricis, 4-tuberculigeris; tuberculis sporangia gerentibus; sporangiis e basi furcatis, cylindræcis, oligosporis; sporis sphæroideis, pallide flavis v. subhyalinis, 4  $\mu$ . diam., catenulatis. 780

*Hab.* in fimo equino, parasitice in hyphis Mucorum, Paris Galliaë.

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  $\mu$ . altis, sursum vesiculoso-inflatis, tuberculis asymmetrice evolutis, bisporangiferis; sporangiis cylindræcis, 3-5-sporis; sporis medio inflatis, ovoideis, utrinque truncatis, 5-6  $\approx$  4, primo pallide luteis dein brunneis. 781

*Hab.* in fimo equino, Paris Galliaë et Breslau Germaniæ. — 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 cylindræcis, medio minus latis, utrinque nucleatis, 5-6  $\approx$  3, hyalinis. 782

*Hab.* in fimo equino, Paris Galliaë.

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, subcylindræcis, sursum plano-dilatatis, 100  $\mu$ . longis; sporangiis tuberculis pro ratione magnis, obconoideis, 2-5 inser-

tis, cylindræis, divergentibus; sporis cylindræis catenulatis, utrinque truncatis, 6 = 1-2, hyalinis.

*Hab.* in fimo equino, socio sæpe Mucore Mucedine, Paris Galliaë 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  $\mu$ . altis, 9-10  $\mu$ . latis, prima ætate æquilatis, dein hinc illinc annulato-inflatis, sursum vesiculoso-inflatis; vesicula 22  $\mu$ . lata, verruculis parvis orbiculatis instructa, plerumque 10-12 sporangifera; sporangiis 3-5 cylindræis 25  $\mu$ . circ. longis; sporis rugosis, 8-10 = 6, rufis; conidiis globosis, 6  $\mu$ . diam., subtiliter granulosis, in hypharum mycelicarum ramulis laterali-  
 bus insertis, mucronatis; zygosporis globosis, 21  $\mu$ . diam., verruculosis.

*Hab.* in stercore equino, elephantino, etc. ad Mucorineas parasitans, 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  $\mu$ . altis; apice vesiculoso-inflatis; cellulis basilaribus sporangiorum triangularibus; sporangiis cellula basilari insertis, simplicibus vel sursum bifurcatis vel demum ad basim bifurcatis, at tum cellula basilari asymmetrica, cylindræis, 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 sporangiferis 500-600  $\mu$ . altis, primo flavis, demum rufescentibus, cylindricis, 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 subcylindræis, 6-12 = 6-8.

*Hab.* in stercore canino, Paris Galliaë.

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  $\mu$ . altis, basi 16-20  $\mu$ . lata, sursum attenuatis, 4-6  $\mu$ . latis, in vesiculam sphæroideo-depressam, 28  $\mu$ . latam, verruculosam inflatis; sporangiis oligospo-

ris, cylindræis, cellulis cordiformibus e verrucis orientibus insertis, simplicibus vel furcatis; sporis cylindræis, utrinque truncatis,  $6 \approx 4$ , hyalinis.

*Hab.* locis udis vel in aqua. Paris Galliaë.

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  $\mu$ . altis, rhizoidibus brevibus, hyalinis, subrevolutis, basi 11  $\mu$ . latis, sursum 26  $\mu$ ., dein sursum constrictis, circ. 9  $\mu$ . latis, demum in vesiculam globosam tuberculigeram, 30-33  $\mu$ . diam. abeuntibus; sporangiis vesicula suffultis, simpliciter cylindricis, subsexsporis; sporis ellipticis, 10-12  $\approx$  4-5, episporio crasso, flavido; zygosporis globosis, 24-28  $\mu$ . diam., episporio verrucoso flavo-brunneo.

*Hab.* ad Mucorineas in fimo pr. Paris Galliaë et Breslau Germaniæ.

16. **Syncephalis nigricans** Van Tiegh. Trois. Mém. sur les Mucor. p. 387, tab. 13, fig. 110-111. — Hyphis sporangiferis erectis, cylindræis sursum incurvatis apice vesiculoso-inflatis, basi incrassatulis primo hyalinis, dein brunneis, 80  $\mu$ . altis; sporangiis verrucis insertis, cylindræis, radiantibus; sporis ovoideis,  $6 \approx 4$ , brunneis, catenulatis.

*Hab.* in fimo equino, parasitice in hyphis Mucorum, Paris Galliaë. — 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  $\mu$ . altis, rhizoidiferis, 9-12  $\mu$ . crassis, subæqualibus, apice in vesiculam inflatis reflexisque; vesicula globosa, media superiori parte verruculosa, 40-45  $\mu$ . lata; sporangiis simplicibus, cylindræis, 35  $\mu$ . circ. longis; sporis elliptico-cylindræis, 7-8  $\approx$  3-4, levibus, flavidis; stylosporis ut in *S. nodosa*.

*Hab.* in fimo, Paris Galliaë et Breslau Germaniæ.

**SYNCEPHALASTRUM** Schroet. Krypt. Flor. Schles. Pilze pag. 217 (Etym. a *syn* cum, *cephale* caput et *astrum*). — Mycelium æquilatum, ramosum, citra substratum expansum. Hyphæ sporangiferae erectæ, basi rhizoidibus destitutæ, ramosæ, ramis capitulato-inflatis. Sporangia cylindræa. Sporæ subglobosæ, seriatae, hyalinae.

1. **Syncephalastrum racemosum** Cohn in Schroet. Krypt. Fl. Schles. 791

Pilze pag. 217. — Cæspitulo albo; hyphis sporangiferis umbellatim ramosis, apicibus globoso-inflatis, ramis usque ad vesiculam haud attenuatis, circ. 13-16  $\mu$ . crassis, vesicula 33-35  $\mu$ . diam.; sporangiis subremotis, 20-25  $\times$  3-4,5; sporis subglobosis, 3-4  $\mu$ . diam., hyalinis.

*Hab.* inter Aspergillum Oryzæ in Oryza et pane, Breslau Germaniæ (E. FRANK).

## Fam. 2. **Peronosporaceæ** DE BARY.

Hyphæ sæpe ramosæ, conidia sæpius zoosporipara, subinde directe 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 gignentis.
- 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 évacuantia.  
*Sclerospora*. Oosporæ episporio crasso tectæ. Zoosporæ evolutæ.  
*Plasmopara*. Oosporæ episporio tenui tectæ. Conidia zoosporas vel protoplasma (ante germinationem) ex toto évacuantia.  
 §§ 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. (Etym. a *cystis* vesica et *pus* pes). — Hyphæ conidiophoræ simplices, leves, cylindrææ vel clavatæ, obtusissimæ, in ramis mycelii fasciculatæ atque in soros pulvinatos copiosissime congregatæ, singulæ apice conidorum seriem moniliformem gerentes. Sori epidermide plantæ nutricis 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. Oosporæ globosæ, episporio plerumque reticulato vel verrucoso.

1. **Cystopus candidus** (Pers.) Lév. in Ann. Scienc. Nat. Ser. 3, 1847, <sup>792</sup> t. VIII, p. 371, *Uredo candida* Persoon Syn. Fung. 233, *Cœoma 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  $\mu$ . diam., membrana circumcirca æquali, achroa; oosporis subglobosis, 35-40  $\mu$ . 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*, *Echinospemi Lappulæ*, *Brassicæ Rapæ* et *B. nigræ*, *Evacis pygmeæ*, *Sisymbrii Sophiae*, 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*, *Stenophragmatis Thalianæ*, *Sinapis arvensis*, *Berteroe incanæ*, *Cochleariæ Armoraciæ*, *C. Groelandicæ*, *Thlaspeos arvensis*, *Teesdaleæ nudicaulis*, *Vogeliæ paniculatæ*, *Rhaphani Rhaphanistri* et *R. sativi* in Europa, Africa, Asia et America boreali et austr.

2. **Cystopus Tragopogonis** (Pers.) Schroet. Krypt. Flor. Schles. Pilze <sup>793</sup> 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. Wetterauer 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 præditis, ceteris zoosporiparis, breviter cylindricis, membrana hyalina, 20-22  $\mu$ . lata, annulo transverso incrassato munita; zoosporis lenticularibus, compressis; oosporis globosis, 45-55  $\mu$ . diam., episporio brunneo, verrucis cavis, rotundis vel varie lobatis minute tuberculatis dense obsito, præditis.

*Hab.* in foliis caulibusque Tragopogonis pratensis, T. orientalis, Scorzonæræ humilis, S. hispanicæ, Centauræ Jaceæ, C. Scabiosæ, Pyrethri Parthenii, P. laciniati, 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 Algeriæ Africae.

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  $\mu$ . diam. membrana crassa flavescenti, basi sæpe umbilicata aut prorsus sterilibus, aut (sec. Tulasne) regulariter trisulcatis et germen tubulosum emittentibus; ceteris conidiis 14-17  $\mu$ . diam., zoosporiparis achrois, hyalinis, cylindrico-ovoideis, membrana circumcirca æquali; zoosporis lenticularibus, compressis; oosporis globosis, 45-60  $\mu$ . diam., atro fuligineis; episporio plicis tenuibus, parum elevatis, connexis laxè reticulato, præditis.

*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 zooporiis, 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. Bernhadi Stirp. sicul. III. 11, *Cvoma 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 gigantibus et ex apice aperto emittentibus, membrana hyalina anulum transversum incrassatum præbentem munitis; oogonis sphaericis, 65  $\mu$ . diam., ochraceis; oosporis sphaericis, 40-55  $\mu$ . diam., eximie elevato-areolatis, areolis 6-7  $\mu$ . 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 cannabinæ 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. — 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. spinosæ* 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 <sup>800</sup> pulverulentis; conidiis oblongis, 1-8  $\mu$ . longis, uno latere gemmatis.

*Hab.* in foliis Compositarum in insula Cuba.

10. **Cystopus quadratus** Kalch. et Cooke in Grevillea. — Epiphyllus; <sup>801</sup> 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 *phylon* 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. <sup>802</sup> 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 dév. in Ann. Scienc. Nat. 1863, sér. 4, tab. XX, pag. 104, *Botrytis infestans* Mont. Mém. 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 patentisque gerentibus; ramis aut simplicibus aut rarius ramulo brevi munitis (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, præcipue *S. tuberoso*, in tota Europa et

America. — Mycelium in tuberibus perennat, omnes partes herba-  
ceas invadit totamque plantam destruit. Hyphæ conidiophoræ præ-  
sertim e foliorum pagina inferiore emergunt, cæspites latos, albos  
ibi sistentes. Oosporæ ignotæ. An fructificatio *Artotrogi hydno-*  
*spori* Mont.? (Confr. De Bary Rech p. 105).

2. **Phytophthora Cactorum** (C. et L.) Schroet. Krypt. Fl. Schles. p. 236, 803  
*Peronospora Cactorum* Cohn et Lebert Beiträge zur Biol. d.  
Pflanzen I, p. 56, *Peronospora Fagi* Hartig, *P. Sempervivi* Schenk,  
*Phytophthora omnivora* De Bary. — Hyphis mycelicis gracilibus  
nonnumquam torulosis, ramosis; ramis angulo recto patentibus,  
haustoriis destitutis; hyphis conidiophoris tenuibus unilateraliter  
parcè ramosis, sub apicibus ramorum conidiferorum non raro ve-  
siculoso 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 mem-  
brana tenui marcescente munitis, singulis oosporam singulam exa-  
cte globosam, 24-30  $\mu$ . diam., episporio valido luteo-fusco, pellu-  
cido, levi præditam foventibus.

*Hab.* in meatibus intercellularibus parenchymatis variorum Ca-  
ctorum in Vratislavia aliisque in plantis: ex gr. Sempervivo,  
Cleome, Clarkia, Alonsoa, Schizantho etc., in Ger-  
mania.

**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 eva-  
cuantia. Oosporæ globosæ, episporio crassissimo, pluristrato, brunneo.

1. **Sclerospora graminicola** (Sacc.) Schroet. Krypt. Flor. Schles. p. 236. 804  
*Peronospora graminicola* Sacc. in Michelia II, p. 586, *P. Seta-*  
*riæ* Pass. *Ustilago Urbani* Magnus. — Hyphis dense gregariis,  
brevibus, continuis, subhyalinis, 80-120  $\approx$  15-16, nunc sursum den-  
ticulatis tantum, nunc ramulos trifidos exerentibus; conidiis elli-  
psoideis, hyalinis, granulosis, 12-20  $\approx$  10-18.

*Hab.* in foliis *Setariæ* viridis et italicæ in Gallia, Italia et  
Germania et in Amer. bor. — Status oogoniophorus (*Protomyces gra-*  
*minicola* Sacc. M. V. n. 496): oosporis sub epidermide punctulati-  
tumidis nidulantibus dense gregariis, e globoso-angulosis, 40-42  
diam., episporio crasso, intense ochraceo-fulvo, initio hyalinis, plu-  
riguttatis. Dum oosporæ maturæ comprimuntur, episporium findi-  
tur exitque, velut ab asco, endospora tota hyalina, perfecte sphæ-

rica, diam. 23  $\mu$ ., 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., Borussiæ etc.

**PLASMOPARA** Schroet. Krypt. Flor. Schles. Pilze pag. 236 (Etym. a *plasma* et *pario*), *Basidiophora* Roze et Cornu, *Gilletia* Sacc. et Penz. *Peronospora zoosporiparæ* et *plasmatorparæ* 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 21 Rep. on the St. Mus. p. 45. — Hyphis hypophyllis expansis in cæspitulos sordide albos, sæpe brunneos, tandem fere conglutinis, cylindricis, continuis, subhyalinis, 150  $\approx$  12-15, basi levissime inflatis, acutis fibrillisque parvis mycelicis instructis, apice leniter inflatis rotundatisque; sterigmatibus paucis (8-12) bacillaribus, sursum subincrassatis, 10  $\approx$  1,7; conidiis ovatis, siccitate coffeiformibus, papillatis, 20-26  $\mu$ . diam., nubiosis, dilutissime flavido-hyalinis; microconidiis ovatis, 5-6  $\approx$  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 = 13-17, apice lato rotundatis vel subtruncatis, papilla destitutis, hyalinis; oogonis membrana tenui hyalina vel lutescente, oosporas subglobosas, 30-38  $\mu$ . diam., episporio tenui, fuscescente, diaphano, levi munitas foventibus.

*Hab.* in foliis nec non in racemis *Vitis viniferae*, *V. æstivalis*, et *V. Labruscae* in Italia, Tyrolia, Gallia, Belgio, Carolina australi et Africa bor. — Microconidia globulosa (nec ovoidea) 5-6  $\mu$ . diam. (nec 14-15 = 10-11) in apicibus ramulorum capitato-congesta longiusque stipitellata, hyalina, nubilosa rarius occurrunt.

3. **Plasmopara pygmæa** (Ung.) Schroet. Krypt. Flor. Schles. Pilze p. 239. 807

*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 divisus aut breviter bis dichotomis, ceterum omnino simplicibus, aut sub apice divisus ramos 1-4 breves, horizontaliter patente, semel, bis terve dichotomos gerentibus; ramulis ultimis cylindrico-conicis, conidiis delapsis subtruncatis; conidiis ovoideis vel ellipsoideis, 20-26 = 15-19, apice latis et obtuse papillatis; oosporis globosis, 45-53  $\mu$ . diam., maturis oogonii membranam tenuem pallide luteo-fuscam, pellucidam omnino fere explentibus, episporio tenui, diaphano, pallide luteo-fusco, levi vel subrugoso, endosporio crasso, nitido munitis.

*Hab.* in foliis *Anemones nemorosæ*, *A. ranunculoidis*, *A. alpinae*, *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 808  
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, 14! *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, bis terve trifurcatis; ramis primi ordinis plerumque brevissimis, rarius elongatis, ultimis e basi lata subulatis, patentibus, rectis, raro subflexuosis; conidiis subgloboso-ovoideis, tenuiter tunicatis, raro subflexuosis; apice papilla obtusissima vix prominente munitis, 20-25  $\approx$  15-17, hyalinis, dense granuloso-farctis; oogoniis irregulariter subglobosis, hyalinis vel pallide fuscescentibus, rigidiusculis; oosporis sphaeroideis, levibus vel subrugosis, pallide luteo-fuscis, majusculis.

*Hab.* in foliis vivis Umbelliferarum variarum, præcipue Ægopodii Podagrariæ, Angelicæ silvestris, Anthrisci silvestris, Siliatifolii, 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  $\mu$ . altis, summo apice semel bisve dichotomis, raro trichotomis, sæpius pseudo-trichotomis, ramo primario altero bifurco, altero simplici; ramis omnibus brevissimis, 10-11  $\mu$ . 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  $\mu$ . longis, apice papillatis; oosporis globosis, 40  $\mu$ . 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* 810

*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  $\mu$ . diam., oosporis sphaericis, 23-30  $\mu$ . diam., episporio luteo, inconspicue plicato, endosporio 3.  $\mu$ .

*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. daronicoidis, Solidaginis Riddellii, S. Canadensis in America bor.

7. **Plasmopara Geranii** (Peck) Berl. et De Ton. *Peronospora* *Gera-* 811

*anii* 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  $\mu$ . 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* 812

*obducens* Schroet. Hedw. XVI, pag. 129, Sept. 1877, Proc. Am. Acad. XVIII, pag. 70. — Mycelio varicoso, haustoriis latiusculis, sphaeroideis; 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  $\mu$ . diam., episporio luteo, leviusculo, 1-5  $\mu$ . 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  $\mu$ . 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  $\mu$  = 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; cæspitulis primo candidis, dein sordide flavescentibus; hyphis conidiophoris 200 circ.  $\mu$ . altis, apice vel sursum in 2-3 ramos terminales divisis, in tertia superiori parte 1-3 ramos horizontales, 1-3 ramulis secundariis præditos gerentibus; conidiis ovatis vel subglobosis, 13-15  $\mu$  = 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 *Odonitidis* 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. — Cæspitulis tenuibus, albis, maculiformibus; hyphis conidiophoris rigido-erectis, 200-400  $\mu$ . altis, 3-5 ramis patentibus præditis, in apicem acutum plerumque abeuntibus; ramis vero 3-5 ramulos laterales gerentibus; conidiis breviter ellipticis, 15-20  $\mu$  = 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. BREMI). — 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 spheri-

dea, apice depresso papillata. Oosporæ globosæ, minutæ, episporio subrugoso, luteo-fusco.

1. **Bremia Lactuæ** Regel Bot. Zeit. 1843, St. 39, tab. III, *Peronospora gangliformis* (Berk.) De Bary Rech. sur le dév. in Ann. des scienc. nat. 1863, 4 sér. XX, p. 108, *Botrytis ganglioniformis* Berk. Journ. Hort. Soc. Lond. I, p. 51, tab. 4, *Peronospora ganglioniformis* Tul. Compt. rend. XXXVIII, 26 m. Jun. 1854, *Botrytis parasitica* var. *Lactuæ* Berk. Brit. Fung. n. 331, *B. Lactuæ* 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 nivea* 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 = 16-20 apice papillam latam depressamque gerentibus; oogonis conglomeratis; oosporis minutis sphæroideis 26-34  $\mu$ . diam., pellucidis, subrugosis, luteo-fuscis.

*Hab.* in foliis vivis Helichrysi chrysanthi, Senecionis vulgaris, Jacobææ hybridæ, Cirsii lanceolati, C. oleracei, C. cani, C. arvensis, Centauræ Jaceæ, C. Cyani, Lampsanæ communis, Leontodontis autumnalis, L. hispidi, Tragopogonis pratensis, Hypochoeris glabræ, H. radicata, Mulgedii alpini, M. leucophæi, Lactuæ 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 solitariae vel fasciculatae, e stomatibus plantarum erumpentes, cylindræ, pluries dichotomo-ra-

mosæ. Ramuli terminales plerumque acuto-incurvi vel uncinato-subulati. Conidia ovata v. elliptica, papilla apice destituta, lateraliter germinantia.

- A) *Calothecæ* De Bary. — Oosporæ globosæ, episporio verrucoso vel reticulato-plicato tectæ. Mycelium plerumque haustoria filiformia, ramosa tubosque teretes præbet.

1. **Peronospora calotheca** De Bary sur le dév. des Champ. par. p. 111, 817  
n. 9, *P. Galii* Fuck. Fungi rhen. n. 28, *P. Sherardicæ* Fuck. ibid. — Hyphis conidiophoris gracilibus, 7-9-ies dichotomis; ramis primariis oblique erectis, ceteris omnibus patentissimis, squarrosis, gracilibus, ultimis angustissimis, pænultimis 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*, *Asperulæ odoratæ* et *Sherardicæ arvensis* in Italia, Gallia, Britannia, Belgio et Germania, inque America boreali.

2. **Peronospora Myosotidis** De Bary Rech. sur le dév. in Ann. Sc. 818  
Nat. 1863, sér. 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  $\mu$ . diam., episporio valido, læte luteo-fusco, cristis crassis acutiusculis, elevatis regulariter grosse et late reticulato munitis.

*Hab.* in foliis *Myosotidis intermediae*, *M. vernæ*, *M. versicoloris*, *M. arvensis*, *M. hispidæ*, *M. sparsifloræ*, *Omphalodis scorpioidis*, *Symphyti officinalis*, *S. tuberosi*, *Lithospermi arvensis* in Italia, Germania, Belgio, Gallia, Anglia, Helvetia, Lapponia et in America boreali.

3. **Peronospora Viciæ** (Berk.) De Bary Rech. sur le dév. in Ann. Sc. 819  
Nat. 1863, 4 sér. t. XX, p. 112, Hedw. 1864, n. 9, p. 135, *Botrytis Viciæ* Berk. Journ. Hort. Soc. I, 31, *Peronospora effusa* var. *intermedia* Caspary in Rabenh. Herb. Myc. ed. II, n. 490. — Hyphis conidiophoris dense cæspitosis, rectis, æqualiter, rarius inæqualiter, 6-7-8-ies dichotomis; ramis ordinum superiorum squarroso-rigidis, ultimis breviter subulatis acutis, rectis; conidiis ellipsoi-

deis, 24-26 = 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; sporangiis in quaque foliorum cellula singulis, sphaericis, 25  $\mu$ . diam. eximie asperato-reticulatis, lutescenti-fuscidulis, monosporis; sporis sphaeroideis, tunica crassiuscula, 18-20  $\mu$ . 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, 820  
De Bary in Hedwigia 1864, n. 9, p. 135, *P. Scleranthi* Rab. in Herb. Myc. 1, 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 Fenniae. — *Protomyces Stellaricæ* 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 *Stellaricæ* et *Arenariæ* conidia majora, 22-30  $\mu$ . longa, offert; forma *Cerastiorum* conidia plerumque minora 15-18  $\mu$ . longa et hyphas conidiophoras magis divisas gracilioresque. In *Cerastiis* occurrunt tamen formæ intermediæ. «In *Prot. Stellaricæ* Fuck. (l. c.) sporæ sunt orbiculatæ,

sordide fuscæ, episporio lato, hyalino et, ut videtur e diagnosi, certe non reticulatæ et episporio fusco præditæ».

5. **Peronospora Chloræ** De Bary in Rabenh. F. Eur. n. 1590, Schroet. <sup>821</sup>  
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  $\mu$ . diam., episporio pallide brunneo, subtiliter lineato-reticulato.

*Hab.* in foliis, caulibus pedunculisque Erythrææ Centaurium, E. ramosissimæ, Chloræ perfoliatæ in Germania et Italia boreali.

6. **Peronospora Dianthi** De Bary in Hedw. 1864, p. 136, Schroet. <sup>822</sup>  
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  $\mu$ . diam., e  
castaneo brunneis, episporio plus minus obtuse tuberculoso vel verrucoso.

*Hab.* in foliis Silenæ Armeriæ, S. anglicæ, S. inflatæ, Melandryi noctiflori et Agrostemmatidis Githaginis Germania, Italia, Helvetia et Austria.

7. **Peronospora Arenariæ** (Berk.) Tulasne Compt. rend. Acad. des <sup>823</sup>  
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 cylindræis obsito.

*Hab.* in pagina inferiore foliorum Arenariæ serpyllifoliæ, A. trinerviæ, A. rubræ in Germania, Britannia, Belgio et Gallia.

8. **Peronospora Holostei** Casp. in Rabenh. Herb. Myc. ed. 2, n. 774, <sup>824</sup>  
*P. conferta* Casp. Berlin Monatsber. Mai 1855, Fock. 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. 825

— 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. 826

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  $\mu$ . diam., episporio breviter obtuseque papillato munitis.

*Hab.* in foliis *Cenotheræ biennis* in America boreali.

11. **Peronospora Fritzii** Schroet. Ueber Pilze Mad. und Teneriffa 827

pag. 1. — Maculas latas efformans; oosporis globosis, 44-50  $\mu$ . diam., sine episporio 30-35  $\mu$ . diam.; episporio crasso, labyrinthiformi-plicato, flavo-brunneo, 6-8  $\mu$ . 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. — 828

Cæspitulis albido-cærulescentibus; 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  $\mu$ . diam.

*Hab.* in pagina inferiori foliorum *Anagallidis cæruleæ*, in agris pr. Rastatt Germaniæ.

13. **Peronospora Oxybaphi** Ell. et Kellerm. New Kansas Fungi in 829

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  $\mu$ . diam., brunneolis, episporio aspero munitis.

*Hab.* in foliis *Oxybaphi nyctaginei* in New Kansas America borealis.

B) *Leiothecæ* Schroet. (Parasiticæ et effusæ De Bary). — Oosporæ subglobosæ, episporio plerumque sublevi, subinde plicatulo tectæ. Mycelium sæpius ut in sect. *Calothecæ*.

## 1. Parasiticæ.

14. **Peronospora parasitica** (Pers.) De Bary Rech. sur le dév. in Ann. 830  
 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 repetitive 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  $\mu$ . diam., levibus vel subrugosis, flavescentibus vel fuscescentibus.

*Hab.* in foliis et inflorescentiis, sæpius socio *Cystopode candido*, Cruciferarum plurimarum, e. gr. *Capsellæ* Bursæ 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 Alliaris*, *S. officinalis*, *S. Sophiae*, *Erysimi cheiranthoidis*, *Cheiranthi Cheiri*, *Matthiolæ 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*, *Diploxeos tenuifoliæ*, *Bunia-*

dis orientalis, Rhapsani sativi et Rhapsanistri per totam Europam, Americam et pr. Minussinsk Sibiriaë asiaticæ. — «An huc spectat *Peronospora crispula* Fuck.?»

15. **Peronospora crispula** Fuck. F. Rh. 22, Symb. Myc. pag. 67. — 831

Cæspitibus laxis, dein in maculis exaridis; hyphis erectis, dichotomo-ramosis; ramis crispulis, curvatis, ramulis ultimis inæqualibus curvatis; conidiis globosis.

*Hab.* in pagina inferiore foliorum Resedæ luteolæ in Mühlthal prope Nassau Germaniæ.

16. **Peronospora Claytoniæ** 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  $\mu$ . diam., brunneis, episporio plus minus rugoso præditis.

*Hab.* in foliis Claytoniæ Virginicæ, 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 iacurvis, angustissimis; conidiis ellipsoideis, 25-28  $\approx$  20-22, granulosis, hyalinis; oogonis in parenchymate folii nidulantibus, globoso-angulosis, 45-55  $\mu$ . diam., membrana crassissima, 10-15  $\mu$ . cr., melleis, oospora pallidiore, globosa, 25-28  $\mu$ . diam., episporio 2,5-3  $\mu$ . 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. — Cæspitulis sordide albis vel dilute violaceis, late expansis; hyphis mycelicis teretibus, raro varicosis; haustoriis raris, filiformibus, ramosis, curvatis; hyphis conidiophoris hyalinis, laxè 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  $\mu$ . diam., episporio tenui, sublevi, dilute fusco-pellucido.

*Hab.* in foliis caulibusque Corydalis solidæ, C. cavæ et C. intermediæ in Germania, in Neerlandia et in Amer. bor.

## 2. Effusæ.

19. **Peronospora Ficariæ** Tul. Compt. rend. 26 Janv. 1854, *F. gri-* 835  
*sea* Rabenh. Herb. Myc. n. 322, *P. nivea* (ex parte) Unger Bot.  
 Zeit. — Cæspitulis sordide albis vel dilute violaceis, late expan-  
 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 = 15-20; oosporis palli-  
 de fusco-lutescentibus, episporio crassiusculo levi donatis, 22-32  
 $\mu$ . diam.; oogoniis subglobosis, fulvis, 35  $\mu$ . 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 dev. 836  
 Ann. Sc. Nat. 1863, ser. 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*  $\beta$ . *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 = 13-18, vix violaceis; oospo-  
 ris episporio brunneo, substriato munitis.

*Hab.* in pagina inferiore foliorum Papaveris somniferi,  
 P. Rheadis, 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 =  
 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 dev. 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 huc *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 patentem; conidiis globosis, lutescentibus, 21-23  $\mu$ . diam.

*Hab.* in pagina inferiore foliorum *Geranii pusilli* et *G. mollis* in Germania, Belgio. — «An huc *Peronospora Erodi* Fuck. spectat?»

25. **Peronospora Trifoliorum** De Bary Rech. sur le Dév. 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 sphæroideis, 25-34  $\mu$ . 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 variæ, Astragali Canadensis, et Orobi tuberosi in Italia, Britannia, Gallia, Belgio, Germania et America boreali. — Duas cl. Saccardo formas distinguit:  $\alpha$ . Ononide: in Ononidis;  $\beta$ . Medicaginis in Medicagine.

26. **Peronospora Potentillæ** De Bary Rech. sur le dév. in Ann. Sc. Nat. 1863, sér. 4, t. XX, pag. 124. — Hyphis conidiophoris gracilibus, dense cæspitosis, 5-6-ies dichotomis; ramis modice elongatis, flexuosis, ultimis longe subulatis, arcuatis; conidiis ellipsoideis, 20-26  $\mu$  = 15-19, obtusissimis, dilutissime violaceis; oosporis sphaeroideis, 22-24  $\mu$ . diam., luteis, levibus. 842

*Hab.* in foliis Potentillæ aureæ, P. argenteæ, P. norvegicæ, P. supinæ, P. grandifloræ, P. Fragariastris nec non Alchemillæ vulgaris, Sanguisorbæ officinalis et Agrimonie Eupatorii in Germania Gallia Belgio et America boreali.

27. **Peronospora Herniarie** De Bary sur le dév. in Ann. Scienc. Nat. 1863, 4 sér. t. XX, p. 120. — Hyphis conidiophoris dense fasciculatis (cæspites 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 obsistis, læte fuscis. 843

*Hab.* in foliis et caulibus Herniarie hirsutæ et H. glabræ in Germania.

28. **Peronospora Chrysosplenii** Fuck. Fung. Rhen. n. 1509 et 1902, Symb. Myc. pag. 69. — Cæspitibus laxis, tenuibus albis; hyphis conidiophoris erectis, dichotomo-ramosis, ramis primariis conniventibus, ultimis subæqualibus, rectis, obtusangulo-divaricatis, obtusis; conidiis ovalibus, 20-22-15-18, magnis; oosporis globosis, levissimis, 28-48  $\mu$ . diam., dilute fuscis. 844

*Hab.* in pagina inferiore foliorum Chrysosplenii alternifolii et Saxifragæ granulatae in Germania.

29. **Peronospora Valerianellæ** Fuck. Symb. Myc. p. 69. — Cæspitulis floccosis, laxis, albidis; hyphis conidiophoris erectis, 7-9-10 dichotomo-ramosis; ramis ultimis subæqualibus, rectis, rectangulariter patentibus; conidiis obovatis, 17-20  $\mu$  = 15-17; oosporis episporio lutescenti, diaphano præditis. 845

*Hab.* in foliis Valerianellæ carinatae, V. olitorie, V.

dentatæ et *V. rimosæ* in Germania, nec non in foliis vivis *Phyllactidis salicariæfoliæ* in uliginosis Bocha del Riachuelo Argentinae. — Obs. Species in America rarissima semel tantum inventua, iterum inquirenda (Spegazzini).

30. **Peronospora violacea** Berk. Outl. of Brit. Fungol. pag. 349. — 846

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  $\mu$  = 17-19; oosporis globosis, 22-24  $\mu$ . diam., episporio irregulariter plicato, brunneo 5-8  $\mu$ . 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 violaceæ* 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 *Lathyri palustris* in Gallia.

31. **Peronospora leptosperma** De Bary Sur le dév. in Ann. des Sc. 847

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 repetitive dichotomis aut trifurcatis, 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  $\mu$  = 16-26, rectis vel curvatis, utrinque obtusissimis, candidis; oosporis sphaeroideis 38-45  $\mu$ . diam., irregulariter angulatis, pallide fuscis, episporio plicato.

*Hab.* in foliis vivis, caulibus, involucris Compositarum *Anthemidearum*, frequens in *Tripleurospermo inodoro*, *Anthemide arvensi*, *A. Cotula*, *Matricaria Chamomilla*, *Tanaceto vulgari*, *Arthemisia bienni* nec non in *Lasio-spermo radiato* in Germania, Fennia et America boreali.

32. **Peronospora Radii** De Bary in Hedw. 1864, p. 138. — Mycelii 848

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  $\mu$ . 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  $\mu$ . d., episporio pallide brunneo, 4-8  $\mu$ . 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  $\mu$ . diam., episporio obscuriori, fusco (rarius 30-34  $\mu$ . 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 dév. in Ann. Sc. Nat. 1863, 4<sup>e</sup> 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-

ceis; oosporis magnis, 30-38  $\mu$ . 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. 853  
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 = 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 hæc *Peronospora Calaminthæ* Fuck. ducenda?»

38. **Peronospora effusa** (Grev.) Rabenh. Herb. Myc. 1880, *Botrytis* 854  
*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 = 16-23, conspicue pedicellatis, sordide et dilute violaceis; oogoniis magnitudine variis; oosporis sphæroideis, 26-35  $\mu$ . 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:  $\alpha$ . *minor* ramis multo angustioribus, gracilioribus, erecto-patientibus, ultimis subulatis, subsquarrosis, rectis vel vix curvatis non deflexis; zoosporangiis globoso-ovoideis, pedicello vix conspicuo. In *Atriplice* in Fennia et Lapponia rossica (Karsten). —  $\beta$ . *Viola* in *Viola tricolore* var. ar-

vensi. — 7. *Polygoni* Thüm. Fung. austr. n. 942 et 836: a typo colore fere albido et cæspitibus tenuibus distincta. In *Polygono* (*P. effusa* var. *Aviculariæ* et *P. effusa* var. *Polygoni Convolvuli* identicæ videntur).

39. **Peronospora Euphorbiæ** Fuck. Symb. Myc. p. 71. — Cæspitibus <sup>855</sup> laxis, albidis; hyphis conidiophoris sæpe solitariis, erectis, crispulo-ramosis, basi 6-7  $\mu$ . 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 = 12-15, membrana <sup>membrana</sup> achroa; oosporis pallide violaceis, sphaeroideis, 23-33  $\mu$ . diam.; episporio crasso, brunneo vel flavescente munitis.

*Hab.* in pagina inferiore foliorum *Euphorbiæ* platyphyl-læ, *E. falcatae*, *E. maculatæ* et *E. strictæ* in Germania et America boreali.

40. **Peronospora Urticæ** (Lib.) De Bary Rech. sur le dév. in Ann. <sup>856</sup> Sc. Nat. 1863, sér. 4, t. XX, 116, *Botrytis Urticæ* Libert inscrip. 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, cæspites pallide violaceos densos-que formantibus, laxè 4-6-ies dichotomis; ramis flexuosis, ultimis subulatis, arcuatis sæpe deflexis; conidiis magnis, 22-26 = 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-* <sup>857</sup> *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  $\mu$ . longis, basi 15  $\mu$ . 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 bifureatis raro simplicibus; ramulis ultimi et pænultimi ordinis cras-

siusculis, valde arcuatis, ultimis conico-subulatis, acutiusculis aut subtruncatis; conidiis permagnis, 44-52 = 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 Cæpa 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  $\mu$ . circiter altis, hyalinis, basi bulbiformi-dilatatis, 17  $\mu$ . latis, 6-7-ies dichotomis; ramis primariis erectis, demum jacentibus, terminalibus acutis, subinde uncinato-incurvis; conidiis ellipsoideis, 24-28 = 16-18, hyalinis; oosporis 24-28  $\mu$ . diam., episporio sublevi, plicato, pallide flavo. 858

*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 repete 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. 859

*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. 860

*Hab.* in foliis Primularum et Anagallidis cœruleæ in Belgio et prope Æstrich 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 inæqualibus, rectangulariter patentibus, rectis; conidiis globosis. 861

*Hab.* in pagina inferiore foliorum Calaminthæ Acini in Rhenogovia Germaniæ. — Sec. cl. Schroeter ad *Peronosporam Lamii* ducenda.

46. **Peronospora Erodii** Fuck. Fl. Rhen. 2102, Symb. Myc. pag. 68. 862

— Cæspitibus densis, sordidis; hyphis erectis, crassis, dichotomoramosis; 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 Italia et prope Oestrich Rhenogoviæ. — «An ad *Peronosporam conglomeratam* Fuck. ducenda?»

47. **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, dichotomoramosis; ramis ultimis curvatis, subultimis brevioribus, rectis; conidiis ellipticis vel ellipsoideis, dilute flavescentibus.

*Hab.* in foliis vivis Myosuri minimi et Eranthidis hyemalis in Italia et Rhenogovia Germaniæ. — «An ad *Peronosporam Ficariæ* referenda?»

D) Species quoad sectiones, oosporis ignotis, incertæ ulteriusve inquirendæ.

48. **Peronospora Senecionis** Fuck. Symb. Myc. p. 69. — Cæspitibus 864

laxis, sordidis; hyphis erectis; ramis primariis paucis brevibusque, dichotomoramosis, conniventibus, ramis ultimis subultimisque longis, curvatis; conidiis subglobosis, hyalinis.

*Hab.* in pagina inferiore foliorum Senecionis cordati in Rhenogovia Germaniæ.

49. **Peronospora tribulina** Pass. Myc. univ. n. 1316. — Cæspitibus 865

densis, effusis, candidis; hyphis conidiophoris erectis, apice parce ramosis; ramis primariis alternis, subpatentibus, breviusculis, ultimis subulatis arcuatis; conidiis subglobosis, hyalinis.

*Hab.* in foliis vivi Tribuli terrestris in horto Parmensi in Italia.

50. **Peronospora Lophanthi** Farlow Enum. of t. Peron. of t. Un. 866

St. in Bot. Gazette vol. VIII (Oct. and Nov. 1883) p. 333. — Hyphis conidiophoris gracillimis, longis, inferne nudis, sursum repetitive dichotomis; ramis flexuosis; apicibus flexuosis, furcatis, altera divisione plerumque multo longiore; conidiis globosis vel ovato-obtusis,  $19-22 \approx 15-20$ , violaceis.

*Hab.* in foliis Lophanthi scrophulariæfolii in America boreali.

51. **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. 868

— 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 vescæ et Fragariastris in Gallia.

53. **Peronospora Androsaces** Niessl in Rabenh. F. Eur. n. 1875. — 869

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. 870

— Maculis amphigenis, magnitudinis ludentibus, primo parvulis, dein sæpe totum folium occupantibus, pallescentibus vel fusco-pelliculodescentibus, 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, longiusculis, 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 Hystricis in dumetis uliginosis prope la Recoleta Argentina.

55. **Peronospora sicyicola** Trelease in litt. Farlow Enum. of t. Peron. 871

of t. Un. St. in Bot. Gazette vol. VIII (Oct. and Nov. 1883), p. 331. — Hyphis conidiophoris gracilibus altis flexuosisque, 3-4-ies pin-natis; ramis horizontalibus, alternis vel sæpe oppositis; apicibus in plurimas, sæpe 3 spinas breves divisus; 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. 646. — 872  
Cæspitulis candidis; hyphis conidiophoris sursum furcatis; ramulis ultimis rectis nec uncinatis; conidiis metulæformibus vel oblongis, obtusis, 25  $\mu$ . 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  $\mu$  = 15-18, albis.

*Hab.* in foliis Parietarie 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 fœtido in Rhenogovia Germaniæ et in Helleboro odoro prope Serajevo Bosniæ.

60. **Peronospora Cyparissiæ** 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  $\mu$  = 13-16, ellipsoideis obtusissimis, membrana dilute violascente.

*Hab.* in foliis Euphorbiæ Cyparissiæ 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 ev. in Ann. Scienc. Nat. 1863, s er. 4, t. XX, p. 123, *P. effusa* var. *Fuckel*. Fung. Rhen. n. 14. — C espitulis cinereo-violaceis; hyphis conidiophoris dense c espitosis, singulis tenuibus, humilibus aut in equaliter 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. 878

*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** Fuckel Fung. rhen. 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 espitosis, elatis; gracilibus 6-8-ies dichotomis; ramis patentibus, sensim attenuatis, plus minus flexuosis; ramis p enultimi ordinis vix, non semper, bifurcatis in ramulos duos, tenues, acutiusculos, inter se valde in equales; 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. 879

*Hab.* in *Plantagine* majore et *P. lanceolata* e foliorum pagina inferiore pr ecipue emergens in Italia, Gallia, Fennia, Belgio, Germania et Albany in America boreali.

64. **Peronospora Schachtii** Fuck. Symb. Myc. p. 71. — C espitibus densissimis, griseis; hyphis erectis 6-8-ies dichotomis; ramis primariis 2-5, brevibus, ramis ultimis plerumque in equalibus, brevibus, rectis, obtusangulo-divaricatis, obtusis; conidiis ovatis, pallide umbrinis, 20-24  $\approx$  15-18. 880

*Hab.* in pagina inferiore foliorum *Bet e vulgaris* in Germania. — A *Peronospora effusa* vix distincta.

65. **Peronospora sordida** Berk. Ann. Mag. Nat. hist. 3 s er. vol. VII, 881

p. 449. — Hyphis conidiophoris latis, cæspites pallidos, irregulares ad paginam inferiorem foliorum formantibus; ramis fertilibus sursum dichotomis, apicibus furcatis inæqualibus; conidiis obovoideis, 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. — Cæspitulis 884  
albis; hyphis conidiophoris sparsis, subtorulosis, usque ad 9-ies dichotomis; ramis ultimis vix uncinatis, dichotomis, pallide griseis; conidiis subellipticis, apice obtusis.

*Hab.* in foliis cujusdam 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  $\mu$ . 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. Niederösterreich. III, p. 48. — 886  
Hyphis conidiophoris hyalinis, supra quinquies dichotomis, 0,2-0,25 mm. altis, et 7-8  $\mu$ . latis, ramis erecto-patientibus, ultimis flexuosis, longe acuminatis; conidiis subglobosis, hyalinis, protoplasmate granuloso faretis, 26-30  $\mu$ . longis; oosporis 56-66  $\mu$ . 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. 887

*Hab.* ad *Isopyri fumarioidis* 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.

*Leptomitus*. 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 nudæ.

*Achlya*. Zoosporæ nullo ordine in zoosporangio dispositæ; oogonia polyspora.

*Aphanomyces*. Zoosporæ uniseriatæ in zoosporangio cylindraceo-elongato; oogonia uni-bi-spora.

†† Antherozoidia præsentia ex antheridii protoplasmate oriunda; zoosporæ semper uniciliatæ (*Monoblepharidææ*).

*Monoblepharis*. Oogonia uni-poly-spora.

B) Filamentum totum in unum vel plura sporangia seriata evolutum (*Ancylistææ*).

† 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.

*Lagenidium*. Conjugatio inter duo filamenta in cellula ipsa matricali; zoosporæ semper nudæ.

*Myzocytiùm*. Conjugatio inter cellulas unius filamenti; zoosporæ semper nudæ.

†† Protoplasma in zoosporas haud mutatum, totum e zoosporangio emissum.

*Ancylistes*. Protoplasma zoosporangii in algam nutricem alienam versatum.

*Saccopodium*. Genus dubiæ sedis; zoosporæ ciliis destitutæ.

**LEPTOMITUS** Ag. Syst. p. 48 (Etym. *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 haud denudatæ. — Genus *Saprolegniæ* peraffine at constrictionibus filamentorum præsertim distinctum. Plurimæ species dubiæ.

1. **Leptomitùs lacteus** Ag. Syst. p. 50, *Saprolegnia lactea* Pringsh. 888  
Jahrb. II, t. XXIII, f. 10 et t. XXV, f. 1-6. — Fasciculato-fluctuans, mucosus, sordide albidus; filamentis usque ad 5 cm. longis, 7-11  $\mu$ . latis, hinc inde constrictis, dichotomo-ramosis, flaccidis; zoosporangiis ex apice filamenti orientibus vel axillaribus; zoosporis ovatis, 2  $\mu$ . longis, ciliis binis 12  $\mu$ . longis instructis.

*Hab.* in fossis fluentibus rivulisque totius Europæ.

2. **Leptomitùs brachynema** Hildebr. in Pringsh. Jahrbüch Bd. VI. 889  
p. 261, t. XVI, f. 12-23 Lindst. Saprolog. p. 38. — Filamentis brevibus parce ramosis; zoosporis sphericis, irregularibus, albis, episporio 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. **Leptomitùs? saccharicola** Kütz. Species p. 154. — Filamentis ramosissimis 15-25  $\mu$ . latis, ramis tenuioribus, in stratum mucosum, lubricum implicatis; constrictionibus? distantibus; sporangiis lateralibus, sessilibus, solitariis vel aggregatis.

*Hab.* in syrupo Papaveris Rhœadis officinarum.

4. **Leptomitùs? aureo-stannicus** Kütz. Species p. 154. — Filamentis 891  
ramosis, 32  $\mu$ . latis, in stratum olivaceum complicatis; ramis maxi-  
me attenuatis, basi constrictis, moniliformibus (articulis subglobo-  
sis) apice continuis.  
*Hab.* in solutione aureo-stannica.
5. **Leptomitùs? violaceus** Kütz. Species p. 154. — Filamentis tenui- 892  
bus, ramosis, 32-35  $\mu$ . latis in stratum cinereo-cœruleum arach-  
noideum complicatis; ramis attenuatis, articulis ægre conspicuis;  
sporangiiis lateralibus, plerumque aggregatis vel moniliformibus.  
*Hab.* in solutione aureo-stannica.
6. **Leptomitùs phosphoratus** Kütz. Species p. 154. — Filamentis ra- 893  
mosis, 28-37  $\mu$ . latis; ramis subdistantibus elongatis et abbrevia-  
tis, hinc divaricatis illinc patentibus, articulis elongatis, interstitiis  
hyalinis.  
*Hab.* in acido phosphorico ex ossibus parato.
7. **Leptomitùs ammoniatus** Kütz. Species p. 154. — Filamentis ra- 894  
mosissimis, basi 30  $\mu$ . latis; ramis flagelliformibus, alternis, erecto-  
patentibus, apice sæpe furcellatis, 18-22  $\mu$ . latis; articulis? ina-  
qualibus, diametro sesqui-triplove longioribus.  
*Hab.* in liquore Ammonii succinici.
8. **Leptomitùs Naphæ** Kütz. Species p. 154. — Filamentis ramosissi- 895  
mis, basi 35  $\mu$ . latis, arachnoideo-intricatis, achromaticis ramis at-  
tenuatis; articulis? elongatis, pellucidis, globulos (sporangia?) lon-  
gitudinaliter seriatos continentibus.  
*Hab.* in aqua florum Aurantii.
9. **Leptomitùs Valerianæ** Kütz. Species p. 154. — Filamentis ramo- 896  
sissimis, globulis numerosis intermixtis, 28  $\mu$ . latis, dense intrica-  
tis, ramis patentissimis; articulis primariis obsoletis, ramorum ob-  
longis, plerumque subventricosis, interdum præcipue inferioribus  
ellipticis vel globosis.  
*Hab.* in aqua destillata radicis Valerianæ.
10. **Leptomitùs elæophilus** Kütz. Species p. 154. — Filamentis vage 897  
et divaricatim ramosis, 22-45  $\mu$ . latis, stratum sordide fuscescens,  
floccosum, lubricum efformantibus, achromaticis, ramis patentibus  
subsecundis; articulis elongatis, tubulosis, intus globuliferis, globu-  
lis (sporangiiis?) seriatis.  
*Hab.* in præcipitato mucoso oleo pressi Amygdalorum et  
Papaveris seminum.
11. **Leptomitùs tuberosus** Kütz. Species p. 154. — Floccosus, candi- 898  
dus; filamentis ramosissimis, squarrosis, 28-55  $\mu$ . latis, inæquali-

ter flexuosis, rigidis, hyalinis, ramis basi constrictis; articulis ægre conspicuis, in zoosporangia intumescens.

*Hab.* ad Rivulariam minutam in aqua ætherea diu asservatam.

12. **Leptomitius Lanugo** Ag. Syst. p. 49. — Filamentis arachnoideis, 899  
sparse laxaque ramosis, ramis brevibus, articulis diametro duplo longioribus, univenosis.

*Hab.* parasitice in *Ceramio rubro*. — « An potius *Beggiatoa?* ».

13. **Leptomitius minutissimus** (Dillw.) Ag. Syst. p. 49, *Conferva mi-* 900  
*nutissima* Dillw. n. 117. — Filamentis subramosis, minutissimis, hyalinis; ramis sparsis, furcatis, obtusiusculis, geniculis obsolete, articulis variis.

*Hab.* ad algas confervaceas marinas.

14. **Leptomitius incompositus** Ag. in Flora 1827, p. 631. — Filamen- 901  
tis fasciculatis simplicibus divergentibus, continuis, hyalinis.

*Hab.* ad confervas majores, Carlsbad.

15. **Leptomitius vitreus** (Roth) Ag. Syst. p. 48, *Conferva vitrea* Roth 902  
Cat. III, p. 227. — Filamentis æqualibus, dichotomis, fasciculatis, flaccidis, hyalinis; ramis alternis remotiusculis; articulis cylindricis, longissimis.

*Hab.* parasitice in *Phicodri sinuosa* in Germania.

16. **Leptomitius Ceratophylli** (Bory) Ag. Syst. p. 48, *Conferva Cera-* 903  
*tophylli* Bory. — Filamentis simplicibus, erectis, adnatis, canis, fragilibus; articulis diametro sesquialongioribus, interstitiis hyalinis.

*Hab.* in stagnis ad *Ceratophyllum*, etiam in *Thermis Abano* Italiæ borealis.

17. **Leptomitius? brevis** (Desv.) Ag. Syst. p. 48, *Conferva brevis* Desv. 904  
— Filamentis simplicibus adnatis, erectis, minutissimis, strictis, subhyalinis, leniter viridulis; articulis diametro quadruplo longioribus.

*Hab.* ad plantas aquaticas in Gallia. — An *Ædogonium* statu sterili?

18. **Leptomitius divergens** (Roth) Ag. Syst. p. 48 non Kütz. *Conferva* 905  
*divergens* Roth Cat. III, p. 180. — Filamentis brevissimis, continuis, ramosis, æqualibus, hyalinis, laxis, tenuissimis; ramis flexuosis, diffusis, alternis divergentibus.

*Hab.* in *Confervis* parasitice.

19. **Leptomitius nanus** (Dillw.) Ag. Syst. p. 48, *Conferva nana* Dillw. 906  
tab. 30. — Filamentis cæspitosis, minutissimis; ramis ramulisque paucis, subalternis, patentibus, acuminatis; articulis diametro brevioribus vel subæqualibus, cylindricis.

*Hab.* ad *Vaucheriam cæspitosam* destructam (DILLWIN) <sup>1)</sup>.

**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 Gallia.

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-

<sup>1)</sup> Species a Biasoletto in «Alg. microsc.» descriptæ et depictæ sistunt plerumque mycelia Hyphomycetum.

ralibus; oosporis globosis 20  $\mu$ . 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  
intercalariis; ramulis antheridiophoris ex oogonio exsurgentibus  
apiceque antheridia gerentibus; oosporis plerumque numerosis in  
quoque oogonio, globosis, circ. 30  $\mu$ . 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  $\mu$ . diam.,  
apice filamentorum insertis . . . . .; oospora unica, globosa 4,2-  
6,3  $\mu$ . diam.; antheridiis oblongis 4,2-6,3  $\mu$ . diam., vel piriformi-  
bus oogonium amplectentibus.

*Hab.* in *Spirogyra densa* pr. Kiew Rossiaë.

B) Species dioicæ.

5. **Saprolegnia divisa** Pringsh. Jahrb. II, pag. 206, t. XXII, t. 1-9, 915  
Lindst. Sapol. p. 47. — Antheridiis apice filamentorum numero-  
se aggregatis, sine ramis antheridiferis; oogoniis sphæroideis per-  
foratis; oosporis numerosis.

*Hab.* in aquatilibus in Germania. — Ad *Saprolegniam feracem*  
hanc speciem ducit cl. Schroeter. Cfr. Flor. Krypt. Schles. p. 256.

6. **Saprolegnia ferax** (Gruith.) Nees Kütz. Phyc. Gener. p. 157, n. 2, 916  
*Conferva ferax* Gruith. in Nov. Acta 1821, *Leptomitrus clava-*  
*tus* et *ferax* Ag. Alg. Syst. pag. 49, *Achlya prolifera* Pringsh.  
Jahrb. Band II, *Saprolegnia dioica* Schroet., *S. Thureti* De Bary.  
— Oogoniis perforatis; oosporis numerosis, globosis 30  $\mu$ . diam.,

ramis lateralibus nullis; antheridiis ovatis, apice filamenti proprii insertis.

*Hab.* in muscis, piscibus, salamandris mortuis in aqua ubique. — Statum aërophilum imperfectum sistit *Empusa muscæ* Cohn.

C) Species quoad sectiones incertæ vel inquirendæ.

7. **Saprolegnia mixta** De Bary in Bot. Zeit. 1883, p. 56. — Oogoniis quandoque ramulis lateralibus et antheridiis præditis; 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. Saprolog. p. 10, t. VI, f. 10-12. — Filamentis oogoniophoris sæpe spiraliter incurvatis; oogoniis perforatis, in filamentis quandoque lateraliter insertis; oosporis sæpe solitariis, brunneis.

*Hab.* in pane aqua diu servato in Belgio et Gallia.

10. **Saprolegnia Schachtii** Frank. Krankh. Pflanz. — Filamentis ramosis, 4,5-10  $\mu$ . latis, hyalinis; oogoniis globosis, 40  $\mu$ . diam., membrana crassa, perforata.

*Hab.* in *Pellia epiphylla* in Germania.

11. **Saprolegnia monilifera** De Bary Bot. Zeit. 1883, p. 56. — Antheridiis atque ramulis lateralibus nullis.

*Hab.* in . . . . . in Germania.

12. **Saprolegnia hypogyna** Pringsh. De Bary in Bot. Zeit. 1883, p. 56. — Oogoniis quandoque antheridiis præditis; ramulis lateralibus semper existentibus sed uno semper interposito . . . . .

*Hab.* in . . . . . in Germania.

13. **Saprolegnia? Libertæ** (Bory) Kütz. Species p. 160, *Conferva Libertæ* Bory, *Leptomitus Libertæ* Ag. Syst. p. 49. — Filamentis hyalinis, tubulosis, flaccidis, simplicibus, in cæspitem violaceum aggregatis.

*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 efformata, dein cuticula delicatissima prædita. Zoosporæ 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. <sup>924</sup>  
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 haud perforata; oosporis sphæroideis, 25-35  $\mu$ . diam., exosporio crasso, levi, endosporio tenui.

*Hab.* in seminibus *Camelinæ sativæ*, *Trifolii repentis*, *Spergulæ arvensis*, *Panici miliacei*, *Zeæ 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, <sup>925</sup>  
f. 2-16, Lindstedt Synopsis Saprolog. p. 49. — Filamentis longis 110  $\mu$ . circ., inferne latis, gracilibus, ramosis, zoosporangiis elongatis circ. 150  $\mu$ . 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 Germaniæ et in Belgio.

3. **Pythium proliferum** De Bary Pringsh. Jahrb. Bd. II, p. 182, t. XXI, <sup>926</sup>  
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.

1. **Pythium Cystosiphon** Lindstedt Syn. Saprolog. p. 50, *Cystosiphon* <sup>927</sup>  
*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 globulosis vel oblongis, in cellulis extimis matricis positis, filamentis cuticulam zoosporarum perforantibus; zoosporis oblongis vel subreniformibus, utrinque uniciliatis; oogoniis sphæroideis, 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, 928  
Lindst. Synopsis Saprolog. p. 51. — Cellulis vesiculososis, entophytis, abbreviatis, simplicibus (non ramosis ut videtur) varie curvatis, postremo erumpentibus; zoosporangiis distincte globosis; zoosporis uniciliatis, antheridiis subglobosis, antherozoidia bacillaria contentibus (?).

*Hab.* intra *Spirogyram* quandam in Germania.

6. **Pythium megalacanthum** De Bary, Schroet. Krypt. Flor. Schles. Pilze 929  
p. 232. — Zoosporangiis sphaeroideis, ellipticis vel piriformibus, papillis plurimis longis, apice vel lateribus instructis; zoosporis majusculis, maturis 18-20  $\mu$ . diam.; oogoniis globosis, apicalibus vel intercalaribus, prominentiis conicis, subspiniformibus præditis, sine aculeis 36-40  $\mu$ . latis, aculeis vero 6-9  $\mu$ . longis; oosporis sphaeroideis 27  $\mu$ . diam., episporio levi.

*Hab.* in fragmentis plantarum emortuis sub aqua nec non in caulibus putrescentibus *Veronicæ hederifoliæ* in Germania.

7. **Pythium gracile** Schenk. Algol. Mittheil. pag. 27, t. I, fig. 1-26, 930  
Lindst. Synop. Saprolog. 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. Saprolog. p. 13. — Sporan- 931  
giis sphaericis; plasmate per apicem tubi longissimi exeunte; vesicula plerumque erupta; sporangiis apice filamentorum gracilium insertis.

*Hab.* in . . . . . in Gallia.

9. **Pythium utrifforme** Cornu Monogr. Saprolog. p. 13. — Zoosporan- 932  
giis irregularibus, utrifformibus, reniformibus, elongatis, quandoque interpositis; plasmate apice tubi longissimi exeunte; vesicula sæpe rupta.

*Hab.* in . . . . . in Gallia.

10. **Pythium circumdans** Lohde Ueber ein. parasit. Pilze in Tageblatt 933

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 enecat, in Germania.

Species cujus diagnosis nobis nondum innotuit.

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. Saprolog. 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. Oogonia 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. Saprolog. p. 58. — Dioicus; fla-  
mentis solitariis, quandoque cæspitulosis; oogoniis monosporis, non  
perforatis, 25  $\mu$ . diam.; antheridiis vermiformibus; filamentis anthe-  
ridiophoris hyphis oogoniferis similibus, ramosis, filamenta oogo-  
nifera amplectentibus; oosporis hyalinis, maturitate uni-magni-  
guttatis.

*Hab.* in bulbo *Hyacinthi* sub aqua putrescente prope Graz  
Austriæ et in Gallia.

2. **Dictyuchus polysporus** Lindstedt Saprolog. 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 amplectentibus; oosporis 25-27  $\mu$ . diam.

*Hab.* in fragmentis ligneis sub aqua in calidario Horti Botanici  
Berlin Germaniæ. — An huc *Pythium polysporum* Sorok.?

3. **Dictyuchus Magnusii** Lindstedt Saprolog. p. 58, t. I, f. 1-8 et t. II, 938  
f. 1-8. — Dioicus; sporangiis numerosis; oogoniis monosporis,  
aggregatis, levibus, 30-35  $\mu$ . diam., non perforatis; ramulis anthe-  
ridiophoris apice unum raro duo antheridia nodosa, oogonium am-  
plectentia gerentibus; oogoniis 30-35  $\mu$ . diam., unam tantum oospo-  
ram continentibus.

*Hab.* in fructibus præcipue *Trapa 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. Zoosporæ 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  $\mu$ . 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. Zoosporæ 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  $\mu$ . latis, ramis lateralibus nullis; oogoniis perforatis; zoosporis brunneis; filamentis sub zoosporangio apicali, zoosporangiis lateralibus præditis; antheridiis . . . . .

*Hab.* in insectis putrescentibus, in foliis *Nymphææ* albæ 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 lateralia 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, zoosporis numerosis raro

una; antheridiis ad apicem filamentorum propriorum evolutis; oogoniis præcipue terminalibus, sæpe apice ramorum lateralium sub oogonio apicali insertis; oogonio apicali oogonia minora gerente.

*Hab.* in Britannia, Belgio.

B) Species monoicæ.

1. **Achlya racemosa** Hildebrand in Pringsh. Jahrbüch. Bd. VI, Lindst. 943

Saprol. p. 61. — Filamentis partim ramosis zoosporangiferis, partim simplicibus aut subramosis oogoniophoris; zoosporis fabæformibus; oogoniis haud perforatis, membrana intus undulata.

*Hab.* ad fragmenta lignea prope Bonn Germaniæ. — 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 præcedenti.

5. **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 filamentis latioribus.

*Hab.* in muscis, pane et aqua udis in Germania.

6. **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.

7. **Achlya recurva** Cornu in Lamb. Flor. Myc. Belg. pag. 120. — 946

Oogoniis ramo laterali filamenti recurvati insertis; antheridiis digitatis.

*Hab.* in . . . . . in Gallia et Belgio.

8. **Achlya contorta** Cornu Monogr. Saprol. t. I, f. 9-15. — Oogoniis 947

sphæricis, 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, 948  
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. *apha-*  
*nes* latens et *myces* fungus). — Zoosporangia longissima, gracilia,  
cylindræa. 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, 949  
t. XIX, f. 1-13 Lindst. Sapro. p. 63. — Mycelio repente; hyphis  
fertilibus erectis; oogoniis magnis, obtusis, demum stellatis; oosporis  
solitariis, rarius binis, in singulis oogoniis; conidiis in catenu-  
las 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  $\mu$ . diam., radii 4-5  $\mu$ . longi; oosporæ  
15-18  $\mu$ . diam.

2. **Aphanomyces levis** De Bary in Pringsh. Jahrbüch. II, pag. 199, 950  
t. XX, f. 17-18, Lindst. Sapro. p. 63. — Oogoniis globosis, levi-  
bus; oosporis gutta oleosa, unica centrali præditis; antheridiis con-  
tentum per foramen oogonii in hoc infundentibus.

*Hab.* ad insecta putrescentia inter algas et sphagna in silva Her-  
cinia (DE BARY) et in aquariis Breslau (SCHROETER) Germaniæ et  
in Belgio. — Oogonia 26-31  $\mu$ . diam.

3. **Aphanomyces scaber** De Bary Jahrbüch. II, p. 178, t. XX, f. 14- 951  
16, Lindst. Sapro. p. 63. — Oogoniis globosis 24  $\mu$ . diam. cuti-  
cula 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  $\mu$ . diam.

B) Filamenta intra algas parasitica.

4. **Aphanomyces phycophilus** De Bary in Pringsh. Jahrbüch. II, p. 179, 952  
t. XX, f. 19-24, Lindst. Sapr. pag. 64. — Filamentis entophytis,  
9-12, rarius 16  $\mu$ . latis; oogoniis apice brevioribus, parum stellu-  
latis; 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  $\mu$ . 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 sphaerica** Cornu Monogr. Saprolegn. p. 82, pl. II, 953  
1-6. — Hyphis ramosis, apice oogonium monosporum sphaericum solitarium, rarissime geminatum basi septatum gerentibus; antheridio unico, oogonio supposito; antherozoidiis ovoideis, longe unicaudatis; oosporis sphaeroideis, hyalinis, 16-27  $\mu$ . 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 sphaeroideis, hyalinis, 16-27  $\mu$ . diam., dein pallide luteis, demum brunneo-rufis.

*Hab.* in . . . . . Sologne Gallia. — A *M. sphaerica* fabrica atque magnitudine nec non colore oosporarum vix distincta sed oosporarum genesi fere e genere removenda.

3. **Monoblepharis prolifera** Cornu Rem. sur quelq. Saprolegn. 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 *Aphanomycti* affine.

1. **Achlyogeton entophytum** Schenk in Bot. Zeit. 1859, p. 398, t. XIII, 956  
A, f. 1-8, Lindst. Saprolegn. p. 66. — Filamentis simplicibus, 45-60  $\mu$ . 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 Rossia.

2. **Achlyogeton solatium** Cornu in Bull. Soc. Bot. France (1870), 957  
p. 297. — Filamentis plus minusve ramosis; sporangiis ex filamentis hinc inde septatis efformatis, appendiculâ septa cellulæ 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 *Alismatem* natantem continente, Paris Galliæ.

3. **Achlyogeton rostratum** Sorok. Not. sur les Veg. par. des Anguill. 958  
in Ann. Scienc. Nat. 1876, p. 62, t. III, f. 6-28. — Zoosporangiis 7-9 = 5-6.

*Hab.* intra Anguillulam, Kasan Rossiaë. — « An revera *Catenaria Anguillulæ?* ».

**RHIZOMYXA** Borzi Nuov. Ficom. p. 6 (Etym. a *rhiza* radix et *myxa* mucilago). — Plasmodium difforme, cavitatem cellulæ dein ex toto occupans, subinde globosum, 10-30 nucleos lenticulares continens, cuticula tenui cinctum, appendiculam conicam brevem, per quam zoosporæ exeunt, gerens vel ex toto in zoosporangium mutatum vel in sporas immobiles hibernantes numerosas solutum. Zoosporæ, apice appendiculæ perforantis soluto, exeuntes, sphæroideæ, uniflagellatæ, antice rostro brevissimo hyalino instructæ. Sporæ immobiles e partitione plasmatis ortæ sphæroideæ, nudæ, sæpius in soros collectæ parce zoosporiparæ oogonia globosa, monospora. Antheridia clavata, basi elata appendicula brevi in oogonia penetrantia. Oosporæ globosæ, episporio crassiusculo, levi tectæ.

1. **Rhizomyxa hypogæa** Borzi Nuovo Ficom. p. 6, f. I et II. — Cha- 959  
racteres iidem ac generis; zoosporis 4-24, rarius ultra in quoque zoosporangio, 5-6  $\mu$ . latis, flagello 10-15  $\mu$ . longo instructis; sporis perdurantibus, globulosis, 8  $\mu$ . circ. diam.; soris sporarum opacis, sphæroideis vel oblongis, 20-60  $\mu$ . latis, oogoniis 25-40  $\mu$ . diam., antheridiis æquilongis; oosporis sphæroideis, 15-20  $\mu$ . diam.

*Hab.* in radicibus plantarum diversarum, quas sæpius enecat, pr. Messina Siciliaë.

**LAGENIDIUM** Schenk Algol. Mittheil. p. 12 (Etym. a *lagena*). — Mycelium ramosum; zoosporangia globulosa. Zoosporæ semper nudæ biciliatæ; oogonia et antheridia in individuis diversis plerumque evoluta, ventricosa. Oosporæ globosæ. Antheridia tenuia, sacciformia, ramulo oogonium penetrantia.

1. **Lagenidium Rabenhorstii** Zopf Zur Kenntn. der Phycomyc. p. 145, 960  
t. I, et II. — Mycelio inæquali, lateraliter ramuloso; zoosporangiis cylindræis vel irregularibus, usque ad 10 in quaque cellula; zoosporis fabæformibus, 5  $\mu$ . longis, biciliatis, 4-20 in quoque zoosporangio; antheridiis cylindræis, ramulo laterali oogonium amplectentibus; oogoniis ventricosis; oosporis globosis 15-20  $\mu$ . diam., episporio crasso, hyalino tectis, grosse 1-guttulatis.

*Hab.* in cellulis vegetativis algarum pr. *Spirogyræ*, *Mougeotiæ*, *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, *Myzocytiium entophyllum* Pringsh. in Lamb. Flor. Myc. Belg. p. 125, f. 1-5. — Oogoniis sphæricis, 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. **Myzocytiium 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, cellulæ matricis breviori; zoosporangiis moniliformibus, pendulis, 20  $\mu$ . latis, globosis vel ellipticis; zoosporis ovatis vel fabæformibus, 5  $\mu$ . circ. longis; antheridiis et oogoniis cateniformibus; antheridiis plerumque angustioribus longioribusque; oosporis globosis, 15-20  $\mu$ . 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. I, f. 43-46, 964  
*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 Rossia. — Sec. Lindstedt est generis *Lagenidii* species (*Lagenidium globosum* Lindst.).

3. **Myzocyttium lineare** Cornu in Lamb. Fl. Myc. Belg. pag. 125. — 965  
 Oogoniis linearibus, tumidis, irregularibus; zoosporangiis linearibus, simplicibus vel ramosis, seriatis.

*Hab.* in . . . . . in Gallia (et Belgio?).

**ANCYLISTES** Pfitz. 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** Pfitz. Monat. Berl. Akad. 1872. — Filamentis 966  
 8  $\mu$ . crassis.

*Hab.* intra cellulas vivas Closterii Germaniæ.

**SACCOPODIUM** Sorok. in Hedw. 1877, p. 88, cum icone (Etym. *saccus* 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. 967  
 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 Rossia.

#### 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 disfractum; 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 clavam crassam conidiophoram dilatatæ: zygosporæ per copulationem duarum cellularum in eadem hypha efformatæ.

? *Completozia*. Mycelium intra Filicum prothallum evolutum, vesiculosum-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 antè 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 Denk. 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  $\mu$ . crassis, insecto emortuo erumpentibus, albidis, apice clavatis, 20-28  $\mu$ . latis, hyalinis; conidiis subglobosis vel breviter ovatis, 20-33 = 16-23, hyalinis, guttulatis, levibus; sporis perdurantibus latere vel apice mycelii evolutis, globosis, 30-50  $\mu$ . diam., episporio crasso tectis, hyalinis.

*Hab.* in Musca domestica et formis proximis in Germania, Austria, Helvetia, Italia et Nederlandia. — Status imperfectus *Saprolegniæ 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  $\mu$ . latis, sursum 12  $\mu$ . 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. 970  
Fl. Schles. Pilze p. 222. — Hyphis conidiophoris 3–5-cellularibus, sursum granulato-brunneis, 10–20  $\mu$ . 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  $\mu$ . diam., episporio levi, brunneo tectis.

*Hab.* in Locustis et Culicibus in Germania. — Huc spectat, sec. cl. Nowakowski, *Entomophthora conglomerata* Sorok.

4. **Empusa Aulicæ** Reichardt in litt. (cfr. Bail. über Pilzepizootien, in 971  
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 Euprepiaæ Aulicæ, E. villicæ, et Tracheæ piniperdæ in Germania.

5. **Empusa Jassi** (Cohn) Wint. Die Pilze p. 79, *Entomophthora Jassi* 972  
Cohn in Jahres. d. Schles. Ges. f. vaterl. Cult. 1877, p. 116. — Mycelium intra corpus insecti evolutum, dein extus subvelutinum; conidiis globosis, 20  $\mu$ . diam.

*Hab.* in Jasso sexnotato pr. Breslau Germaniæ.

6. **Empusa Fresenii** Nowakow. in Schroet. Krypt. Fl. Schles. Pilze 973  
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. (Etym. 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, 974

pag. 883, *Impusa* 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  $\mu$ . crasso, extra insectum cæspitulum album expansum efformantibus; conidiis elliptico-oblongis, apicibus rotundatis, 17-20  $\approx$  5, hyalinis; sporis perdurantibus globosis, 20-27  $\mu$ . 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. Entomopht. in Abhandl. der Senk. naturf. Gesells. II Bd., p. 208, tab. IX, fig. 59-67. — Hyphis conidiophoris parce septulatis, hyalinis, sursum claviformi-incrassatis, 12  $\mu$ . 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  $\mu$ . 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  $\mu$ . latis; conidiis ovatis, 33-40  $\mu$ . 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  $\mu$ . circ. latis, brunneo-coloratis; conidiis globosis vel breviter ovatis, 47-62  $\mu$ . 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  $\mu$ . latis efformato; hyphis conidiophoris ramosis extra matricem filamenta expansa, flavo-albida efformantibus; basidiis 13  $\mu$ . latis; conidiis ovatis, obtuse papillatis, plerumque 20-24  $\approx$  11-13; sporis perdu-

rantibus latere hypharum mycelii evolutis, globosis 24-30  $\mu$ . 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 979  
p. 222. — Hyphis ramosis, 8-11  $\mu$ . latis, extra matricem filamenta sparsa efformantibus, conidiophoris sursum ramosis, cystidiis destitutis usque ad 15  $\mu$ . latis; conidiis ovatis vel piriformibus, papillulatis, 20-25 = 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, 980  
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. — 981  
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. 982

*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, *Entomo-* 983  
*phthora megasperma* Cohn Beiträge zur Biolog., I Bd. p. 84, tab. IV et V. — Mycelio primo sacciformi, 5-25  $\mu$ . lato, hyalino vel subnigrescente, haud vel parce septulato, ramulis unicellularibus instructo; sporis perdurantibus solitariis vel 2-3 aggregatis.

globosis vel piriformibus 36-55  $\mu$ . diam. aut 100  $\approx$  30, episporio atro-brunneo tectis.

*Hab.* in larvis in Agrostide segetum viventibus, quas enecat, nigrificat et indurat mumie 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, guttulata; 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  $\mu$ . latis; conidiis piriformibus, deorsum obtuse minuteque papillatis, 50  $\approx$  35, levibus, crassis, hyalinis, uniguttulatis; sporis perdurantibus globosis, 60-100  $\mu$ . diam., episporio crasso, levi, subhyalino vel flavo tectis.

*Hab.* in Hirneola Auricula-Judæ in Germania.

**BASIDIOBOLUS** Eidam ein. Gatt. Eutom. 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  $\mu$ . 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  $\mu$ . diam., episporio undulato, crasso, pluristrato, flavo-brunneo vel hyalino.

*Hab.* in excrementis Ranæ esculentæ et Ranæ oxypurhinæ 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  $\mu$ . 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 987  
tab. L. — Mycelio cellulas matricales brunneas efficiente; sporis perdurantibus globosis, 18-25  $\mu$ . diam., plasmate granuloso, faretis, guttulis, episporio tribus stratis constituto tectis, e brunneo pallescentibus intusque hyalinulis; conidiis globosis, circ. 15  $\mu$ . 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 zyogosporam 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.

$\alpha$ . Protoplasma coloratum; cellulæ utricularæ, 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* hac descripta continet, nam generum nonnullorum, etsi biologicæ plene cognitorum, diagnoses tam breves et notiones taxonomicas tam paucas possidemus ut ea in clavi inserere non nequivimus.

*Tetrachytrium*. Protoplasma griseo-cærulescens; zygosporæ 4 in quoque sporangio, ante germinationem per paria conjunctæ.

β. Protoplasma hyalinum.

† Utriculus elongatus unicellularis, mycelialis, in plures ramos, apice attenuatos divisus; cellulæ ab eo oriundæ in sporangia vel sporas persistentes mutatae; zygosporæ copula carentes.

*Cladochytrium*. Mycelium sparsim vel apice ramorum sporangia gerens; sporangia vero per ostiolum cylindraceum vel per operculum aperta.

*Rhizidium*. Mycelium tantum cellulas inferiores radiciformes, sporangiorum vel cellularum perdurantium formans.

†† Sporangia ad basim processibus radiciformibus simplicibus, indivisis prædita, vel iis carentia.

\* Cellulæ nudæ plasmodium simulantes, utriculos *Saprolegniacearum* occupantes, dein membranâ se induentes, partim ut sporæ perdurantes; zygosporæ plerumque elongatæ et leniter curvæ.

⊖ Sporangia protoplasmate matricis immersa.

*Olpidiopsis*. Sporangia in ostiolum cylindraceum abeuntia.

⊖⊖ Sporangii membrana parte interiori cellulæ matricis adhærens et cum ea organum unicum formans.

*Rozella*. Sporangia simplicia.

*Voronina*. Membrana fungilli parasitici sorum sporangiorum late circum ambiens.

\*\* Plerumque ad Algas vel Infusoria viventes.

α. Zoosporæ sæpe rotundæ vel ovoideæ. Individua alia copulatione utentia.

*Polyphagus*. In *Euglene* parasiticæ; individua nonnulla majora nec non minora clavata ramo pedunculiformi se conjungentia, et protoplasma minorum, copulatione in illud majorum transiens; zygospora protoplasmatum fusione orta et per zoosporas post temporis spatium, ut sporæ perdurantes, germinans.

β. Individua omnia copulatione destituta.

∞ Individua ut cellulæ nudæ, amœboidea, in cellulis *Lemnæ* mobilia nidulantia, in zoosporangia zoosporas gignentia et extus in collum abeuntia se mutantia.

*Reessia*. Zoosporæ per paria copulantes inque sporas persistentes, rursus zygosporis in cellulam matricis penetrantes, germinantes.

∞ ∞ Individua non ut cellulæ nudæ viventia, in sporangium vel in sporam persistentem mox se mutantia; zoosporæ copulatione carentes; sporæ persistentes zoosporis germinantes.

× Sporangia operculata.

*Chytridium*. Ad cellulas Algarum viventes, utriculo radiciformi, in interiore cellularum sito præditæ.

×× Sporangia non operculata et sæpe radice aciculari ornata.

Ω Sporangia ostiolo cylindraceo carentia.

*Phlyctidium*. Sporangia extus inserta.

ΩΩ Sporangia ostiolo tubiformi apice gerentia.

*Sphaerostylidium*. Sporangium extra cellulam matricis.

*Olpidium*. Sporangium intra cellulam matricis, ostiolo cylindraceo prominente præditum.

**SYNCHYTRIUM** 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 dein membrana communi cincti. Zoosporangia exosporio crasso fragili et endosporio distincto hyalino, separabili prædita, zoosporas formantia vel germinantia et tum cellulam, in qua zoosporangia formantur, efficiunt. — 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, 988 *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, *Sphaeria Anemones* Rab. Handb. I, p. 189, n. 1705. — Cellulis perdurantibus sparsis vel aggregatis, sæpe præcipue in nervis, subconfluentibus, tuberculiformibus, siccitate depressis, purpurascens, rufis, demum nigricantibus, vulgo maculis violaceis insidentibus, 250-300  $\mu$ . diam.; sporis sphæroideis vel ellipsoideis, 80-120  $\mu$ . 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, *Sphaeromema 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  $\mu$ . diam.

*Hab.* in foliis et pedunculis *Mercurialis perennis* et *Cenotheræ biennis* in Germania et in Arduennis.

3. **Synchytrium globosum** Schroeter Die Pfl. Par. Sych. et Krypt. Fl. Schl. Pilze p. 185. — Sporangiiis perdurantibus globosis, ple-

rumque in cellula matricis solitariis, usque 170  $\mu$ . diam., subiunde numerosis et tum 70-80  $\mu$ . 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. — Sporangiiis perdurantibus globosis, 180  $\mu$ . 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 hemisphæricis compressis; cellulis perdurantibus ellipticis, circiter 120-200  $\times$  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 — Sporangiiis perdurantibus plerumque ellipsoideis, solitariis vel parce numerosis, raro 10 in cellula matricis nidulantibus et tum plerumque globosis, majoribus usque 150  $\times$  100, minoribus vero 35-70  $\times$  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  $\mu$ . 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. Sych. et Krypt. Fl. 995  
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 cellule matricis antice convexæ formatis.

*Hab.* in foliis, pedunculis et in perigonio Liliacearum in Germania.

10. **Synchytrium Myosotidis** Kühn in Hedwigia 1868, Schroet. Krypt. 996  
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 glandulæ globosæ vel clavatæ, super paginam foliorum se elevantibus.

*Hab.* in Borraginaceis et Rosaceis in Germania.

11. **Synchytrium pilificum** Thomas Bericht deut. Bot. Gesell. 1883. 997  
— Sporangiis perdurantibus globosis vel leniter ellipsoideis  $80-180 \mu$ . diam., plerumque solitariis in cellula matricis, episporio brunneo-castaneo; protoplasmate rubro-flavo, gallis e tuberculis hemisphæricis, 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 *Potentillæ silvestris* in Germania.

12. **Synchytrium aureum** Schroet. Pflanz. Gatt. Sych. 1870. — Spo- 998  
rangiis perdurantibus globosis, plerumque in cellula matricis solitariis  $120-260$  (plerumque  $160-180$ )  $\mu$ . diam.; membrana castaneo-brunnea, levi, protoplasmate luteo-aureo farctis; gallis plerumque e verrucis hemisphæricis vel breviter cylindræis, 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.

Sporæ perdurantes et sori æstivi simul præsentés.

13. **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 farctis; soris globosis vel ellipsoideis, 100  $\approx$  60; sporangiis solitariis, mutua pressione angulosis, irregularibus; protoplasmate flavo-rubro; zoosporis globosis vel ovoideis, circiter 3  $\mu$ . latis, guttula luteo-rubra præditis; sporangiis perdurantibus, globosis, 50-80  $\mu$ . 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.

14. **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.

15. **Synchytrium Stellaris** 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 farctam generantibus, parce numerosis, plerumque 10-30; protoplasmate rubro-aurantiaco; sporis perdurantibus solitariis vel per paria in cellula matricis, globosis, 57-149  $\mu$ . diam., plerumque 75  $\mu$ . 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 *Stellaris* mediæ in Germania.

16. **Synchytrium Succisæ** De Bary et Wor. Bemerk. Kennt. Chytr. 1002  
1863. — Sori ut in *Synch. Stellaris* formati, sed cellula ex zoosporis orta, parte superiori germinante et tum cellula inferiori evacuata; sori zoosporangiorum 100-170  $\mu$ . diam. plerumque 100 et ultra sporangia continentibus; sporangiis 25-50  $\mu$ . diam., protoplasmate rubro-aurantiaco farctis; sporis perdurantibus, modo in cellulis parenchymaticis gallarum tuberculorum, deforantis, dein

racemose dispositis, modo solitariis vel aggregatis in cellulis epidermicis, globosis vel ellipsoideis, plerumque 50-80  $\mu$ . latis, episporio fusco-brunneo; protoplasmate rubro-pallido; gallis verruciformibus, plerumque breviter cylindraccis usque 1 mm. altis et latis, solitariis vel in crustas brunneas confluentibus.

*Hab.* in caulibus et foliis *Succisæ pratensis* in Germania.

17. **Synchytrium plantagineum** Sacc. et Sp. Mich. I, pag. 243, Sacc. 1003

M. V. n. 1125. — Tuberculis amphigenis hinc inde dense gregariis, granuliformibus, initio ochraceo-rufis, dein nigricantibus; sporangiis (?) sphaericis 110-130  $\mu$ . diam. flavo-ochraceis, anhisto-tunicatis, guttulis oleosis flavicantibus, magnitudine variis fœtis.

*Hab.* in foliis *Plantaginis lanceolatæ*, Conegliano (SREGAZZINI). — Etsi incomplete cognitum, tamen *Synchytrio Succisæ* De Bary et Wor. (Sacc. M. V. n. 1124) cognatum videtur.

18. **Synchytrium papillatum** Farlow in Bull. Bussey Inst. II, p. 233 et 1004

in Bot. Gazette p. 239. — Maculis obscure purpureis, gallis glandularibus, e cellulis piriformibus, turgidis, papillatis formatis, sporas ellipsoideas, 60-70  $\approx$  40-50, episporio brunneo cinctas, sæpe rugulosas continentibus; soris superficialibus, sphaeroideis, 100-120  $\mu$ . d.

*Hab.* in foliis *Erodii cicutarii* in California.

19. **Synchytrium Holwayi** Farlow The Synch. of the Un. St. in Bot. 1005

Gazette vol. X, 3, p. 239. — Maculis purpureis; tuberculis hemisphaericis vel subglobosis; cellulis perdurantibus sphaericis, 70-90  $\mu$ . diam., episporio brunneo-fusco, levi; soris sphaericis, 90-100  $\mu$ . diam., in cellulis matricibus maturantibus.

*Hab.* in foliis *Monardæ*, Decorah, Jowa Amer. bor.

20. **Synchytrium fulgens** Schroeter in Hedwigia XII, p. 141, Farlow 1006

The Synch. of the Un. St. Bot. Gazette vol. X, 3, p. 240. — Maculis minutis, purpureis; cellulis perdurantibus sphaericis, 66-82  $\mu$ . diam., episporio brunneo-fusco, levi; soris sphaericis vel ellipticis, 60-100  $\mu$ . diam., flavis, lucentibus.

*Hab.* in *Oenothera bienni* in Germania et California.

21. **Synchytrium innominatum** Farlow. in Botan. Gazette March. 1885, 1007

p. 240. — Maculis obscure rufis; zoosporangiis perdurantibus globosis vel leniter ellipsoideis, 70-100  $\mu$ . diam., episporio tenui, levi, cellula matricis immersis, dein superficiei foliorum evacuatis; soris luteis, circiter 120-150  $\mu$ . diam., matrice immersis.

*Hab.* in foliis *Malacothricis*, Santa Cruz, Cal. Amer. bor.

22. **Synchytrium decipiens** Farlow The Synch. of the Un. St. Bot. 1008

Gazette vol. X, 3, p. 240, *Uredo Leguminosarum* et *U. Fabæ*

Curtis in Herb. *U. acidoides* 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 hemisphæricis; soris sphæricis, 180-200  $\mu$ . diam., zoosporangiis circiter 15  $\mu$ . 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, sphæroideis, 50-70  $\mu$ . diam., episporio crasso, levi, hyalino, protoplasmate densissime et grosse granuloso, intense aurantio-fuligineo.

*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, sphæroideis v. mutua pressione angulosis, 25-30  $\approx$  25, episporio crasso, hyalino, levi, protoplasmate dense ac grosse granuloso-farctis.

*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*, (Estrich 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 sphæroideis vel oblongis.

*Hab.* in foliis *Urticæ dioicæ* in Rossia.

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, basim cellulæ versus angulata.

*Hab.* in Neckera viticulosæ foliis in Vogesis occid.

28. **Synchytrium muscicola** Reinsch Contr. ad Alg. et Fungol. 1875. 1014

— Fungillus tubercula spherica 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, sphericis, paullo minoribus, cellulis perdurantibus 12-16 zoosporangia spherica includentibus; protoplasmate zoosporangiorum decolorato.

*Hab.* in foliis Leskeæ in Vogesis occ.

29. **Synchytrium? Iridis** Rabenh. in Hedw. 1871, p. 18. — Maculis 1015 punctiformibus brunneis, epidermidem plantæ hospitæ occupantibus.

*Hab.* in Iride fumosa in Germania.

Species incertæ.

30. **Synchytrium Centranthi** Rabenh. in Hedw. 1871, p. 17. — Hypno- 1016 sporangiis plerumque 3-4, rarius singulis, polyedricis, angulis plus minus rotundatis, aurantio-fuscis, 21-33  $\mu$ .

*Hab.* in Centrantho elato in Germania.

31. **Synchytrium Punctum** Sorokin in Hedw. 1877, p. 113. — Macu- 1017 lis luteolis; tuberculis minutulis, atris; soris (?) sphericis, 7-20  $\mu$ . diam. membrana flava interiori et membrana externa brunnea, asperula præditis.

*Hab.* in Plantagine media in Rossia.

32. **Synchytrium Selaginellæ** Sorok. Arbeit. d. Naturfosch. bei der 1018 Univ. zu Kasan II, Bd. 1873.

33. **Synchytrium Crysosplenii** Sorok. Arbeit. d. Naturfosch. bei der. 1019 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. Zygo-sporæ 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 Rossia.

**TETRACHYTRIUM** 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  $\mu$ . diam.; zoosporis in quoque zoosporangio 4, pallide cyaneis, nucleo oleoso, hyalino ornatis, cilio simplici præditis, globosis, 11  $\mu$ . diam.; zygosporis nullis.

*Hab.* in plantis putrescentibus et in coleopteris emortuis sub aqua in Rossia.

**CLADOCHYTRIUM** Nowakowski Beitr. Kennt. Chytr. 1876 (Etym. *clados* ramus et *chytrium* ollula). — Mycelium in matrice late effusum, filamentis subtilibus, protoplasmaticis («?»), membrana tenuissima cinctis formatum, repetite ramosum, sæpe hinc inde fusiformiter vel conoideo inflatum. Zoosporangia ex vesiculis mycelicis 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-  
soderma tenue* Karst. — Mycelio circiter 1-2  $\mu$ . 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  $\mu$ . crassis, subinde usque ad 66  $\mu$ . cras-

sis, extra cellulam matricis, collo plus minusve elongato, erumpentibus; zoosporæ circiter 5  $\mu$ . diam.

*Hab.* in parenchymate *Acori Calami* et *Iridis pseudacori* in Germania et Fennia.

2. **Cladochytrium elegans** Nowakowski Beitr. Kennt. Chytr. 1876, 1023  
tab. VI, fig. 14-17, Schroet. Krypt. Flora Schles. Pilze pag. 194.  
— Filamentis mycelicis 2,5  $\mu$ . crassis, vesiculis fusiformibus ornatis, zoosporangiis, apice vel sub apice e ramis mycelicis formatis, globosis ovoideis, plerumque 22-37  $\mu$ . crassis, apice operculo depresso erumpentibus; protoplasmate hyalino; zoosporis 7,5  $\mu$ . 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 radiformia 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. 1024  
Flora Schles. Pilze pag. 193. — Zoosporangiis modo subglobosis, modo elongatis 40-88  $\approx$  25, apice ostiolo papilliformi ornatis; zoosporis globosis, 5  $\mu$ . diam., sporangiis perdurantibus globosis vel ellipsoideis, 15-30  $\mu$ . 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. 1025  
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 amœbiformibus, nucleo oleoso et cilio simplici prælongo ornatis.

*Hab.* in *Characeis* in Germania.

3. **Rhizidium xylophilum** (Cornu) Dang. in Ann. Scienc. Nat. 1886, 1026  
pag. 300, t. 13, f. 6-9, *Chytridium xylophilum* Cornu Monogr. Sapro. pag. 116. — Zoosporangiis ovoideo-acuminatis, depressis, subinde collo præditis vel lageniformibus, gregariis, operculo maturitate mucoso terminatis, zoosporis sphæroideis, 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  $\mu$ . 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  $\mu$ . diam.

*Hab.* in cellulis perdurantibus Chlamydomonadis in Germania.

8. **Rhizidium sphaerocarpum** 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 myceliali membranam cellulæ matricis perforante præditis; zoosporis numerosis, sphaeroideis vel elongatis, minutis 2,8  $\mu$ . diam. vel 5, 5-2,8, 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  $\mu$ . diam.

*Hab.* in cellulis Cladophoræ in Germania.

10. **Rhizidium Schenkii** Dang. in Ann. Sc. Nat. 1886, pag. 298. — 1033

Zoosporangiis forma variis sæpe piriformibus vel ellipsoideis, filamentis mycelicis ornatis; zoosporis uninucleatis, 3  $\mu$ . crassis.

*Hab.* in Algis variis in Gallia.

11. **Rhizidium aciforme** Zopf Zur Kennt. Phycom. pag. 69, tab. 10, 1034

fig. 33-43. — Sporangii piriformibus, minutis, 6-16  $\mu$ . diam., zoosporas minutas, circiter 2  $\mu$ . 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, 1035

t. 10, f. 21-31, *Chytridium apiculatum* A. Braun Ueb. Chytr. 1356, p. 588. — Hemisphæricum vel fere globosum, sessile, basi lata insertum, usque 13  $\mu$ . latum, medio in apiculum, 3  $\mu$ . 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 ostioliis pertusis prædita. Zoosporæ uniciliatæ.

1. **Rhizophidium globosum** (A. Br.) Schroet. Krypt. Fl. Schles. Pilze 1036

p. 191, *Chytridium globosum* Braun Ueber Chytr. 1855. — Zoosporangiis globosis, 20-25  $\mu$ . diam., plerumque sessilibus, in cellula matricis numerosis, basi fasciculo filamentorum myceliorum, intra cellulam cinctis, apice 1-4-ostioliatis; ostioliis brevibus, papilliformibus, poro erumpentibus; protoplasmate hyalino; zoosporis 2-3  $\mu$ . 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 1037

pag. 191, *Chytridium Mastigotrichis* Now. Beitr. Kennt. Chytr. 1876. — Zoosporangiis maturitate plus minusve globosis vel breviter ellipsoideis, circiter 40  $\mu$ . 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 sphæroideis vel elongato-sphæroideis, 25-250  $\mu$ . 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  $\mu$ . diam., cilio simplici auctis. 1038

*Hab.* in terra uda, in charta bibula uda etc. in Germania.

4. **Rhizophidium sporocyonum** (Br.) Berl. et De Ton., *Ch. sporocyonum* A. Br. Ueb. Chytr. 1855, p. 4. — *Rhizophidio globoso* peraffine et forsan tantum ejus varietas, a quo vero exiguitate distinguitur. 1039

*Hab.* in cellula matre sporarum *Ædogonii Vaucheri* in Germania.

**OBELIDIUM** Nowakowski Beitr. zur Kennt. Chytr. p. 86, Schroet. Krypt. Fl. Schles. pag. 192 (Etym. 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  $\mu$ . longis, apice aculeo acuminato, firmo terminatis, basi mycelio radiato, circulariter effuso circ. 160  $\mu$ . diam. insidentibus; protoplasmate hyalino; zoosporis globosis, 2  $\mu$ . diam., lateraliter prope aculeum erumpentibus. 1040

*Hab.* in exuvia Culicis pipientis sub aqua servata intra *Chætophoram* 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, 1041  
fig. 11. — Sporis minute et crebre muricatis, protoplasmate granuloso farctis, 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, 1042  
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, 1043  
tab. IV, f. 1-4. — Sporangiiis elongatis, fusiformibus, reniformibus vel linearibus, sursum attenuatis; sporis globosis, aculeis conicis, crassis, hyalinis ornatis, protoplasmate granuloso farctis.

*Hab.* in filamentis *Achlyæ leucospermæ* et *A. racemosæ* in Gallia.

4. **Olpidiopsis Aphanomycis** Cornu Monogr. des Saprolegniées p. 148, 1044  
tab. IV, fig. 11. — Sporangiiis sphæroideis 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 Rozæ). — Plasmodium cellulam matricis omnino implens, zoosporis formatum, dein in partes seriatim dispositas, transverse divisum. Ex parte quaque zoosporangium oritur membranæ cellulæ 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. 1045  
— Zoosporangiis non apice ramorum sed hinc inde in vesiculis sitis, ovoideis, poro pertusis; zoosporis notis; sporis sphæroideis, brunneis, muricatis, centrum filamenti

incrassati *Monoblepharidis* occupantibus, subinde vero ad basim bifurcationis ramorum sitis.

*Hab.* in filamentis *Monoblepharidis* polymorphæ in Gallia. — A ceteris speciebus matrice et zoosporangio partim filamento matricis adnato distinguitur.

2. **Rozella Rhipidii-spinosi** Cornu Monogr. des Saproth. p. 153, t. V, 1046  
fig. 1-9. — Zoosporangiis plerumque obpiriformibus, apice papilla hemisphærica, dein secedente præditis; zoosporis ovoideis vel sphæroideis, minutis, apice cilio longo, tenui ornatis; sporis sphæroideis, echinulatis, brunneo-luteis vel rufescentibus.

*Hab.* in sporangiis *Rhipidii spinosi* in Gallia.

3. **Rozella Apodyæ-brachynematis** Cornu Monogr. des Saproth. 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.

4. **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 præditis; sporangiis perdurantibus in plicis membranæ cellulæ matricis libere jacentibus, globosis, circiter 20  $\mu$ . diam., exosporio crasso, brunneo, aculeolato; aculeis circiter 2  $\mu$ . 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. Zoosporæ 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  $\mu$ . longis et 30  $\mu$ . latis; zoosporangiis solitariis globosis, circiter 14  $\mu$ . 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  $\mu$ . diam., elongatis vero usque 200  $\mu$ . longis, protoplasmate hyalino fartis; filamentis in matrice penetratis, in haustorium 6  $\mu$ . crassum inflatis; zoosporangiis ovoideis, ellipsoideis vel elongato-utriculiformibus, magnitudine valde variis; protoplasmate in zoosporas omnino diviso; zoosporis cylindræis, utrinque rotundatis, 6-13  $\approx$  3-5, cilio simplici ornatis, protoplasmate guttula oleosa prædita fartis; sporangiis perdurantibus e copulatione duarum cellularum ortis, globosis vel ellipsoideis, 20-30  $\mu$ . 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. 1051
3. **Polyphagus endogenus** Now. 11 Sep. Abdr. S. 17, t. X, f. 108-114. 1052

**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 p. 195, *Olpidiopsis Saprolegniæ* Cornu Monogr. des Saprolog. p. 145, 1053

t. III, f. 10, *Chytridium Saprolegniæ* A. Br. Verjueng. p. 286. — Sporangiis solitariis vel numerosis (usque 50) in cellula matricis viventibus, apice clavatis, magnitudine variis, elongato-rotundatis, ex cellula matrice utriculis cylindraceis, plus minusve elongatis, exeuntibus; zoosporis plerumque 4  $\mu$ . longis, circiter 2  $\mu$ . 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. Cellulæ alterius protoplasma in alteram effunditur, hæc vero crescit et membranâ crassâ 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 38-44  $\mu$ . 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  $\mu$ . 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 cellulæ matricis adhærentibus, in cellulis parvis copulationis sessilibus maturitate rotundatis e latere plus minusve depressis, 35-38  $\mu$ . diam., membrana castaneo-brunnea, levi cinctis.

*Hab.* in foliis, caulibus et in perigonis Chenopodiacearum h. e. Chenopodii glauci, C. rubri, C. cubici et Atriplicis patulæ in Germania.

**REESSIA** Fisch. Beitr. Kennt. Chytr. (Etym. cl. botanico M. REESS genus dicatum). — Zoosporangia intra cellulam matricis sita. Zoosporangia farcta, in collum longiusculum producta. Zoosporæ paria copulantes et sporam perdurantem, per zoosporas germinantem, generantes.

1. **Reessia amœboidea** Fisch. l. c. — Characteres generis.

1057

*Hab.* in cellulis Lemnæ minoris et L. polyrrhizæ pr. Erlangen. — Cellulæ 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 radiformem, 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  $\mu$ . diam., membrana crassiuscula, hyalina cinctis, biostiolatis, operculis convexis, orbicularibus dein dilabentibus ornatis, basi napiformibus, in pedunculum tenuem desinentibus; zoosporis paucis.

1058

*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  $\mu$ . longis, 20-23  $\mu$ . latis, apice operculo conoideo-applanato, obtuse umbilicato dein dilabente pertusis, basi pedunculo simplici, 10-12  $\mu$ . crasso, urceolato, matrice immerso; protoplasmate hyalino faretis; zoospora globosa, 3-4  $\mu$ . diam.; sporangiis perdurantibus globosis, protoplasmate guttula crassa, oleosa ornato.

1059

*Hab.* in oogoniis *Ædogoniorum* in Germania. — «An *Rhizidium?*»

3. **Chytridium piriforme** Reinsch Fresh. algæ p. 215. — Cellulis, zoo- 1060  
gonidiis nondum egressis, operculo se apertis, ovato-piriformibus,  
25-28 = 13-16, basi sensim angustata, in radiculam in substrato vi-  
vente radicantem prolongatis, diametro transversali dimidio dia-  
metri longitudinalis angustiore, cytioplasmate dense subtiliter gra-  
nuloso cytiodermate 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-  
lulæ æquante, in medio plus minusve incrassata apiculo prolou-  
gato deorsum.

*Hab.* in *Vaucheriæ sessilis* et *V. geminatæ* cellulis in  
insula Kerguelensi. — Affine *C. Ollæ*. «Species nisi incerta, certe  
male descripta».

4. **Chytridium brevipes** A. Braun Ueber Chytrid. 1856, pag. 587. — 1061  
*Ch. Ollæ* peraffine, a quo differt magnitudine et pedunculo brevis-  
simo rotundato.

*Hab.* in *Ædogonio flavescente?* et *O. apophysato* in  
Germania (Dr. ITZIGSOHN).

5. **Chytridium acuminatum** A. Braun Ueb. Chytr. 1855, p. 3. — *Ch.* 1062  
*Ollæ* simile sed valde minus, 17  $\mu$ . longum; operculo longiori acu-  
minato.

*Hab.* in cellula matri sporarum *Ædogonii Rothii* et *O.*  
*echinospermi* prope Freiburg Germaniæ.

6. **Chytridium Chlamidococci** A. Braun Ueber Chytr. 1855, p. 5. — 1063  
Globosum, circiter 10  $\mu$ . diam. vel paullo longius, statu maturitatis  
nondum visum.

*Hab.* in *Chlamidococci pluvialis* cellulis in Germania.  
— «An *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  $\mu$ . latum.

*Hab.* in *Chlamidomonte Pulvisculo* et in *Gonio pec-*  
*torali* 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  $\mu$ . longum, 8  $\mu$ . latum; zoosporis subglobosis, vix 2  $\mu$ . longis.

*Hab.* in *Melosira* variante et *Conferva bombycina* in Germania. — «An *Phlyctidium*?»

9. **Chytridium cornutum** Sorokin Beitr. Entw. Chytr. fig. 18-27. — 1066

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 Rossiaë. — Fungillus in juventute tantum cellula pedunculo alga inserta sistit.

10. **Chytridium laterale** A. Braun Ueb. Chytr. p. 5, 1855, t. III, 16-26. 1067

— Globosum, pedunculum radiciformem, brevem emittens, maturitate una vel pluribus papillis mammillæformibus, lateralibus sine operculo apertis, ornatum, 13-17  $\mu$ . diam.; zoosporis 2,5  $\mu$ . longis, cilio 12-15  $\mu$ . longo.

*Hab.* in filamentis *Ulothricis zonatae*, Freiburg Germ.

11. **Chytridium angulosum** A. Br. Ueb. Chytr. 1855, pag. 5. — *Ch.* 1068

*laterali* simile vel paullo majus, 20-25  $\mu$ . diam., globosum, maturitate subangulosum, ostiolis nonnullis minus prominulis pertusum; zoosporis 2,5-3  $\mu$ . 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. 1069

— Elongatum, obpiriforme, plerumque obliquum et etiam incurvatum, apice rotundatum, inferne attenuatum, subacuminatum, maturitate 25-33, raro 50  $\mu$ . longum, 13-15  $\mu$ . latum; zoogonidiis cilio usque 3  $\mu$ . crasso et circiter 9  $\mu$ . longo ornatis.

*Hab.* in *Chætophora eleganti* prope Berlin Germaniæ.

13. **Chytridium Plumulæ** Cohn in Hedw. 1865, pag. 171. Schulze's 1070

Archiv. f. mykr. Anatom. III, p. 42, *C. Antithamni* Cohn l. c. pag. 59, t. II, f. 3-4. — Cellulis subglobosis vel sæpius ovalibus, usque 15  $\mu$ . diam., radícula carentibus; zoosporangiis rubescentibus vel fusciscentibus; zoosporis numerosissimis, demum apertura irregulari erumpentibus, singulis singulæ *Antithamni* cellulæ membranam perforantibus, infra ejusdem membranam et protoplasma germinantibus, processum utriculiformem cellulæ hospitalis, ramuli instar, producentibus et mox explentibus, reliquam cellulam vix afficientibus.

- Hab.* in processibus cellularum *Antithamni Plumulæ* in insula Helgoland.
14. **Chytridium entosphæricum** Cohn in *Hedwigia* 1865, pag. 170. 1071  
— Cellulis globosis, albis, fere 16  $\mu$ . diam., singulis in singula Algæ cujusdam marinæ cellula evolutis; zoosporis? membranam cellulæ hospitalis extrinsecus perforantibus, infra lumen ejus germinantibus, enecatamque partim vel totam explentibus.  
*Hab.* in cellulis intimis *Bangiæ fusco-purpureæ* et *Ulothricis* in insula Helgoland.
15. **Chytridium Polysiphoniæ** Cohn in *Hedw.* 1865, p. 170, Schulze's 1072  
*Archiv. f. micr. Anat.* III, t. II, f. 2. — Cellulis solitariis 33  $\mu$ . diam. vel sæpius socialibus, subglobosis vel subangulatis, basi plana ad cuticulam *Polysiphoniæ* appressis, utriculos subjectos vix injurantibus, radícula carentibus, zoosporangiis membrana nigrescente circumdatis, operculo orbiculari circumscisso, sursum apertis; zoosporis numerosissimis, hyalinis, nucleolo et cilio mobili instructis, saltantibus, 2,5  $\mu$ . diam.  
*Hab.* ad *Polysiphoniam violaceam* in insula Helgoland.
16. **Chytridium decipiens** A. Braun Ueber. *Chytr.* 1855, pag. 6. — 1073  
Hemisphæricum vel crasse lenticulare, 42  $\mu$ . diam.; zoosporis paullo elongatis, 2,5  $\mu$ . longis.  
*Hab.* in cellulis *Ædogonii Vaucheri* in Germania.
17. **Chytridium Pollinis-Typhæ** Tomaschek Ueb. *Binn. Poll.* 1877. 1074  
— Tantum 12  $\mu$ . latum, membrana simplici cinctum, protoplasmate guttulis oleosis destituto.  
*Hab.* in cellulis pollinibus *Typhæ latifoliæ* in Austria.
18. **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.
19. **Chytridium minimum** A. Braun Ueber *Chytr.* 1855, pag. 4. — 1076  
Minutum, elongatum, cellulis apice pertusis, 10-12  $\mu$ . diam.  
*Hab.* in apice filamentorum *Coleochætes pulvinatæ* in Germania. — Species valde dubia.
20. **Chytridium depressum** Pringsh. in A. Braun Ueber *Chytr.* 1855, 1077  
p. 6. — Depressum, fere semiglobosum, basi lata insertum, circiter 42  $\mu$ . diam., medio apiculo incurvato præditum.  
*Hab.* in *Coleochæte prostrata* in Germania (PRINGSHEIM).
21. **Chytridium glomeratum** Cornu Mon. *Saprolegn.* in *Ann. Sc. Nat.* 1078

Bot. 1872. — Sporangii ignotis; sporis perdurantibus episporio aculeolato cinctis.

*Hab.* in *Vaucheria sessili* in Gallia.

22. **Chytridium helioforme** Dang. in Ann. Sc. Nat. Bot. 1886, p. 293. 1079

— Zoosporangiis sphæroideis 10-12  $\mu$ . diam. filamentis mycelicis 6-7 simplicibus vel parce ramosis cinctis; zoosporis sphæroideis uninucleatis, 3  $\mu$ . longis, per collum longum exeuntibus; sporis perdurantibus sphæroideis, membrana duplici.

*Hab.* intra *Nitella*, *Chara* et *Vaucheria* in Gallia.

**PHLYCTIDIUM** A. Braun Ueb. Chytridium (ut subg.), Schroeter Krypt.

Fl. Schles. p. 190 (Etym. a *phlyctis* vesica). — Sporangia libere cellula matricis inserta, ostiolo tubiformi vel poro aperta, erumpentia. Rhizoides nunc imperspicui, nunc verrucam minutam simulantes nunc e filamentis brevi, solitario (*haustorium*) formati.

1. **Phlyctidium Pollinis-Pini** (A. Braun) Schroet. Krypt. Fl. Schles. 1080

p. 190, *Chytridium Pollinis-Pini* Braun Ueb. Chytr. p. 4. — Zoosporangiis globosis, 20-25  $\mu$ . diam., apice tuberculo verruciformi, tenui præditis; membrana crassiuscula cinctis, pallide rufis, protoplasmate hyalino fæctis, 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 1081

p. 190, *Chytridium microsporum* Now. Beitr. zur kennt. Chytr. — Zoosporangiis globosis vel ellipsoideis, 30-50  $\mu$ . diam., per ostiolum tenuissimum, vix visibile se evacuantibus; protoplasmate hyalino fæctis; zoosporis elongatis, circiter 2  $\mu$ . longis et tertium longitudinis latitudine æquantibus, gutta magna, oleosa et cilio ornatis; haustorio non visibili.

*Hab.* in filamentis *Mastigonematis æruginei* a sphaerulis gelatinosis *Chætophoræ elegantis* convolutis in Germania et Rossia.

3. **Phlyctidium mammillatum** (A. Braun) Schroet. Krypt. Fl. Schles. 1082

Pilze p. 190, *Chytridium mammillatum* Braun Ueber Chytridium p. 4. — Zoosporangiis ellipsoideis vel ovoideis, apice umbonatis et tum fere limoniformibus, circiter 25-30  $\mu$   $\approx$  16-20, ostiolo angusto, pertuso ornatis.

*Hab.* in variis algis filamentosis in Germania.

4. **Phlyctidium volvocinum** (A. Braun) Schroet. Krypt. Fl. Schles. 1083  
Pilze p. 190, *Chytridium volvocinum* Braun Ueber Chytridium  
1856, p. 588. — Sporangiiis 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  
— Sporangiiis globosis, plerumque magnitudine æqualibus, circiter  
 $5 \mu$ . diam. libere insertis, basi haustorio brevi, recto, apice glo-  
bose inflato, in cellulam matricis penetrante præditis.

*Hab.* sociatim in cellulis Mesocarpi pleurocarpi in Ger-  
mania.

**SPHÆROSTYLIDIUM** A. Braun Ueber Chytr. 1856 (Etym. *sphæra*  
et *stylidium* 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  $7 \mu$ . diam., in collum  
tenue, sphæram longitudine æquans productum, apiculo tenuis-  
simo ornatum.

*Hab.* in filamentis Mougeotia, *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; cytiodermate distincto subcrasso cytioplasmate dense granu-  
loso; cellular. 112-130  $\mu$ . diam.

*Hab.* in Schizosiphonis Kerguelenensis trichomatibus  
in insula Kerguelensi.

**OLPIDIUM** A. Braun Ueber Chytr. in Monatsber Kön. Preuss. Akad. der Wiss. (Etym. 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 evoluto formata, membrana firma, levi prædita.

1. **Olpidium endogenum** (A. Braun) Schroet. Krypt. Flora von Schles. 1088 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  $\mu$ . diam., cellula matricis per ostiolum cylindraceum, plus minusve elongatum usque ad 5  $\mu$ . latum exeuntibus; protoplasmate hyalino; zoosporis circiter 3  $\mu$ . crassis, gutta oleosa, hyalina præditis; sporis perdurantibus globosis vel fere piriformibus, forma magnitudineque zoosporangia æquantibus, membrana levi, crassa, vesiculiformi, protoplasmate aqueo farcta formatis, membrana sporam globosam, usque 15  $\mu$ . diam., membrana levi, firma circumdatam protoplasmate denso immersam continente.

*Hab.* intra cellulas Algarum viventium, quas enecat, in Germania.

2. **Olpidium entophytum** A. Braun Ueber ein. neue Arten. Gatt. Chytr. 1089 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  $\mu$ . 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 1090 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  $\mu$ . diam.; sporis perdurantibus usque 24  $\mu$ . diam., sporam circiter 20  $\mu$ . diam., ut illam *Olpidii endogeni* formatam, zoosporas rursus formantem continentibus.

*Hab.* in cellulis crassioribus pollinici Pini silvestris in Germania.

4. **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 matricis immutata solitariis, per utriculum cylindraceum plus minusve longum se evacuantibus; sporis perdurantibus zoosporangia magnitudine æquantibus, exosporio crasso et endosporio subtili præditis, nucleo magno farctis, zoosporas rursus formantibus.

*Hab.* in cellulis epidermicis Lemnæ, Breslau in Germania.

5. **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 matricis (quam dilatant et implent) generatis, sphæroideis vel ellipsoideis, in utriculum breve prominens exeundo productis; cellulis matricis proximis quoque ampliatis tuberculosque gignentibus; sporangiis perdurantibus globosis, ellipsoideis vel fusoides, solitariis vel aggregatis, membrana crassa, levi, brunnea præditis, protoplasmate hyalino farctis.

*Hab.* in cellulis epidermicis foliorum Trifolii repentis galas producens in Germania et Italia.

6. **Olpidium destruens** (Now.) Schroeter Krypt. Flora Schles. Pilze 1093  
p. 182, *Chytridium destruens* Nowakowski Beitr. Kenn. Chytr. — Sporangiis globosis, dein oblongo-rotundis, usque 15  $\mu$ . diam., ostiolo subtili, vix perspicuo erumpentibus, modo filamentis sparsim insertis, modo in cellulis seriatis plus minusve numerosis; cellulam matricis globosam inflantibus et eam fere omnino implentibus; membrana post zoosporarum exitum rufo-lutea; protoplasmate hyalino medio tuberculo brunneo-lateritio prædito; zoosporis elongatis, vix 2  $\mu$ . crassis.

*Hab.* intra cellulas Chætonematis irregularis in Germania.

7. **Olpidium gregarium** (Now.) Schr. Krypt. Fl. Schl. Pilze p. 182. — 1094  
*Chytridium gregarium* Now. Beitr. Kennt. Chytr. — Zoosporangiis globosis, plus minusve numerosis (usque ultra 10) in cellula matricis nidulantibus, 30-70  $\mu$ . latis, papilla brevi, obtusa, conoidea erumpentibus; protoplasmate pallide rubescente; zoosporis globosis 4  $\mu$ . diam.

*Hab.* in ovis Rotiferorum in Germania.

8. **Olpidium Coleochætetes** (Now.) Schr. Krypt. Fl. Schles. Pilze p. 182, 1095  
*Chytridium Coleochætetes* Now. Beitr. Kennt. Chytr. — Zoosporangiis solitariis vel per paria, raro 3-4 congestis, in cellula matri-

cis formatis, elongato-fusoideis, in collum longum extus cellulam matricis abeuntibus, sæpe 8  $\mu$ . longis in exemplaribus longioribus vero usque ad 125  $\mu$ . longis, 12  $\mu$ . crassis; zoosporis globosis, 2  $\mu$ . diam.

*Hab.* in oogoniis (nunquam in filamentis cellularum vegetantium) Coleochætetes pulvinatæ in Germania.

9. **Olpidium? zootocum** (A. Braun) Schroeter Krypt. Flora Schles. 1096  
Pilze p. 182, *Chytridium zootocum* Braun Ueber Chytr. — Zoosporangiis globosis vel elongato-rotundatis, sæpe urceolatis, longitudine usque quintuplo latitudinis æquantibus, utrinque sphæroideo-rotundatis, utriculo, una extremitate oriente, plus minusve elongato, cylindræo erumpentibus.

*Hab.* in corpusculis Anguillulæ in fino leporino in Germania. — Sec. cl. Dangeard ad Catenariam pertinet.

10. **Olpidium? macrosporum** (Now.) Schroet. Krypt. Fl. Schles. p. 182, 1097  
*Chytridium macrosporum* Now. Beitr. Kennt. Chytr. — Sporangio cellulam matricis 55 = 50, ellipsoideam, omnino implentibus utriculo undulato, 6-8  $\mu$ . crasso, usque 250  $\mu$ . longo erumpentibus; protoplasmate hyalino; zoosporis ellipsoideis 10  $\mu$ . longis, 6  $\mu$ . crassis, nucleo carentibus.

*Hab.* in ovis verisimiliter Rotiferi cujusdam in gelatina Chætophoræ elegantis viventis.

11. **Olpidium tumefaciens** (Magnus) Berl. et De Ton. *Chytridium tu-* 1098  
*mefaciens* 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. acanthoti in Germania.

12. **Olpidium Brassicæ** (Woron.) Dang. in Ann. Scienc. Nat. 1886. 1099  
p. 327, *Chytridium Brassicæ* Woronin Plasmod. Brassicæ 1878 — Globosum, intra cellulas matricis formatum; zoosporis per collum plus minusve longum exeuntibus; sporis immobilibus, radicatibus, 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 dia- 1100  
gnosi). — Zoosporangiis initio globulos plasmaticos nudos sistentibus, dein perfectis membranâ obvolutis, sphaericis, flavido-roseis, 48-57  $\mu$ . diam.; zoosporis piriformibus v. ovoideis, 1-ciliatis, ro-

seis 4-5,5 = 4,5; sporis quiescentibus inæqualiter globosis, levibus, 29-34  $\mu$ . diam., episporio rufo-brunneo, plasmate flavido.

*Hab.* in hyphis abnormiter inflatis Saprolegniæ cujusdam, Bologna Ital. bor.

**SIPHODIUM** Reinsch Contr. Alg. et Fungol. p. 96 et in Bot. Jahresb. 1875, p. 230 (Etym. *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. Sporæ unicellulares, sphericæ in ramulorum ultimorum summis attenuatis evolutæ.

1. **Siphopodium dendroides** Reinsch Contr. Algol. et Fungol. p. 96 et in Bot. Jahresb. 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, cellulæ inferiore parte tubuliformi, trienti, usque quadranti plantulæ altitudinis.

*Hab.* in fronde Metzgeriæ furcatæ, in Vogesis occ. — Latit. cellulæ in media 16,8, sporarum diam. 5,6-9,7.

**HAPALOCYSTIS** Sorok. Beitr. Chytr. 1875 (Etym. *hapalos* tener et *cystis* vesica). — Sporangia obpiriformia, protoplasmate granuloso dein in 32 partes diviso, hyalino farcta, dein operculo dilabente apice pertusa. Zoosporæ globosæ, ciliis duobus ornatae.

1. **Hapalocystis mirabilis** Sorokin. Beitr. Entw. Chytr. 1875, f. 44-65. — Sporangio obpiriformi, basi 117  $\mu$ . 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 ornatis, 11  $\mu$ . longis, ex ostiolo exeuntibus.

*Hab.* in lignis putrescentibus in Canale Grande Venetiis Italiæ borealis. — Bot. Jahrb. 1875, p. 190.

**NOWAKOWSKIA** Borzi Eine neue Chytrid. c. icone (Etym. a cl. *Nowakowski* cui genus dicatum). — Zoosporangia subglobosa protoplasmate granuloso farcta, filamentis tenuissimis, subinde ramosis, cincta. Zoosporæ minutæ ovoides, uninucleatæ et uniciliatæ.

1. **Nowakowskia Hormothecæ** Borzi Eine neue Chytr. c. icone. — Zoo- 1103  
 sporangiis subglobosis, protoplasmate hyalino granuloso, dein gut-  
 tuligero et demum in zoosporas mutato farctis, filamentis radici-  
 formibus, simplicibus vel ramosis, tenuissimis cinctis, 4-16  $\mu$ . diam.;  
 zoosporis ovoideis, ad medium constrictis, apice nucleo oleoso et  
 cilio simplici, 3-4  $\mu$ . longo ornatis, 1  $\mu$ . longis.

*Hab.* in Hormotheca quadam, Messina Siciliae.

**SPHÆRITA** Dang. in Ann. Sc. Nat. 1886, p. 277, tab. XII, fig. 14-36  
 (Etym. a *Sphæra*). — Zoosporangia globosa, endogena, dein zoo-  
 sporis farcta. Zoosporæ leniter elongatæ, antice uniciliatæ.

1. **Sphærita endogena** Dang. in Ann. Sc. Nat. Bot. 1886, p. 277. — 1104  
 Zoosporangiis globosis membrana tenuissima cinctis, primo proto-  
 plasmate oleoso, dein granuloso et demum in zoosporas diviso far-  
 ctis; zoosporis leniter elongatis, antice cilio recurvo præditis, primo  
 mucro obvolutis, 1,5  $\mu$ . longis, hyalinis.

*Hab.* in corpore Rhizopodorum viventium in Gallia.

**RHIZOGASTER** Reinsch Contr. ad Alg. et Fungol. (Etym. *rhiza* ra-  
 dix et *gaster* venter). — Corpus plantæ unicellularis ex parte in-  
 feriore radiculari in substrato vivente radicante et ex parte supe-  
 riore fructifero formatum; pars inferior plantæ evolutæ ex ple-  
 rumque radiculis binis, contortis, attenuatis in spatia intercellula-  
 ria parenchymatis in stratum viventem penetrantibus exstituta,  
 pars superior ex utriculis ovalibus ternis in basi cohærentibus spo-  
 ras 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, 1105  
 et in Bot. Jaresb. n. 1875, p. 230. — Utriculis sporas procrean-  
 tibus, 22-27 = 13-15,5; longitud. utriculor; zoogonidia evol. 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  
 (Etym. *polys* multus et *rhin* nasus). — Filamenta zoosporangifera  
 erecta, longitudine varia. Zoosporangia gregaria, subglobosa in col-  
 lum longiusculum abeuntia. Zoosporæ oblongæ, minutissimæ.

1. **Polyrhina multiformis** Sorok. in Ann. Sc. Nat. 1876, p. 67, t. 3, 1106  
 fig. 29-39. — Filamentis zoosporangiferis erectis, 1-2  $\mu$ . crassis,

septatis, e mycelio repente, septato ortis; zoosporangiis gregatim apice filamentorum insertis, globosis, 4-6  $\mu$ . diam., in collum longiusculum, curvatum desinentibus; zoosporis oblongis, minutis, 5  $\mu$ . longis, ciliis non visis.

*Hab.* in corpore Anguillulæ ejusdam emortuæ in Rossia. — An huc spectat *Harposporium Anguillulæ* Lohde?

**PLEOTRACHELUS** Zopf Zur Kennt. Phycom. p. 33 (Etym. *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 (Etym. *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 subcylindræa 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  $\mu$ . diam.

*Hab.* in Bacillariaceis in Germania.

**AMÆBOCHYTRIUM** Zopf Zur Kennt. Phycom. p. 41, tab. 6, fig. 1-13. (Etym. 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 mucro Chætophoræ in Germania.

**HYPHOCHYTRIUM** Zopf Zur Kennt. Phycom. p. 47, tab. 7, fig. 13-20 (Etym. ab *hypha* et *chytrium*). — Zoosporangia globosa vel fusoides, papillata, basi vel subinde etiam apice filamentis mycelicis, quandoque ramosis ornata. Zoosporæ globosæ, minutæ uniciliatæ.

1. **Hypochytrium infestans** Zopf Zur Kennt. Phycom. p. 47, tab. 7, 1110 fig. 13-20. — Zoosporangiis globosis, apice et basi apiculatis, 55-60  $\mu$ . diam. vel crasse fusoides 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  $\mu$ . diam.

*Hab.* in Helotio quodam in Germania.

**RHIZIDIOMYCES** Zopf Zur Kennt. Phycom. p. 48 (Etym. 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, 1111 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, granulosis, ovoideis, 7-8  $\approx$  4-5.

*Hab.* in oogoniis Achlyæ racemosæ in Germania.

**PROTOCHYTRIUM** Borzi in Giorn. Bot. It. 1884 (Etym. *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 1112

vacuolo magno ornatis, dein zoosporis farctis; zoosporis subglobosis apice attenuatis et cilio simplici tenui ornatis; sporis perdurantibus sphaeroideis, in vesicula tenui protoplasmate hyalino farcta, 30-40  $\mu$ . diam. sitis, subglobosis, centro guttula oleosa ornatis, protoplasmate granuloso præditis, 15-25  $\mu$ . diam.

*Hab.* in filamentis *Spirogyræ crassæ*, Messina Siciliae.

**PHYSODERMA** Wallr. Fl. Germ. Crypt. p. 192, Schroet. Krypt. Fl. Schles. Pilze p. 194 (Etym. *physis* vesica et *derma* ocrium). — 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 farcta, verrucas non erumpentes, sæpe ellipsoideas et in maculas magnas confluentes brunneas formantia.

1. **Physoderma maculare** Wallr. Flora Germanica, Schroet. Krypt. 1113  
Flora Schles. Pilze p. 194. — Sporangii perdurantibus plerumque 3-8 in quaque cellula matricis, globosis vel ellipsoideis, sæpe aliquantum depressis vel mutua pressione angulosis, plerumque 26-35 = 17-30, membrana levi luteo-brunnea, dein castaneo-brunnea, multi-stratosa, cinctis; protoplasmate hyalino farctis; 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.

2. **Physoderma Heleocharidis** (Fuck.) Schroet. Krypt. Flora Schles. 1114  
Pilze p. 194, *Protomyces Heleoch.* Fuck. Symb. Myc. — Sporangii perdurantibus solitariis vel per paria, in cellulis crassioribus parenchymaticis subinde pluribus, globosis vel ellipsoideis plerumque 18-28 = 13-18, membrana levi castaneo-brunnea, circiter 1,5  $\mu$ . crassa cinctis, protoplasmate pallide luteo farctis; verrucis planis sæpe in maculas elongato-rotundatas vel rhomboideas, brunneo-nigras, 2-6 mm. longas confluentibus.

*Hab.* in caulibus *Scirpi palustris* in Germania, Fennia, et Italia bor.

3. **Physoderma Gerhardtii** Schroet. Kryptog. Fl. Schles. Pilze p. 194. — 1115  
Sporangiis perdurantibus cellulis parenchymaticis regularibus immersis, globosis vel ellipsoideis, 15-20  $\mu$ . 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. 194. — 1116  
Sporangiis 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, 1117  
*Ustilago? Menthæ* Schroet. Pfl. Gatt. Synch. 1870. — Sporangiiis perdurantibus globosis vel breviter ellipsoideis, 22-33  $\mu$ . 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. 1118  
— Sporangiiis 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, 1119  
Schroet. Krypt. Fl. Schles. Pilze p. 195, *Protomyces Menianthis* De Bary 1853. — Sporangiiis 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. **Protomycetaceæ** DE BARY.

Hyphæ filiformes, subinde nullæ; reproductio agamica et zoosporica nullæ; sporangia crasse, subinde bi-tritunicata, tunica interna, externis ruptis, cum protoplasmate 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 (Etym. a *protos* primus et *myces* fungus). — Foliicola, maculas coloratas efformans. Sporæ sphaeroideæ, subhyalinae vel ochraceæ, episporio crasso donatæ majusculæ, in parenchymate foliorum efformatæ, sub epidermide nidulantes. — Genus biophilum.

1. **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  $\mu$ . cr.; flavido, plasmate hyalino; sporidiis cylindraceo-oblongis 2-2,2 = 1.

*Hab.* ad caules et petiolos vegetos *Ægopodii Podagrariae* 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 oogonicum in eodem Heracleo Spondylio viventis (Conf. Casp. Ueber einige Hyphom. p. 328).

2. **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).

3. **Protomyces Chrysosplenii** Berk. et Br. Ann. Nat. hist. n. 1472. 1122  
— Maculis albis, crassiusculis; sporis globosis, hyalinis, pedicellatis.

*Hab.* in foliis *Chrysosplenii oppositifolii*, New Pitsligo Britannia.

4. **Protomyces kreutensis** Kühn in Hedw. 1877, p. 124. — Soris fu- 1123  
scis, paullo prominentibus, postremo interdum diruptis; sporis sphæ-

ricis, nonnunquam ellipsoideis, rarius irregulariter subglobosis, 20-43, plerumque 30-36  $\mu$ . diam.

*Hab.* in foliis Aposeridis foetidæ prope Kreut et Gehölz Bavariae.

5. **Protomyces Erythronii** Peck 25 Rep. p. 90. — Maculis rubris v. 1124  
purpuraceis; sporis in contextu foliorum genitis sparsis vel confertis sæpe in serie breves dispositis, latis, globosis, obscuris, 50-65  $\mu$ . diam.

*Hab.* in foliis et pedunculis Erythronii americani, Greenbush Amer. bor.

6. **Protomyces Martianooffianus** Thüm. Pilzfl. Sibir. n. 123. — Acer- 1125  
vulis 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 flavescentibus, intus granulosis, plerumque 16  $\mu$ . diam.

*Hab.* in Potamogetonis natantis foliis vivis prope Minussinsk Sibiriae Asiaticæ.

7. **Protomyces fallax** Sacc. Mich. I, p. 118. — Foliicola, epidermide 1126  
tectus, gregarius; sporis globosis, 16-20  $\mu$ . diam., levissimis, guttulatis v. 1-nucleatis, initio hyalinis, tunica  $\frac{1}{2}$ -2  $\mu$ . crassa, dilutissime fusca, tandem sporis totis fuscidulis.

*Hab.* in foliis Pini silvestris putrescentibus cum *Sphaeropside Strobi* B. et Br. var., Berolini Germaniæ (P. MAGNUS). — Cum *Cromate Abietis*, *Peridermiis* etc. comparatus sed omnino diversus.

8. **Protomyces carpogenus** Sacc. Mich. I, p. 118. — Sporis in acer- 1127  
vulos applanatos, epidermide velatos, varie extensos, lateritio-roseos dense aggregatis, globulosis v. globoso-ovoideis quandoque obsolete angulosis, 18-20  $\mu$ . diam. vel 25  $\approx$  20, pallide ochraceo-roseis, nubiosis, episporio concolori 1  $\mu$ . crasso.

*Hab.* in cortice Cucurbitæ, socia Phoma decorticante DNtrs ad Travemünde an der Ostse pr. Lübeck Germaniæ 1873 (P. MAGNUS).

9. **Protomyces Fergussonii** B. et Br. Ann. Nat. Hist. n. 1473. — 1128  
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. — 1129

Cellulis externis massa violacea dein nigrescente immixtis; sporis ellipsoideis, hyalinis, 15  $\mu$ . longis.

*Hab.* in foliis et inflorescentia Phlogis in Britannia.

11. **Protomyces Physalidis** Kalch. et Cooke in Grevillea. — Cellulis 1130  
in maculis obscurioribus immersis; sporis globosis, pallidis, levibus,  
10-20  $\mu$ . diam.

*Hab.* in foliis Physalidis Hornemanni in Africa austr.

12. **Protomyces punctiformis** Niessl Beitr. p. 16. — Acervulis mi- 1131  
nutissimis, 50-60  $\mu$ . 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  $\mu$ . diam.

*Hab.* in foliis Butomi umbellati prope Brünn Moraviæ.

13. **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  $\mu$ . diam. epi-  
sporio hyalino.

*Hab.* in Cuscuta Gronowii, New Jersey Amer. bor. — Le-  
git cl. I. MARTINDALE, cui dicata est species.

14. **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).

15. **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.

16. **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  $\mu$ . diam.

*Hab.* in Comaro palustri, Forfar Britannia. — Primo ob-  
tutu *Hypospilæ Pustulæ* similis. An ad *Physoderma Menyanthis*  
De Bary ducendus?

17. **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, muco obvolutis vulgoque per plures conjunctis, levissimis, 30-55  $\mu$ . diam., flavis.

*Hab.* ad muscos (*Hypna*) semiemortuos in monte Observatorii berget Aboæ Fenniæ.

18. **Protomyces? pithyophilus** Karst. *Fragm. Myc.* XI, p. 4. — *Acer-* 1137  
*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  $\mu$ . diam. vel 75  $\approx$  60  $\mu$ .; sporis sphæroideis, 27-34  $\mu$ .*

*Hab.* in ligno mucido pineo prope Mustiala Fenniæ.

19. **Protomyces rhizobius** Trail *Scot. Nat.* 1884, Jan. pag. 125. — 1138  
*Sporis sparsis, sphæricis, 30-33  $\mu$ . diam., tunica crassissima, 10-12  $\mu$ . cr., subhyalina vel pallide brunnea.*

*Hab.* intra corticem radicum *Poæ annuæ*, mycelio delicato immixtus. — Sporæ quam cellulæ radicis plantæ nutricis multo majores.

*Obs. Protom. Martianoffianus, P. punctiformis, P. Sagittariæ*, nunc descripti, rectius militant inter Ustilagineas sub gen. *Doassansia*, ubi iterum invenientur; *P. Physalidis* vero inter *Entylomata* iterum describetur. *P. Fergussonii*, teste Trail *Myc. Scot.* n. 3060, ad *Entyloma canescens* Schröt. spectat.

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# MYXOMYCETEÆ Wallr <sup>1)</sup>.

*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 mucilagosæ, 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 <sup>2)</sup>. Zoosporæ hæ confluentes plasmodiaque mobilia sistentes.

## Clavis analytica Familiarum

A) Sporæ violaceæ vel brunneo-violaceæ (*Amaurosporæ*).

† Capillitium nullum (*Atrichæ*).

*Protodermiaceæ*. Peridium singulum.

†† Capillitium præsens (*Trichophoræ*).

§ Peridium vel æthaliolum extus calcariferum (*Calcareæ*).

*Cienkowskiaceæ*. Capillitium e filamentis coloratis, reticulatim intertextis, apicibus nonnullis liberis formatum.

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1) Candide 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 Zoppii 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. (sporis 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.

*Amaurochætaceæ*. Columellæ peridiorum singulorum concrecentes 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.

*Heterodermeæ*. Protuberantiæ parietum reticulatæ.

†† Capillitium præsens (*Trichophoræ*).

*Reticulariaceæ*. Æthali-um simplex; peridia columellâ prædita; columella den-dritice 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. Zoosporæ 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 æthaliolum extus calcariferum.

— a. Capillitium e tubis reticulatim intertextis, apicibus 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 (*æthaliolum*) 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.

*Crateriachæa*. 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.

*Diachœa*. Peridium simplex, columella centrali, calcigera.

*Spumaria*. Æthali-um columella præditum, ramosum, aere repletum.

§§ Peridium vel æthali-um 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 Æthali-um.

∞ Columellæ peridiorum singulorum æthali-um 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.

*Brefeldia*. Tubi capillitii tegumento peridii per vesiculas aeriferas adhæ-  
rentes.

AA) Sporæ non violacæ, plerumque latæ coloratæ.

† Capillitium nullum.

§ Parietes laterales peridii nulli vel uniformes.

a. Peridium v. æthali-um tegumentis integris.

*Licea*. Fructus irregulares (plasmodiocarpa).

*Tubulina*. Peridia cylindrica, conglomerata, hypothallo nitido valde evoluta,  
subinde stipitato insidentia.

*Lindbladia*. Æthali-um nudum.

aa. Æthali-um parietibus regulariter perforatis.

*Clathroptychium*. Æthali-um 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 papyraceo, tenui tectum, tunicæ late et symmetricè 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 heterogeneæ.

*Copromyxa*. Subsessilis. Amœbæ homogeneæ.

*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. 1139 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  $\mu$ . diam., membrana nigro-violacea, glabra.

*Hab.* ad ligna putrida pinea, alnea, quercina etc. in Germania, Rossia et Amer. bor.

## Ordo II. Calcareaæ 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 adhærentibus 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  $\mu$ . 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 concrescens.  
*B. coadnata*. Sporæ 8-9  $\mu$ . diam.  
 †† Peridia discreta.  
 \* Capillitium valde evolutum, sporangia vulgo columella prædita.  
*B. panicea*. Sporæ 9-16  $\mu$ . diam.  
 \*\* Capillitium evanescens; peridia columellâ carentia.  
*B. verna*. Sporæ 12,5  $\mu$ . 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  $\mu$ . diam.

⊕⊕ Sporæ singulæ, liberæ.

! Peridium iridescens, violaceum.

*B. utricularis*. Sporæ 12,5  $\mu$ . diam.

!! Peridia grisea vel alba.

*B. macrocarpa*. Sporæ 12-15  $\mu$ . diam.

*B. affinis*. Sporæ 13-15  $\mu$ . 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* 1141  
Fr. Syst. Myc. III, p. 141. — Peridiis globosis, gregariis, sessilibus, levibus; capillitio albo; sporis violaceis, 9-11  $\mu$ . 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  $\mu$ . diam. 1142

*Hab.* in . . . . . in Polonia.

3. **Badhamia fasciculata** (Jungh.) Rost. Mon. App. p. 2, *Physarum fasciculatum* 1143  
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  $\mu$ . diam. levibus.

*Hab.* in truncis Pandanorum prope Depok in Java anstraliore.

4. **Badhamia macrocarpa** (Ces.) Rost. Mon. p. 143, *Physarum macrocarpum* 1144  
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  $\mu$ . 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  $\mu$ . crassis, nodis non crassioribus; sporis discretis, 7,5-9  $\mu$ . crassis, violaceis, levibus.

*Hab.* in culmis et caulibus in Germania.

6. **Badhamia affinis** Rost. Mon. p. 143. — Peridiis hemisphæricis, 1146

fortiter applanatis, basi plano-umbilicatis, stipitatis, griseo-albis, tunicis delicate rugulosis; sporis discretis, brunneo-violaceis, episporio rigidulo, 13-15  $\mu$ . diam. spinulosis.

*Hab.* in caulibus et foliis putridis in Chili (BERTERO) et America boreali (PECK).

7. **Badhamia verna** (Somm.) Rost. Mon. p. 145, *Physarum vernum* 1147

Somm. in litt. et Fr. Syst. Myc. III, p. 146. — Peridiis gregaris, depressis, versiformibus, confluentibus, at non sinuosis, fusco-atris, tenuissimis, levibus, fragilissimis, lacero-dehiscentibus, demum evanescentibus, floccis adnatis, vagis, albis; sporis fusco-nigris, 12-13  $\mu$ . 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  $\mu$ . 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*  $\beta$ . *chalybeum* A. et S., n. 256, *Physarum botryoides*  $\beta$ . *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  $\mu$ . 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, 1150  
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, *Phy-*  
*sarum cinereum* Link Diss., I., pag. 27, *Physarum botryoides*  
*a. hylum* 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 expul-  
sis niveis; stipite ramoso vel simplici, stramineo vel rufescenti,  
rigido vel flaccido, decumbenti; columella nulla; sporis 5-20 con-  
globatis, episporio crassiusculo, spinuloso, violascente atris vel  
atris, 10-12  $\mu$ . 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, *Sphærocarpus 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 in-  
sidentibus, nonnullis stipite brevissimo præditis, irregulariter ob-  
ovatis, griseo-albis, subinde hemisphæricis, deformatis, sessilibus,  
griseis vel nitide luteis, capillitio nodulis parum evolutis; sporis  
pallide violaceis, 10-12  $\mu$ . 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  
 $\mu$ . 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 ni-*  
*tens* Berk. in Trans. Linn. Soc. XXI, p. 153, t. 19, fig. 1, Cooke  
Handb. n. 1146, Rost. Mon. p. 147. — Peridiis sessilibus, depres-  
sis, sæpe lenticularibus, hinc inde irregulariter stipatis, subinde  
confluentibus, plicatis, pallide luteis; capillitio e tubis luteis ra-  
mosis, tunicæ internæ adhærentibus, angulos triangulares ad ramo-  
rum originem formantibus constante; sporis latis, episporio gra-  
nuloso, 12-20  $\mu$ . longis, primo in cellulis 50  $\mu$ . 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 lu-  
teo-brunneis v. pallidis; capillitio bene evoluto, tubis crassis, nodis  
35  $\mu$ . latis; sporis 9-11  $\mu$ . diam., obscure violaceis, levibus.

*Hab.* in foliis emortuis in Polonia et Germania. — Peridium  
crassum, rufo-brunneum, per operculum circulare deliiscens.

15. **Badhamia decipiens** (Curt.) Berk. in Grev. 1873, n. 66, *Physa-* 1155  
*rum decipiens* Curtis in Am. Journ. p. 352, *Physar. chrysotri-*  
*chum* B. et C. in Grev. 1873, n. 357. — Sessilis subglobosa, su-  
binde 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  $\mu$ . 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  $\mu$ . diam. 1156

*Hab.* in lignis et corticibus putridis in Suecia et Britannia.

17. **Badhamia dictyospora** Rost. Mon. Suppl. 4, *Physarum canum* in Hook. Herb. *Phys. rubiginosum* Berk. Engl. Fl. V, p. 315 (non Chev.). — Peridiis globosis vel globoso-turbinatis, irregulariter apertis, vel per operculum dehiscentibus, rufo-brunneis, nitidis et apice albicantibus, stipitatis; columella distincta, cylindræa, obtusa, obscura, e parte elongata stipitis formata; stipite brunneo-nigrescente, rigido, fragili; sporis irregulariter reticulatis, obscure violaceis, 11  $\mu$ . diam. 1157

*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, cylindræa, firma, obscura, e parte stipitis elongata formata; capillitio valde evoluto, albescente, peridio operculo delicato dehiscente; sporis violaceis, 14-15  $\mu$ . diam., vix verrucosis. 1158

*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  $\mu$ . diam. 1159

*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  $\mu$ . diam. 1160

*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  $\mu$ . diam.

*Hab.* in tela corrupta, Dupplin Castle, Perth Britanniaë.

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  $\mu$ . 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-purpurascete, pruinoso; stipite elongato, 10-15 mm. alto filiformi, albescente vel luteo; sporis globosis, atris, 10  $\mu$ . diam.

*Hab.* in Polyporo quodam et in ligno, Center Amer. bor.

24. **Badhamia melanospora** Sp. F. Arg. Pug. III, 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  $\mu$ . diam.

*Hab.* in trunco putrescente Cerei peruviani en el Bagnado de San José de Flores Argentinaë.

25. **Badhamia ovispora** Racib. Myx. Crac. p. 4, fig. 2, a, b. — Pe- 1165  
ridiis sessilibus, depresse 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 = 7-8.

*Hab.* in ramis Populi canescentis prope Cracoviam Poloniaë.

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 dehiscenciam luteis, capillitio albo, tubis inflatis; sporis obscure violaceis, in soros collectis, 12-18  $\mu$ . 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 dehiscencia. 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 elongans.

ΩΩ Capillitium non elasticum.

*Ph. leucophæum*. Granuli calcarei forma communi.

*Ph. capense*. Granuli calcarei angulis rectis terminati.

ΨΨ Granuli calcarei numerosi.

⊖ 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.

⊕ Peridia semper stipitata.

*Ph. polymorphum*. Stipites 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.  
 † Tunica interna densior.  
*Ph. didermoides*. Peridia stipitata.  
 †† 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-aurantiacum, raro album.  
*Ph. conglomeratum*. Sporæ 8-9  $\mu$ . diam. parve spinulosæ.  
*Ph. contextum*. Sporæ 12  $\mu$ . diam. distincte spinuligeræ.

## Species incertæ sectionis.

 $\alpha$ . Peridia fuliginea vel læte colorata.

- |                            |                           |
|----------------------------|---------------------------|
| <i>Ph. Petersii</i> .      | <i>Ph. fimetarium</i> .   |
| <i>Ph. Levillei</i> .      | <i>Ph. flavidum</i> .     |
| <i>Ph. atropurpureum</i> . | <i>Ph. flavo-virens</i> . |
| <i>Ph. chlorinum</i> .     | <i>Ph. hypnophilum</i> .  |
| <i>Ph. inæquale</i> .      | <i>Ph. luteo-valve</i> .  |
| <i>Ph. roseum</i> .        | <i>Ph. atrum</i> .        |
| <i>Ph. luteolum</i> .      | <i>Ph. pireum</i> .       |
| <i>Ph. pulchripes</i> .    | <i>Ph. polycephalum</i> . |
| <i>Ph. antiades</i> .      | <i>Ph. polyedron</i> .    |
| <i>Ph. cæspitosum</i> .    | <i>Ph. Schweinitzii</i> . |
| <i>Ph. reticulatum</i> .   | <i>Ph. subglobosum</i> .  |
| <i>Ph. elegans</i> .       |                           |

 $\beta$ . Peridia albida vel cinerescientia.

- |                           |                          |
|---------------------------|--------------------------|
| <i>Ph. simile</i> .       | <i>Ph. Phillipsii</i> .  |
| <i>Ph. elliposporum</i> . | <i>Ph. effusum</i> .     |
| <i>Ph. granulatum</i> .   | <i>Ph. muscicolium</i> . |
| <i>Ph. albicans</i> .     | <i>Ph. ornatum</i> .     |
| <i>Ph. imitans</i> .      | <i>Ph. obrusseum</i> .   |

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. cylindræo, striatulo, fusco, diu persistente instructis;

columella subnulla; capillitio ex floccis hyalinis hinc inde massulis calcareis lutescentibus oblongis incrustatis, sporis globosis v. obtuse angulosis, 11-13  $\mu$ . diam., granulosis, guttulatis, 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-globosis columellam obsoletam formantibus; sporis subviolaceis, aculeatis, 9-10  $\mu$ . diam. 1168

*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  $\mu$ . diam., floccis vix nullis. 1169

*Hab.* in truncis humi jacentibus Opuntiaæ 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  $\mu$ . diam. 1170

*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- 1171

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, spinulosa cinctis, 12,5-14,2  $\mu$ . diam.

*Hab.* in foliis emortuis, in culmis etc. in Rossia, Britannia, Germania, Suecia, Italia.

6. **Physarum Schrœteri** 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  $\mu$ . diam.

*Hab.* ad folia et ramulos Alni in parœcia Tammela Fennia.

7. **Physarum globuliferum** (Bull.) Rost. Mon. p. 98, *Sphærocarpus* 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, cylindræa, obtusa, alba, capillitio bene evoluto, rigido non collabente; vesiculis calcareis numerosis, magnitudine variis, luteolis vel rubiginosis; sporis 9-11  $\mu$ . diam., pallide violaceis, levibus.

*Hab.* in muscis, foliis et lignis putrescentibus in Gallia, Germania et Suecia.

8. **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  $\mu$ . diam.

*Hab.* in ligno emortuo, Alabama Amer. bor. — Peridia exacte sphærica, stipitata, cum distincta columella, sed valde parva et lenticulari. Capillitium ut in sequente, color peridii et stipitis varius.

9. **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  $\mu$ . diam. levibus.

*Hab.* in lignis in Carolina (CURTIS). — Peridia exacte sphærica, 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* 1176

$\beta$ . *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 chrysopeplum* 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  $\mu$ .

*Hab.* in foliis Sphagni etc. in Germania, Italia, Fennia, Britannia Ceylon Amer. bor. et Afr. austr. — Var.  $\alpha$ . **genuinum** Rost. l. c.: stipite luteo, peridio luteo vel griseo-luteo 0,5 mm. diam.; sporis 7-8  $\mu$ . diam., granulis calcareis pallide lutescentibus. — Var.  $\beta$ . **aurantiacum** R. l. c.: sporis aurantiacis; stipite brunneo; sporangio 0,5 mm. diam.; sporis 11  $\mu$ . diam., granulis calcareis brunneis. — Var.  $\gamma$ . **rufipes**: sporangio luteo vel aurantio, nitido, stipite rufo-aurantiaco; granulis calcareis luteis. — Var.  $\delta$ . **compactum** R. l. c.: sporangio venæformi, repentis, brevi, luteo vel aureo-luteo, columella carente, cum stipite evanescente.

11. **Physarum Leveillei** Rost. Mon. App. p. 7, *Physar. aureum*  $\beta$ . 1177

*chrysopus* Lév. Ann. Sc. Nat. 1846, p. 166. — Peridio lenticulari, furfuraceo, stipiteque sursum attenuato, aureis; floccis evanidis; sporis globosis, glabris, violaceo-atris, 10-11  $\mu$ . diam.

*Hab.* ad folia decidua, Chili (GAY). — Var. **chrysopus** R. l. c.: stipite sporangio concolori luteo-aureis, sporangio 1 mm. diam.; sporis 10  $\mu$ . diam. granulis calcareis luteo-aureis. — Var. **auripes**: stipite aureo, peridio citrino. In Venezuela. — Var. **Fuistingii**: stipite aurantiaco, peridio brunneo-rufo. In Westphalia.

12. **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  $\mu$ . diam.  
*Hab.* in ligno pineo etc. putri in Carolina et Pennsylvania Americæ borealis. — Peridia sphærica, 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.
13. **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 sphæricis, verruculosis, virescentibus; stipite subulato-gracili, aurantiaco, floccis hyalinis, copiosis, 1,5-2  $\mu$ . diam. gangliis calcareis angulosis, copiosissimis intermixtis; sporis globosis, 7-8  $\mu$ . 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.
14. **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.  $\mu$ . mm.  
*Hab.* in muscis in Suecia et Fennia.
15. **Physarum Famintzini** Rost. Mon. p. 107. — Peridiis sessilibus, 1181  
minutis, confertis, subinde confluentibus, obscure castaneis, irregulariter hemisphæricis, vertice dehiscentibus; 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  $\mu$ . diam.  
*Hab.* in ramis arborum in Polonia.
16. **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  $\mu$ . diam.  
*Hab.* ad Grünewald pr. Berlin in Germania (A. BRAUN).
17. **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 nectriaforme* 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. — Sporangiiis 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  $\mu$ . 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  $\mu$ . diam. In foliis putridis in insula Ceylon.

18. **Physarum conglomeratum** (Fr.) Rost. Mon. 109, Syn. *Diderma* 1184  
*ochraceum* Hoffm. Flor. Germ. III, t. IX, f. 2, b. *Spumaria granulata* Schum. Saell. II, p. 196, *Didymium contextum*  $\beta$ . *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, *Carcerina conglomerata* Fr. l. c. p. 451. — Sporangiiis discretis, conglomeratis, sessilibus rotundatis, angulatis, applanatis, membrana exteriori crassiuscula, granulosa, calcarea, fragili, flava vel ochracea, interiori tenella, cinerea vel flavescente, lat. 0,2-0,5 mm.; capillitio granulis calcareis, numerosis, angulato-irregularibus, coloratis prædito; columella centrali cylindræa; sporis parce spinulosis, violaceo-atris, 8-9  $\mu$ .

*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, 1185  
 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, spinulosis, 11-13  $\mu$ . 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  $\mu$ . diam. 1186

*Hab.* ad sarmenta et stipites Ruborum v. c. Filicum aliasque herbaceas quisquillas 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  $\mu$ . 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  $\mu$ . 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. 1189  
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 cærulea* Trent. p. 229, *Physarum violaceum* Schum. Saell. 1428, Fl. Dan. tab. 1980, f. 2, *Physarum corrugatum* Link Herb. *Physarum cœlatum* 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 parcis ornatis, fusco-atris, 7-13  $\mu$ . 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  $\mu$ . diam., levibus, atro-fuligineis. In cortice *Ailanthi glandulosæ* in Gallia.

24. **Physarum capense** Rost. Mon. p. 113, fig. 92. — Peridiis irre- 1190  
gulariter 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  $\mu$ . diam.

*Hab* in ramis ad Caput bonæ spei.

25. **Physarum ellipso sporum** Rost. Mon. App. 10, *Enteridium cine-* 1191  
*reum* 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 = 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, *Sphærocarpus 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*  $\beta$ . *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 hemisphæricum* Fckl. Sym. Myc. p. 341, 1869. — Peridiis stipitatis vel sessilibus, depresso-sphæroideis, cinereo-albis, leviter in cæruleum vergentibus; stipitibus strictis, subinde connexis, dilute fuscescentibus, longitudine variis, sæpe nullis; capillitio non elastico, granulis calcareis parcis, irregularibus imixtis; columella nulla; sporis sphæroideis, levibus, obscure violaceo-fuscis, 8-9  $\mu$ . diam.

*Hab.* in truncis, muscis, etc. in Fennia, Germania, Britannia, Italia, Gallia, Hungária 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 hemisphærico, 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. 1194

p. 10. — Peridiis globosis, purpureis, subovoideis; stipite carneo-brunneo; capillitio persistente; sporis nitide violaceis, 8-9  $\mu$ . diam.

*Hab.* in foliis graminum in insula Ceylon.

29. **Physarum obrusseum** (B. et C.) Rost. Dod. p. 11. *Didymium* 1195

*obrusseum* 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  $\mu$ . diam. levibus.

*Hab.* in foliis Gonoboli, Texas Amer. bor. et in insula Cuba.

30. **Physarum polymorphum** (Mont.) Rost. Mon. p. 107, *Didymium* 1196

*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  $\mu$ . diam.

*Hab.* ad cortices, Cuba, Carolina, Newfield, New Jersey, Pennsylvania et Portville Amer. bor. — Peridia versiformia, sæpe confluentia, rava, truncata; stipites subulati, fortiter rimati, flavido-gilvi, 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* 1197

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  $\mu$ . diam.

*Hab.* ad quisquillas pinetorum projectas et ad bryeta sphagnosa 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 dehiscentia 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, Sow. t. 6, *Physarum bivalve* Pers. Obs. tab. I, fig. 2, *Trichia sphaerica*  $\beta$ . *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 dehiscentibus, 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 sphæroideis, episporio crassiusculo, lento, levi, nigricante-fuscis, 8-9  $\mu$ . 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. — Pe- 1199  
ridiis minutis, laxè gregariis, sessilibus, lutescenti-cinnamomeis, ir-

regulariter ruptis; floccis copiosis, luteo-albidis; sporis globosis, purpureo-brunneis, 10  $\mu$ . 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  $\mu$ . diam. 1200

*Hab.* in ligno putri in Germania et Polonia.

35. **Physarum albicans** Peck 30 Rep. pag. 150, tab. II, fig. 5-8. — *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  $\mu$ . diam. 1201

*Hab.* in lignis et muscis, Adirondack Amer. bor.

36. **Physarum atro-purpureum** Peck 31 Rep. Bot. pag. 40. — Sparsum vel gregarium stipitatumque; peridiis globosis, levibus v. raro rugosis, obscure rufis; stipite cylindraceo, levi, nigricante vel subconcolore; capillitio albicante, subinde roseolo; columella nulla; sporis globosis, levibus, in massa obscure brunneis, solitariis obscure-rufis, 8-9  $\mu$ . diam. 1202

*Hab.* in ligno emortuo, Adirondack in montuosis Amer. bor.

37. **Physarum chlorinum** Cooke in Grev. V, p. 101, t. 86, f. 10. — Sparsum vel gregarium; peridiis parvis, sessilibus subglobosis, chlorino-viridibus, simplicibus, stellato-fisssis; sporis subglobosis, atris, opacis, 8-9  $\mu$ . diam. 1203

*Hab.* in ligno emortuo Cocos nuciferæ, Demerara Amer. australis.

38. **Physarum granulatum** Balf. fil. in Grev. I, p. 115. — Stipitatum, 1 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 formato; sporis violaceis, membrana levi, 9-10  $\mu$ . diam. 1204

*Hab.* in corticibus, absque patria (herb. CURREY).

39. **Physarum imitans** Racib. Myx. Crac. p. 5, fig. 3 a, b. — Pe- 1205

ridiis hemisphæricis, 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.

40. **Physarum inæquale** Peck 31 Rep. Bot. pag. 40. — Peridiis 1206  
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  $\mu$ . diam.

*Hab.* in ligno emortuo, Grissinis Amer. bor.

41. **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  $\mu$ . diam.

*Hab.* in lignis emortuis putridis, Richmondville et Worcester Americæ borealis.

42. **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 confluendo deformatis, lateraliter compressis, umbilicatis, griseolis, rugosis, fragilibus, tunica simplici decolorata, dense granulis calcareis minutis, rotundis, hinc inde collectis farcta; columella nulla; capillitio hyalino, floccis delicatis, peridio adnatis, in rete contextis, angulis inflatis nodulosis granulis calcareis minutis, repletis; sporis violaceis, membrana crassiuscula, 17  $\mu$ . diam.

*Hab.* ad humum in calidariis Shrewsbury in Britannia.

#### Species incertæ.

43. **Physarum antiades** (Bull.) Fr. Syst. Myc. III, p. 135, *Sphæro-* 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, 1210  
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; 1211  
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; 1212  
acervulis 3-linearibus; peridiis stipatis, turbinatis, ovatis, basi contracta, membrana exteriori luteo-squamulosa aut punctato-squar-  
rulosa; 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 nigro-fuscis, conglomeratis; floccis crassiusculis. 1213

*Hab.* in fragmentis vegetalibus Salem Amer. bor. — Valde distinctum sed rarum.

48. **Physarum fimetarium** Schum. Saell. II, pag. 205, Fr. Syst. III, 1214  
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, stipite subflexuoso superne parum incrassato.

49. **Physarum flavidum** (Peck) Berl. *Didymium flavidum* Peck Rep. 1215  
on the St. Mus. — Peridiis subglobosis, sessilibus, tenuibus, luteis, pruina minuta, lutea conspersis; sporis subglobosis, atris, 10  $\mu$ . diam.

*Hab.* in corticibus Abietis balsameæ, North Elba Americæ borealis.

50. **Physarum flavo-virens** Alb. et Schw. Nisk. pag. 97, Fr. Syst. 1216

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, peridio rotundato levi, badio; floccis tenerrimis sporidiisque atris. 1217

*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 hyalium; flocci tenelli nigri, lateribus peridii adnati.

52. **Physarum luteo-valve** Schw. Am. n. 2298. — Lobato-difforme, convexum subconfluens; peridiis extus aurantio-splendentibus, quasi compressis bivalvibus; sporis flavissimis. 1218

*Hab.* in stipitibus dejectis rarius, Carolina.

53. **Physarum muscicolum** Pers. Obs. Myc. I, p. 6, Syn. p. 176, A. et S. p. 93. — Peridio turbinato cinereo; stipite brevi levi lutescente; floccis albis; sporis atris. 1219

*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 depressis vel hemisphæricis, planis vel leviter concavis, griseo-cinereis, 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  $\mu$ . diam. 1220

*Hab.* in ligno putri, Albany Amer. bor.

55. **Physarum atrum** (Pers.) Fr. Syst. Myc. III, p. 147, non Schw., *Lycogala atra* Pers. ined. — Stipato-aggregatum, confluens, atrum; peridiis tenerrimis rotundatis; floccis nullis; sporis atris. 1221

*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, opaca atra, irregulariter dehiscenstia.

56. **Physarum piceum** Fr. Syst. Myc. III, p. 143. — Sparsum; peridio sessili, globoso, piceo nitente, floccis tenerrimis sporisque fuligineo-atris. 1222

*Hab.* in ramis decorticatis cocervatis 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. 1223

*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. 1224

*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  $\mu$ . diam., sæpe irregularibus. 1225

*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. 1226

*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 1227

atque columella spuria diu persistentibus; stipite æquali vel vix conoideo, rufo-brunneo; capillitio e filamentis pallidis gracilibus hinc inde incrassatis et anastomosantibus composito, tubulis aliis 4-stratosis elongatis, spiniformibus horizontaliter inter parietes peridii extensis, apice obtuse exteriori; sporis levibus, globosis, brunneo-nigris, 8  $\mu$ . 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, *Mucores* Gled. p. 138, p. 160, *Mucor unctuosus flavus* Huds. Fl. Aug., *Mucor septicus* Link Sp. Pl. n. 1656, Fl. Dan., t. 778, Bolt. t. 134, *Mucor primus ovatus* Schff. t. 192, *Mucor tertius* Schæff. t. 194, *Fuligo* Hall. n. 2133, 2134, 2135, *Mucor mucilago* Scop. Fl. Carn. II, 1638, *Lycoperdon luteum* Schr. Fl. Bav. II, 629, *Reticularia carnosa* Bull. t. 424, f. 1, *Reticularia hortensis* Bull. tab. 424, f. 2, *Reticularia lutea* Bull. t. 380, f. 1, *Fuligo candida* Pers. Obs. I, 154, *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 levis* Pers. Syn. p. 161, *Fuligo violacea* Pers. Syn. p. 160, Icon. Pict., t. 1, *Reticularia septica* With. Arr. IV, p. 463, Purt. 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, Nees. f. 92, Grev. S. C. Fl. t. 272, *Fuligo cerebrina* Brondeau 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. 1, 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 carnos*a Duby Bot. Gall. II, p. 863, *Fuligo hortensis* Duby Bot. Gall. II, p. 863, *Æthaliu*m *rufum* Wallr. Fl. Germ. 2097, *Æthaliu*m *septicu*m b. *vaporariu*m Rabh. Fl. Germ. 2133, *Æthaliu*m *ferrincola* Schwz. Am. 2372, *Reticularia rufa* Schwz. Am. 2377, *Æthaliu*m *rufum* Alexandr. t. 11, f. 6-11, *Æthaliu*m *vaporariu*m Fr. Berk. in Gard. Chron. p. 409, Cooke Handb. n. 1102, — Peridiis intertextis membrana vulgo colorata; æthaliu forma vario, corticato vel ecorticato, superficie gyrosa, colore varia, ut plurimum flava vel candida; sporis sphæroideis, fusco-atris, sub micr. fusciscentibus, levibus, 7-10  $\mu$ . diam.

*Hab.* supra corpora varia, potissimum truncos, in Germania, Suecia, Britannia, Italia, Hungaria, America, Tasmania et Queenslandia. — Nunc pulvinata, globosa vel hemisphærica, nunc dilatata, 10 cm. lata vel adhuc ultra; nunc strato floccoso, plerumque flavo aut stipato, levissimo, flavido-rufo corticata, nunc ecorticata. — Sec. cl. Raciborski (Cfr. Hedw. 1885, p. 168), sporæ 8-12  $\mu$ . metiuntur.

2. **Fuligo tatica** Racib. in Hedw. 1885, p. 169. — Peridiis (æthaliu) atque capillitio iis *Fuligini septicæ* simillimis, sporis vero, obscure violaceis papillis minutis, punctiformibus præditis, 8-10  $\mu$ . diam. 1229

*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. 1230

*Hab.* super folia *Vaccinii* *Vitis idææ* aut inæqualiter effusa aut ejus caules et ramulos vivos vel emortuos ambiens, prope Mustiala Fenniæ 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 — 1231  
Peridiis brevibus, connatis, ex hypothallo albo orientibus, extus farina minuta luteo-aurea vel nitide ochracea vestitis; sporis globosis, nigro-purpurascensibus, 10  $\mu$ . diam.

*Hab.* in graminaceis viventibus et in *Lycopodio* annotino, Lake Pleasant Am. bor.

**ÆTHALIOPSIS** Zopf Die Pilzth. oder Schleimp. pag. 149 (Etym. ab *Æthaliu* h. e. *Fuligo*). — Fructificatio in æthaliu 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 evoluta; 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  $\mu$ . diam., levibus, sphæroideis.

*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  $\mu$ . diam. levibus.

*Hab.* in lignis in Britannia, Germania et Suecia.

3. **Craterium Ersterdtii** Rost. Mon. p. 120. — Peridiis piriformibus stipiteque brunneo-atris, operculo convexo, niveo-albo; columella distincta; sporis pallide violaceis, 8-10  $\mu$ . diam. levibus. 1235

*Hab.* in lignis, Kopenaghen Daniæ.

4. **Craterium minutum** (Leers) Fr. Syst. Myc. III, pag. 151, Rost. 1236  
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  $\mu$ . diam.

*Hab.* supra folia, muscos etc. æstate et autumnno, 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* Rost. Mon. p. 122, f. 105. — Peridiis piriformibus inclinatis stipiteque elongato, levi subferrugineis, operculo convexo, flavo; floccis nullis; sporis atris. 1237

*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, 1238  
*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* Purt. 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  $\mu$ . diam.

*Hab.* in variis substantiis in tota fere Europa.

7. **Craterium aureum** (Schum.) Rost. Mon. pag. 124, *Trichia aurea* 1239  
Schum. Saell. 1,461, *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*  $\beta$ . *atomum* Klotsch. 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  $\mu$ . 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. 1240  
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 basilarem connatis; sporis floccisque subelastice expansis, rubris. 1241

*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 fœti.

1. **Leocarpus fragilis** (Dicks.) Rost. Mon. pag. 132, Pat. Tab. An. 1242 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 sphaeroideis, fusco-atris, spinulosis, 12-14  $\mu$ . 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 lacerato. 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, 1243 arcuatis, obovatis, rubiginoso-fuscis, hypothallo discoideo, concolori suffultis, irregulariter ruptis; sporis subviolaceis, 8-10  $\mu$ . 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  
furcati, ramis ultimis lateribus peridii superioris vix adnati, re-  
gulariter reticulati, hinc inde tantum granulis calcareis fœti. Gra-  
nula calcarea fusoidea, 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 counatum*  
Ditm., t. 41, *Physarum cernuum* Fl. Dan. t. 1974, f. 2, *Physarum*  
*nutans*,  $\alpha$  *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 sphæroi-  
deis, levibus, fusco- v. violaceo-atris, 9-10 mm. diam.

*Hab.* ad truncos passim quoque muscos foliaque decidua autumnii  
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-  
lindræo, 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-  
sphæricis 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 gracilentata** (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. l. 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. 1246

*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, *Sphærocarpus 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*,  $\beta$ . *viride* Fr. S. M. III., 129; Cooke Hdbk. n. 1135 var. *B.*, *Physarum nutans*,  $\gamma$  *aureum* Fr. S. M. III, 129, Cooke Hdbk. n. 1135, var.  $\gamma$ . *Physarum nutans*,  $\delta$ . *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 fusoides includente; sporis fusco-v. violaceo-atris, 8  $\mu$ . diam., levibus. 1247

*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. Scr. 2, VIII, Cent. I, p. 362, et Syll. n. 1073, *Cribraria staminiiformis* 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  $\mu$ . 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  $\mu$ . 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, subcylindræo, 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 præditis composito; sporis minutis, levibus, pallide violaceis, 7-10  $\mu$ . 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 stipi-

tatis, fistula (?) stipitis interiorē partē peridii perfodiente et verticem dehiscēntē 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  $\mu$ . diam.

*Hab.* in foliis emortuis in Belgio et in insula Ceylon.

Species incerta.

9. **Tilmadoche cavipes** Berk. Three new indian Fungi in Grev. XI, 1252 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. Tunicæ peridii simplices, calce in granula vel crustas collecta (*Mono-derma*, *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.

† Tunicæ tantum granulis calcareis tectæ.

- Ch. zeylanicum*. Peridia lenticularia; columella nulla.
- Ch. Alexandrowiczii*. Peridia irregularia, columella carentia.
- Ch. niveum*. Peridia hemisphærica, columella lata prædita.
- †† Tunicæ crustacæ.
- Ch. deplanatum*. Peridia columella carentia.
- Ch. Michellii*. 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 uncinis 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, laciniis æqualibus acute attenuatis.
- Ch. radiatum*. Laciniæ non numerosæ (4-8); peridia lenticularia, sessilia vel stipitata.
- Ch. floriforme*. Laciniæ non numerosæ, irregulares; peridia perfecte globosa; stipes elongatus.
- B) Columella nulla.
- Ch. Erstedtii*. Peridia stellatim rupta; laciniæ non numerosæ, verrucis fragilibus, nitentibus ornatae.
- Ch. StahlII*. Peridia irregulariter rupta vel poro centrali aperta vel rima longitudinali dehiscentia.

## Species incertæ sedis.

- |                         |                             |
|-------------------------|-----------------------------|
| <i>C. Cookei</i> .      | <i>C. affine</i> .          |
| <i>C. mutabile</i> .    | <i>C. ochraceum</i> .       |
| <i>C. sublateritium</i> | <i>C. crustaceum</i> .      |
| <i>C. stromateum</i> .  | <i>C. subdisctyospermum</i> |
| <i>C. Friesianum</i> .  | <i>C. macrosporum</i> .     |
| <i>C. simplex</i> .     | <i>C. similans</i> .        |
| <i>C. cubense</i> .     | <i>C. pezizoideum</i> .     |

*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. 1253  
169, fig. 176, *Didymium Chondroderma* De Bary et Rost. in  
Alex. Stroj p. 89. — Peridiis sessilibus, difformibus, non trunca-  
tis, columella carentibus, sæpe pluribus in acervulos parvos col-  
lectis, rugulosis, granulosisque; capillitis e floccis simplicibus, ba-  
diis, utrinque hyalinis, huc valde diffluentibus et inter se jungen-  
tibus; sporis levibus, subviolaceis, 10-12  $\mu$ . diam.

*Hab.* prope Varsavia Poloniæ (ALEXANDROVICZ).

2. **Chondrioderma zeylanicum** (B. et Br.) Rost. Mon. App. p. 15, *Di-* 1254  
*dymium zeylanicum* B. et Br. Fungi of Ceylon n. 754. — Peridio  
lenticulari, umbilicato, albido-griseo, demum rupto, delicato, pulveru-  
lento; stipite 2 mm. longo, rufo, sursum attenuato, elongato, sul-  
cato, fulvo, hypothallo adnato; capillitio albo, anastomotice ramoso,  
crassitudine vario; columella nulla; sporis globosis, 10  $\mu$ . 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 ve- 1255  
nulosis, applanatis, arcuatis, repentibus, in reticula irregularia  
junctis, columella carentibus, sessilibus, hypothallis pariter reti-  
culatis sed multo latioribus, delicatis, subalbis insidentibus; capil-  
litio e floccis hyalinis, tenuissimis, laxis in rete densum conjunctis  
formato; sporis levibus, subviolaceis, 7-8  $\mu$ . diam.

*Hab.* in ramulis putrescentibus Pini, Neuchatel Helvetiæ (MOR-  
THIER).

4. **Chondrioderma pezizoideum** (Jungh.) Rost. Mon. p. 424, *Tricham-* 1256  
*phora 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, fu-  
scescente, glabro, basi in membranam nitidam, matrici arcte ad-  
natam dilatato; capillitio e floccis in rete connexis formato; spo-  
ris violaceis, levibus, 8-9  $\mu$ . diam.

*Hab.* in truncis putridis in insula Java.

5. **Chondrioderma Mülleri** (Berk.) Rost. App. p. 15, *Physarum Müll-* 1257  
*leri* 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  $\mu$ . diam.

*Hab.* in Australia et Paradenya in insula Ceylon.

6. **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 badiis, superne pallidioribus; capillitio e floccis tenuibus in rete contextis formato; sporis subviolaceis, valde aculeatis, 10-11  $\mu$ . 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 hemisphæricis vel mutua pressione leniter angularibus, 2-3  $\mu$ . 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  $\mu$ . diam.

*Hab.* in ligno putri, Linlithgow in Britannia.

8. **Chondrioderma subdictyospermum** Rost. Mon. App. p. 16. — Pe 1260  
ridiis hemisphæricis, basi lata hypothallo adnatis, niveis, pariete valde fragili; columella nulla vel distincta, hyalina; capillitio bene evoluto, reticulato, nigro-violaceo; sporis 8-10  $\mu$ . 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, sphæroideis, albo-lutescentibus; columella nunc exigua, plana, nunc distincta, ovata, media; capillitio initio fasciculato, sursum valde diffuenti, subviolaceo; sporis subviolaceis, valde aculeolatis, 12-14  $\mu$ . diam.

*Hab.* in Salzburg Tyroliaë (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.

evoluto, cum floccis simplicibus, aut versus verticem semel aut bis diffluentibus; sporis levibus, subviolaceis, 11-12  $\mu$ . diam.

*Hab.* in Peponibus 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  $\mu$ . diam. 1263

*Hab.* ad Kiev Rossiæ (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  $\mu$ . diam. 1264

*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  $\mu$ . diam. 1265

*Hab.* in foliis Tussilaginis in Britannia.

14. **Chondrioderma Friesianum** Rost. Mon. p. 173. — *Diderma difforme*, Fr. Syst. Myc. III, p. 106. — Peridio sessilibus subhemisphaericis, valde mutatis in calcem, niveis, post crustam delapsam cinereis; columella distincta, lenticulariter applanata, flavo-gilva aut carneis coloris; capillitio bene evoluto, sine colore, cum floccis in reticulum conjunctis; sporis pallide violaceis, 8  $\mu$ . crassis, levibus. 1266

*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- 1267

ridiis venulosis aut, irregularibus planis, membrana simplici, squamis parvis, calcareis tectis; columella nulla; capillitii tubulis tenuissimis, usque 08,3  $\mu$ . diam., rete efformantibus flaccidum, valde densum, quod a plasmodio facile totum extrahi potest; sporis nigro-fuscis, 12,5-13,2  $\mu$ . diam., membrana verruculosa.

*Hab.* in agro Cracoviensi Poloniae.

16. **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 hemisphaerica* 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 hemisphaericum* Berk. Eng. Fl. V, p. 312, Cooke Handb. n. 1119, *Physarum Michelii* Corda Ic. V, f. 33, — Peridiis sessilibus vel stipitatis, lenticularibus, granis fere crustalam, 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 sphaeroideis, levibus, violaceo-fuscis, 8  $\mu$ . diam.

*Hab.* in ramulis emortuis in Suecia, Gallia, Belgio, Germania et Italia.

17. **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, *Carcarina 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  $\mu$ . diam.

*Hab.* in muscis, foliis etc. in Britannia, Germania, Suecia, Belgio et Amer. bor. — Var. **Carcarina** 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-rufo, valde evoluto insidentibus; columella varie evoluta, basi carneo-rufa. In iisdem locis ac typus.

18. **Chondrioderma stromateum** (Link) Rost. Mon. App. p. 18, *Phy-* 1270  
*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 evoluto insidentibus; superficie levi; capillitio ut in *Ch. spumaroide*; sporis violaceis, aculeatis, 9-11  $\mu$ . diam.

*Hab.* in caulibus putrescentibus prope Berlin Germaniæ (LINK).

19. **Chondrioderma affine** Rost. Mon. App. p. 18. — Peridiis irregula- 1271  
 riter 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  $\mu$ . diam.

*Hab.* prope Varsaviam Poloniæ (ALEXANDROVICZ), Berlin Germaniæ (CIENKOWSKI) et Paris Galliæ (ROUSSEL).

20. **Chondrioderma simplex** Schroet. Krypt. Flora Schles. Pilze p. 123. 1272  
 — Peridiis sphaeroideis leniter applanatis, discretis simplicibus, rigidis, fragilibus, læte castaneis; columella nulla; tubulis capillitii radiatim effusis, repetito dichotomis, violaceis; sporis 7-9  $\mu$ . diam., læte violaceis levibus.

*Hab.* in truncis vetustis prope Waldenburg Silesiæ.

21. **Chondrioderma mutabile** Schroet. Krypt. Flora Schles. Pilze p. 123. 1273  
 — 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  $\mu$ . d., atro-violaceis, muriculatis.

*Hab.* in ligno putri prope Oppelen Silesiæ.

*Subg. 3. Diderma* Rost. Mon. p. 177.

Funica 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. 168, *Cionium testaceum* Spreng. Syst. IV, pag. 529, *Diderma Marice Wilsoni* Peck in 26 Rep. p. 74. — Peridiis confertis, sessilibus, hemisphæricis, membrana exteriori incarnata vel demum albida, interiori violacea; capillitio obscure violaceo, tenui, non incrassato; sporis fusco-atris, 9-10  $\mu$ . 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, delicatis; sporis pallide brunneo-violaceis, 10-11  $\mu$ . diam., asperalis.

*Hab.* in ramis *Opuntia* 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 exteriori pallide lateritio, intus candido, furfuraceo, interiore cinereo; columella plana, carnea; capillitio e floccis pallidis in reticulum laxum conjunctis formato; sporis dilute violaceis, levibus, 8-10  $\mu$ . 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, exteriori crasso fragili albo, interiore obsolete; columella umbrina; capillitio e floccis laxis, albescentibus vel violaceis in reticulum solutum conjunctis; sporis pallide violaceis, levibus, 7,5  $\mu$ . diam.

*Hab.* in foliis putrescentibus in Cuba et Carolina (RAVENEL). — *Ch. difformi* nonnullis notis accedens, sed tunica interna exter-

næ adnata, columella formæ peridii similis at non globosa et sporis non umbrinis distinctum.

26. **Chondrioderma globosum** (Pers.) Rost. Mon. p. 180 fig. 138, Cooke 1278  
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 globosis, basi angusta vel valde evoluta, calce repletis, hypothallo albo-calceigero 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  $\mu$ . 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, 1279  
angusta basi, hypothallo bene evoluto valde in calcem mutato, 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  $\mu$ . diam.

*Hab.* Kolo Wiedna (LOIKA).

28. **Chondrioderma calcareum** (Link) Rost. Mon. pag. 129, Schroet. 1280  
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  $\mu$ . diam. compactis atris floccos parcos obstruentibus.

*Hab.* ad caules plantarum exsiccatos in Germania.

29. **Chondrioderma Sauteri** Rost. Mon. p. 181. — Peridiis sessilibus, 1281  
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  $\mu$ . 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 nitens* Klotsch. 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 nitens* Fr. S.  
 V. S. 450, *Diderma Libertianum* Fres. Beit. t. IV, f. 16-27, *Di-*  
*dymium 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  $\mu$ . 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  $\mu$ . crassis, violaceis, levibus  
 rectis vel flexuosis pluries anastomosantibus et hinc inde dense  
 reticulatis; sporis globosis, 9-11  $\mu$ . 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. 1103, *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  $\mu$ . 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, *Sphærocarpus 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 evoluto 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  $\mu$ . diam.

*Hab.* in truncis emortuis in Gallia, Germania, Britannia et Carolina inferiori.

34. **Chondrioderma Ærstedtii** Rost. Mon. p. 154, fig. 154, 157, Cooke 1286

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  $\mu$ . diam.

*Hab.* in corticibus in Britannia.

35. **Chondrioderma Stahlia** Rost. Mon. p. 185, fig. 168. — Peridiis 1287  
sphæricis, 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  $\mu$ . 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  $\mu$ . 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  $\mu$ . diam.

*Hab.* in lignis putridis et in foliis *Thujae*, Memphis Americæ borealis.

Species dubiæ ab auctoribus ad *Diderma* relatæ.

39. **Diderma albescens** Phill. in Grevillea V, p. 114, tab. 87, fig. 3, 1291  
*a, f.* — Sessile, sphæricum; peridiis gregariis vel sparsis; peridio externo, irregulariter rupto, albido, interno obsoleto; columella alba; floccis copiosis, purpureo-atris; sporis 8  $\mu$ . diam.

*Hab.* in cortice Pini, Blue Canon Amer. bor. (HARKN).

40. **Diderma brunneolum** Phill. in Grevillea V, p. 114, tab. 87, fig. 4, 1292  
*a, f.* — Globosum, sessile, sparsum, rufo-brunneum; peridio externo rigido, fragili irregulariter erumpente, peridio interno albo, evanescente; columella nulla, floccis albis; sporis fuligineis, 12  $\mu$ . diam.

*Hab.* in cortice Quercus, S. Francisco Californiæ (HARKN).

41. **Diderma geasterodes** Phill. in Grevillea V, p. 113, tab. 87, fig. 1, 1293  
*a, f.* — Pallide rufescens, stipitatum, sphæroideum, in lacinias inæquales ruptum; peridio interno obsoleto; stipite valido; columella nulla, floccis fuscis; sporis purpureo-nigris, levibus, 15  $\mu$ . 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.* 1294  
 — Subsessile, sparsum, sphæroideum, rufo-brunneum; peridio in lacinias irregulariter rupto; peridio interno obsoleto; floccis et sporis purpureo-brunneis, 13  $\mu$ . 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, sessilibus, nigris; sporis purpureo-fuscis. 1295

*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, *Phy-sarum* 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. 1296

*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 dehiscentia, membrana simplici vel duplici, exteriori crystallis calcareis dispersis vel in crustulam separabilem adglutinatis 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. sinapinum.</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. bulbillosum.</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, 1297  
 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 (plasmo-  
 diocarpis), deplanatis, elongatis, venoso-repentibus, flexuosis vel re-  
 ticulatis junctis, plumbeis, crystallis parvis cinereo-albis tectis;  
 floccis capillitii tenellis, in rete densum junctis; sporis sublevibus,  
 atris, 7-8  $\mu$ . diam.

*Hab.* in foliis dejectis et in lignis putridis in tota fere Europa.

2. **Didymium dubium** Rost. Mon. p. 153. — Plasmodiis pulvinatis, 1298  
 arcuatis, sparsis, niveis, stellatis, crystallis in superficie conglome-  
 ratis 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 ver-  
 ruculosus, 10-11  $\mu$ . 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*  $\beta$ . *Clavus* Fr. Syst. Myc. III, p. 114. B. et Br. Ann. N. H. n. 110, Cooke Handb. n. 1118,  $\beta$ . *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  $\mu$ . 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  $\mu$ . diam.

*Hab.* in substantii 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 solutum 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  $\mu$ . diam.

*Hab.* ad folia emortua et in lignis putrescentibus, in Suecia, Germania Italia, Britannia, Gallia Belgio, et California, Ceylon et Nova Zelandia. — Var.  $\alpha$ . **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. —  $\beta$ . **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. —  $\gamma$ . **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. —  $\delta$ . Peridii irregulariter venosis (plasmodiocarpis), planis, columella stipiteque destitutis. Cum typo ibidem.

6. **Didymium effusum** (Link) Fr. Syst. myc. III, p. 124, Rost. Mon. 1302 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  $\mu$ . 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. 1303 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, hemisphæricis 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 sphæroideis, valde spinulosis, violaceo-sive fusco-atris, diam. 11-15  $\mu$ .

*Hab.* supra truncos Alni incanæ, ad terram, ramulos et folia decidua putrida in Fennia Italia Gallia et Rossia. — Var. **obducens** Karst. in Not. Sällsk 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 sphæriceis aut hemisphæricis, 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, in colore aut subfusco; sporis subviolaceis, valde aculeosis, 12-13  $\mu$ . 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 hemisphærica, 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  $\mu$ . 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  $\mu$ . 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 divisis; 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 verruculosus, 9-11  $\mu$ . 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 parcis; sporis pallide violaceis levibus 7-9  $\mu$ . 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 solutum reticulum juncti. Rost. l. c.

13. **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 Oxyacanthæ* 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. Hendb. 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 calcareæ includentibus, composita; sporis sphæroideis, spinulosis, fusciscescente-atris, 10-12  $\mu$ . 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.).  $\alpha$ . **genuinum** stipite atro, nitente, peridii longitudine. —  $\alpha^1$  **rufipes** stipite rufo. —  $\beta$ . **elongatum** stipite peridii triplo longiore. —  $\gamma$ . **sessile** stipite brevi. —  $\gamma^1$  **confluens** peridiis seriatim confluentibus. —  $\delta$ . **nigrum** peridiis calce destitutis, atris, nitidis.

14. **Didymium microcarpum** (Fr.) Rost. Mon. pag. 156, fig. 133, 177, 1310  
 Cooke Myx. Gr. Br. p. 32, f. 133, 177, *Lycoperdon stipitatum* Retz. Vet. Ac. Handl., *Trichia hemisphærica* Trent. p. 228, *Physarum nigripes* Link Diss. I, 27, Ditm. t. 42, *Trichia alba* Purt. 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*  $\beta$ . *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, sphæroideis, crystallis tectis, niveis, umbilicatis; stipite stricto, striato, nigro et nitido, aut ferruginascente flavo, peridii duplo longiore; floccis capillitii raro ramosis, reticulatim junctis; columella sphæroidea, cellulis, crystallis calcareis parvis repletis, multis composita; sporis sublevibus, fusco-atris, 5-6  $\mu$ . 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, 1311  
 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  $\mu$ . 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, 1312

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  $\mu$ . 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 adspersas, 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  $\mu$ . 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  $\mu$ . 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  $\mu$ . 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 cylindratis, 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. 131

*Hab.* in foliis emortuis in Britannia.

Species incertæ.

24. **Didymium australe** Berk. Fl. new Zeal. p. 191. — Peridio subglobo fragili, farinaceo, stipite brevissimo nigrescente, columella pallida, floccis crispis; sporis majoribus atris, 9  $\mu$ . diam. 1320

*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. 1321

*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. 1322

*Hab.* in ligno pineo in Amer. bor.

27. **Didymium fulvipes** Fr. Stirp. Femsj. p. 83, Symb. Gast. p. 24. 1323  
— 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 *Trichie 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  $\mu$ . diam. 1324

*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  $\mu$ . diam.

*Hab.* in corticibus, Peradenya Ceylon. — Affine *D. squamuloso*.

30. **Didymium platypus** (Bisch.) Hanzl. Ein neue Myxog. typus in 1326  
Just Bot. Jahresbericht 1877, p. 155, *Agaricus platypus* Bischoff  
sec. Hanzl. — Griseo-album, pruinatum; peridiis sparsis, supra  
convexis, subtus profunde umbilicatis; stipite cylindrico, apice di-  
sciformi dilatato; sporis globosis, 8  $\mu$ . diam., nigricantibus, levi-  
bus; capillitio parco, ex tubulis reticulato-connexis, atris, formato;  
columella nulla.

*Hab.* in caulibus putridis plantarum in Hungaria.

31. **Didymium pruinatum** B. et C. Cub. Fungi n. 530. — Hypothallo 1327  
obsoleto: stipite curto, deorsum nigro-costato; peridio hemisphæ-  
rico, umbilicato, albo, particulis candidis pruinato; capillitio candi-  
do; sporis atris; columella nulla.

*Hab.* in culmis putrescentibus nonnullarum Monocotyledona-  
rum in insula Cuba.

32. **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, pruinato-nigro;  
floccis fuliginosis.

*Hab.* in foliis graminum in insula Cuba. — Sporæ non per-  
fecte evolutæ.

33. **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.

34. **Didymium versipille** Fr. Syst. Myc. II, p. 117. — Peridio lenti- 1330  
culari, basi umbilicato, primo albido-pruinato, 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. 1331

*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, evacuatam 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.) Loniceræ* 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. *lepis* 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* Schrad. 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; 1332

sporis sphæroideis, violaceo- v. fusco-atris, valde spinulosis, 10-12  $\mu$ . 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 sphæroideis, umbrinis, episporio valde aculeato, 14-15  $\mu$ . 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 contacta. Capillitium sine colore cum floccis delicatis in reticulum junctis.

3. **Lepidoderma Chailletii** Rost. Mon. p. 189. — Peridiis hemisphæ- 1334  
ricis, 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  $\mu$ . diam.

*Hab.* in Gallia (CHAILLET) et prope Hanenstein (OPIZ).

#### Fam. 4. Spumariaceæ Rost.

Peridia cylindræa, obtusa, discreta vel fruticulose juncta, æthaliaque sistencia, columella centrali instructa. Flocci violacei seu fusci, calce destituti, latera peridii radiatim petentes, 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  $\mu$ . 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 frustulatim secedente tecta; columella ut stipes et mycelium alba calcarea, apicem fere peridii attingens; sporæ globosæ leves, roseo-fuliginæe subinde 10  $\mu$ . attingentes.

2. **Diachæa splendens** Peck in 30 Rep. pag. 50, tab. II, fig. 1-4. — 1336

Peridiis cæruleo-chalybeis vel violaceis, delicatis, globosis, subpersistentibus, irregulariter ruptis; floccis delicatis, coloratis; stipite albo, vix penetrante; sporis coacervatis atris, globosis, rugulosis, 7-10  $\mu$ . 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 sessilis** Peck 31 Rep. p. 126. — Peridiis gregariis 1337

subglobosis, vel sessilibus vel stipite albo brevissimo præditis; tunicis delicatis, iridescentibus; columella obsoleta; capillitio et sporis violaceo-brunneis; sporis globosis, rugosis, 10-12  $\mu$ . 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, 1338

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, *Mucorii* 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*,  $\alpha$ . *laminosa*,  $\beta$ . *cornuta* Fr. S. M. III, 95, *Didymium spumarioides* Fr, S. M. III, 121, *Diderma spumariæforme* Wallr. Fl. Germ. 2208. — *Æthaliis* albescenti-griseis, 2-6 cm. longis, 2-3 cm. latis, spongiosis; columella inani, cylindræa, ramosa, apicem peridii non attingente; floccis capillitii crassiusculis, reticulatim junctis, in nodulis valde incrassatis; sporis spinulosis vel cæsiis-atris, 10  $\mu$ . 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  $\mu$ . 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. 1. **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 *stleon* manubrium, stipes). — Flocci capillitii arcuati, apice peridiis orientes, ramis numerosis laterali- bus, 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  $\mu$ . 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. Flocci capillitii e columella fasciculatim assurgentes, vulgo regulariter furcati vel in reticulum intricatum connexi.

1. **Lamproderma Hookeri** (Berk.) Rost. Mon. App. p. 24, *Diderma* 1341  
*Hookeri* Berk. Fl. new Zeal. p. 191, tab. CV, fig. 12. — Rufum; stipite brevi, crasso, sursum angustiore; peridio globoso sursum evanescente, deorsum subcircumscisso, interiore tenerrimo hyalino, exteriori membranaceo; capillitio subhyalino; sporis violaceis, globosis vel polyædris, delicate aculeatis 14-15  $\mu$ . diam.

*Hab.* in fronde *Hymenophylli* in silvis borealibus Novæ Zelandiæ (COLENZO). — *Physaro* accedit, sed columella distinctissima adest. Peridia sphærica, 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, 1342  
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, sphæroideis, argenteo-micantibus; stipite sulcato, 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  $\mu$ . diam.

*Hab.* in truncis et muscis in Britannia, Germania, Belgio, Italia, Gallia, Amer. bor.

3. **Lamproderma Schimperi** 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  $\mu$ . diam.

*Hab.* in Alsatia (SCHIMPER).

4. **Lamproderma echinulatum** (Berk.) Rost. Mon. App. p. 25, *Stemo-* 1344  
*nitis echinulata* Berk. Fl. Tasm. p. 268. — Peridio globoso columbino-chalybeo; stipite valido aterrimo sursum attenuato, semi-penetrante; capillitio pallido globoso; sporis magnis, crasse rigideque echinulatis, 16-20  $\mu$ .

*Hab.* inter muscos Tasmaniae (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 dilatatae.

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*  $\beta$ . *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 cylindræam apiceque conoideo-attenuatam, medium attingentem vel longiorem porrecto; floccis capillitii e columella enatis, subfuscis; sporis sphaeroideis v. subellipsoideis, spinulosis, atro-fuscis, 12-15  $\mu$ . diam.

*Hab.* in ligno putri rarissime in Muscis et Jungermaniis 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  $\mu$ . diam.

*Hab.* in *Jungermannii*s, Labassère Galliæ merid. — Peridia sphaerica, cœruleo-metallica, fere sessilia, aut elata, tenuissimis, crassis stipitibus fulta; columella magna, globoso-conica cum larga basi,  $\frac{1}{2}$  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  $\mu$ . diam. superficie costulis in reticulum conjunctis notatis. 1347

*Hab.* in Rhenogovia (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 hypothallo 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  $\mu$ . diam. 1348

*Hab.* prope Salzburg Tyroliae (SAUTER). — Totus fungus 2 mm. altus.

9. **Lamproderma violaceum** (Fr.) Rost. Sluzowc. pag. 204, fig. 64, 1349  
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 hypothallo fuscescenti 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  $\mu$ . diam.

*Hab.* supra corticem Betulae 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 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  $\mu$ . diam. levibus.

*Hab.* in Rhenogovia (FUCKEL), pr. Rastadt Silesiæ (SCHROETER).

11. **Lamproderma minutum** Rost. Mon. App. p. 26. — Peridiis sphaericis,  $\frac{3}{5}$  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 verrucosis, 6,6  $\mu$ . diam.

*Hab.* prope Paris Galliæ (ROZE).

12. **Lamproderma arcyriionema** Rost. Mon. p. 208. — Peridiis omnino-sphaericis, valde parvis, argenteo-metallicis, stipitatis; stipite recto, subulato, nigro, nitido, communiter in hypothallum delictatum 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  $\mu$ . diam.

*Hab.* in Polonia (ALEXANDROWICZ, NOWAKOWSKI).

13. **Lamproderma arcyrioides** (Somm.) Rost. Sluzowc. pag. 206, 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 Caresticæ* 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, intricata-

tum connexis; sporis plus minusve spinulosis, violaceo-atris, 12-16  $\mu$ . 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  $\mu$ . diam. In foliis emortuis etc. in Britannia.

14. **Lamproderma nigrescens** Sacc. in Mich. II, p. 262 non Rost. — 1354  
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  $\mu$ . 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  $\mu$ . diam. pallide violaceo-fuligineis, minutissime echinulatis.

*Hab.* in foliis dejectis Buxi, Robiniæ, Pinorum, frustulis ligneis coacervatis etc. Selva Ital. bor. — A *Lampr. physaroides* statura sporisque minoribus, a *Lampr. violaceo* peridio sphærico, atro etc. diversum.

**COMATRICHA** 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, 1355  
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-*

*nitida 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, cylindratis, 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  $\mu$ . 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 ( $\beta$ . **pumila** Rost.) 2 mm. altit. sporis 5,5-6,5  $\mu$ . 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*,  $\beta$ . *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  $\mu$ . diam.

*Hab.* in ligno putrido in Germania, Britannia, Belgio, Italia, Suecia, Carolina infer. Amer. bor. — Var.  $\alpha$ . **obovata**: peridiis subsphæroideis, 0,5-0,7 mm. altis. Cum typo. — Var.  $\beta$ . **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 flicibus etc. in Suecia, Germania, Britannia, Italia et Carolina Amer. bor.

4. **Comatricha laxa** Rost. Mon. p. 201. — Peridiis sphæricis, vix  $\frac{1}{2}$  1358 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  $\mu$ . 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 arcuatis transversis conjunctis, nonnullis tum libere excurrentibus; sporis pallide violaceis verrulosis, 5-6  $\mu$ . diam. 1359

*Hab.* ad Freiburg Germaniæ (DE BARY).

6. **Comatricha æqualis** Peck 31 Rep. p. 42. — Gregaria vel laxè 1360 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 æquantem; sporis globosis, levibus, atro-violaceis, 8-9  $\mu$ . diam.

*Hab.* in ligno putri, Catskill Amer. bor.

7. **Comatricha macrosperma** Racib. Myx. Crac. p. 8. — Peridiis nudis, 1361 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 diffudentibus, 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  $\mu$ . 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, cylindræa. 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 cylindræa* 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, cylindræis, 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  $\mu$ . diam., intense vel subatro-fuscis sub. microsc. dilute fuscescentibus.

*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 fimbriosis, in formam reticuli conjunctis notatis.

3. **Stemonitis splendens** Rost. Sluzowc. p. 195, Karst. Myc. Fenn. IV, 1364 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  $\mu$ . diam., intense vel subatro-fuscis.

*Hab.* supra ligna pinea in Fennia.

4. **Stemonitis ferruginea** Ehrh. Sylv. Berol. p. 20, f. VI, A. B. Rost. 1365 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  $\mu$ . diam.

*Hab.* in ligno putrescente in tota fere Europa et America.

5. **Stemonitis fluminensis** Speg. Fungi Arg. Pug. n. 261. — Hypothallo 1366 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 levî, 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  $\mu$ . diam. levissimis, granuloso-farctis, fusco-fuliginis.

*Hab.* ad cortices putrescentes vetustos nec non ad muscos proximos prope Apiahy in Brasilia meridionali, (Cl. Dr. PUIGGARI).

6. **Stemonitis herbatica** Peck 26 Rep. p. 75. — Dense fasciculata 1367 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  $\mu$ . 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  $\mu$ . 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. sk. 102, Schlt. berl. 164, 1369  
*Stem. fusca* var.  $\beta$ . 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  $\mu$ . diam., violaceo-brunneis, levibus, intus punctatis.

*Hab.* ad Pinos emortuas decorticas Poloniæ et Germaniæ. — Species hæc sec. Cl. Raciborski (Cfr. Hedw. 1887, p. 111), nec ad *Stemonitidem* nec ad *Amaurochættem* re vera spectat, sed ad novum genus JUNDZILLIA Rac. l. c. adscribenda.

Species incertæ.

9. **Stemonitis cribrarioides** Fr. Syst. Myc. III, p. 163, *Cribraria*  
*Lycoperti* Nees in litt. — Peridiis atris, sessilibus, fugacibus, ba- 1370  
sim excipuliformem exiguam relinquentibus stylidio brevi, centrali instructis.

*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