

18. GYMNOSPORANGIUM JUNIPERI-VIRGINIANAE Schw.—Teliospores on *Juniperus virginiana* L. sown on *Malus coronaria* (L.) Mill.

19. GYMNOSPORANGIUM GLOBOSUM Parl.—Teliospores on *Juniperus virginiana* L. sown on *Crataegus Pringlei* Sarg., *Sorbus americana* Marsh., and *Malus coronaria* (L.) Mill.

B. Species reported now for the first time.

1. MELAMPSORA LINI (Link) Desmaz.—Teliospores on *Linum usitatissimum* L. sown on *L. Lewisii* Pursh and *L. usitatissimum* L.

2. UROMYCES SILPHII (Syd.) Arth.—Teliospores on *Juncus tenuis* Willd. sown on *Silphium perfoliatum* L.

3. GYMNOSPORANGIUM NELSONI Arth.—Teliospores on *Juniperus scopulorum* Sarg. sown on *Amelanchier canadensis* (L.) Medic. and *Sorbus americana* Marsh.

AN HISTORICAL REVIEW OF THE PROPOSED GENERA OF PHYCOMYCETES.

I. PERONOSPORALES.

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In the present consideration of the generic types of the *Phycomycetes* the genera will be arranged chronologically under each order, with the type species, the synonyms, the homonyms, and such other information under each genus as may seem desirable. This is followed by an alphabetical list of the genera with their type species, in which the tenable names are printed in black type while those which are untenable are in common type.

The subject of the generic types of the *Phycomycetes* was first taken up at the suggestion of Dr. J. C. Arthur, while a student in his laboratory, and the results embodied in a thesis which was presented to the Faculty of Purdue University, to the authorities of which institution I am indebted for permission to publish the material contained in the thesis. I wish to also express my hearty appreciation of the courtesies shown me by Dr. Arthur and by Dr. J. H. Barnhart in the way of critical and bibliographical assistance and the loan of otherwise inaccessible books and by those in charge of the various libraries consulted both in Lafayette and New York.

1. ALBUGO Roussel, Fl. Calvados, ed. 2. 47. 1806.

The name *Albugo* was first used for a subgenus by Persoon* who included under it the white spored species of *Uredo*, of which he recognized two, *U. candida* and *U. Cheiranthi*, the first of which is the type species. Roussel elevated the subgenus to generic rank with Persoon's first species as the monotype of the genus. In this species he followed Persoon in including the white rust of the *Cruciferae* and of *Tragopogon*, and by way of good measure added some fungus on *Urtica* which in all probability belongs to the *Uredinales*. The genus is usually credited to S. F. Gray† who used the name in the same sense fifteen years later.

Synonym: *Cystopus* Lév., not Blume.

2. PERONOSPORA Corda, Icon. Fung. 1: 20. 1837.

This genus was published for a single species, *P. rumicis*, which is figured on *pl. 5. f. 273*.

3. BREMIA Regel, Bot. Zeit. 1:666. 1843.

The only species which has so far been referred to the genus is *B. Lactucae* Regel, a fairly good figure of which (*pl. 3B*) accompanies the description.

Synonym: *Actinobotrys* Hoffm.

4. CYSTOPUS Léville, Ann. Sc. Nat. III. 8: 371. 1847.

The genus is characterized and five species of *Uredo*, of which the first is *U. candida*, are cited as members of the genus. Except the last species named these are all congeneric. While it is customary to credit to Léville the names of all these species under the genus *Cystopus*, he refrained, not only in this but in subsequent papers, from forming the combinations with which he is so generously credited by his contemporaries. The name is untenable as the genus is a typonym of *Albugo*. It has also been applied to an *Orchidaceous*‡ genus.

5. ACTINOBOTRYS Hoffman, Bot. Zeit. 14: 154. 1856.

But one species, *A. Tulasnei*, was described, the figure of a portion of the conidiophore of which (*pl. 5. f. 22*) is unmistakably that of *Bremia Lactucae* Regel, 1843.

6. BASIDIOPHORA Roze & Cornu, Ann. Sci. Nat. V. 11: 84. 1869.

This genus is founded on a single species, *B. entospora*, which is described at great length and carefully figured (*pl. 4*).

Synonym: *Gilletia* Sacc. & Penz.

* Syn. Meth. Fung. 223. 1801.

† Nat. Arr. Brit. Pl. 1:540. 1821.

‡ *Cystopus* Blume, Orch. Archip. Ind. 82. 1858.

7. PHYTOPHTHORA de Bary, Jour. Roy. Agr. Soc. II. 12: 240. 1876.

The present genus was founded for a single species, *Peronospora infestans*, which is renamed *Phytophthora infestans* de Bary. The species and its life history are discussed in detail and illustrations are given (f. 3, 4). A duly accredited reprint of this article§ is usually cited instead of the original place of publication.

8. SCLEROSPORA Schröter, de Bary, Bot. Zeit 39: 621. 1881.

The present name was used by Schröter* as a subgenus of *Peronospora*, under which there was placed a single species previously described by Saccardo as *Protomyces graminicola*. The first use of the name in a generic sense is in a paper by de Bary in which he enumerates the valid genera of *Peronosporaceae* among which is *Sclerospora* Schröter. The first binominal combined with the generic name is in Cohn's *Kryptogamen Flora von Schlesien*|| where the type of the subgenus of 1879 becomes *S. graminicola* (Sacc.) Schröt. Up to this time no other species had been associated with the name *Sclerospora* whether regarded as a genus or as a subgenus.

9. GILLETIA Saccardo & Penzig; Sacc. Michelia 2: 587. 1882.

The only species which is referred to this genus is *G. spinuligera* Sacc. & Therry, of which the authors say "Oogonia ignota, sed totus fungi habitus peronosperioideus." The fungus is co-specific with *Basidiophora entospora* Roze & Cornu. The type specimens of both these species were collected in France on *Leptilon canadensis* (L.) Britton. The same generic name has since been used in *Commelinaceae*.¶

10. PLASMOPARA Schröter, in Cohn, Krypfl. Fl. Schles. 3: 236. 1886.

Eight species were referred to this genus by its author who founded it as "Gatt. **Plasmopara**. (*Peronospora* Sect. I. *Zoosporiparæ* und Sect. II. *Plasmatoparæ* de Bary)." The generic name is merely a modification of de Bary's second sectional name, which implies that the conidia germinate by a plasma. This is true only of de Bary's second section, the species of the first germinating by zoospores. Two species, *Peronospora pygmaea* Unger and *P. densa* Rabenh., are included by de Bary in his section *Plasmatoparæ* of which *P. pygmaea* is the type. As

§ Jour. Bot. 14:105-126, 148-154. 1876.

* Hedwigia, 18:86. 1879.

|| 3¹:236. 1886.

¶ Rendle, Jour. Bot. 84:55. 1896.

this species is the first one from this section which is cited by Schröter it is the type of the genus. Of his other species two were known to de Bary, while the others, including the type of *Basidiophora*, are of later date.

11. CHLOROSPORA Spegazzini, Rev. Argent. Hist. Nat. 1: 29. 1891.

The single species of this genus, *C. vastatrix*, is described as having monopodially branched conidiophores and colored conidia which germinate by a plasma. The genus is, therefore, very close to *Plasmopara*.

12. DREPANOCONIS Schröt. & P. Henn.; Henning's, Hedwigia 35: 211. 1896.

This genus, which is placed by its authors in *Albuginaceae*, contains a single species *D. brasiliensis*, the true position of which is probably among the *Hyphomyces*.

13. PSEUDOPERONOSPORA Rostewzew, Ann. Inst. Agron. Moscow 9:47. 1903; Flora 92:422. 1903.

The present genus was founded upon *Peronospora cubensis* B. & C. and a Russian variety of that species. The characters of these fungi and their relatives are discussed in detail and the article, which is in Russian, is profusely illustrated. There is no room to question the identity of the genus and its type. A translation of the article appeared in *Flora* about eight or ten months later.

Synonym: *Peronoplasmopora* (Berlese) Clinton.

14. KAWAKAMIA Miyabe, Mag. Bot. Tokyo 17:(306). 1903.

This genus is founded on a single species, *Peronospora cyperiperi* Miyabe & Ideta. Although published in the Japanese section of the Magazine the descriptions of both genus and species are in English.

15. PERONOPLASMOPARA Clinton, Ann. Rep. Conn. State Agr. Exp. St. 29:234. 1905.

Berlese* proposed this name for a subgenus of *Plasmopara* in which he included two species, *Plasmopara Celtidis* (Waite) Berlese and *P. cubensis* (B. & C.) Humphrey. He described both species and figured the latter, which is therefore the subgeneric type. When Clinton elevated the subgenus to generic rank he designated "Types: *Peronoplasmopara cubensis* (B. & C.) Clinton, *Peronoplasmopara celtidis* (Waite) Clinton." As it is manifestly impossible for a genus to have more than one type, and as his discussion is based almost entirely upon the first species which he mentions we must consider both subgenus and genus as founded upon *Peronospora cubensis* B. & C.

* Riv. Pat. Veg. 9:123. 1900.

16. PHLEOPHYTHORA Klebahn, Cent. Bakt II. 15:336. 1905.

The genus is founded upon an imperfectly known species, *P. syringae*, which may belong either to the *Peronosporales* or to the *Anclystidales*.

17. MYCELOPHAGUS Mangin, Compt, Rend. Acad. Sci. Paris 136:472. 1906.

The genus is founded on a poorly described and imperfectly known species, *M. castaneae*, which probably belongs to *Anclystidaceae*.

Alphabetical List of Genera.

(The tenable names in black type.)

Actinobotrys Hoffm. 1856.—A. Tulasnei Hoffm. = *Bremia lactucae* Regel. 1843.

Albugo (Pers.) Rouss. 1806.—A candida (Pers.) Rouss.

Basidophora Roze & Cornu, 1869.—B. entospora Roze & Cornu.

Bremia Regel, 1843.—B. lactucae Regel.

Chlorospora Speg. 1891.—C vastatrix Speg.

Cystopus Lév. 1847.—C. candidus (Pers.) Lév. 1848. = *Albugo candida* Rouss. 1806.

Drepanoconis Schröt. & P. Henn. 1896.—D. brasiliensis Schröt. & P. Henn. Hyphomycete?

Gilletia Sacc. & Penz. 1882.—G. spinuligera Sacc. & Therry. = *Basidiophora entospora* Roze & Cornu. 1869.

Kawakamia Miyabe, 1903.—K. cyperi (Miyabe & Ideta) Miyabe.

Mycelophagus Mangin, 1906.—M. castaneae Mangin. Tenable as a genus but probably belonging to another order of Oömycetes.

Peronoplasmopara (Berlese) Clinton, 1905.—P. cubensis (B. & C.) Clinton. = *Pseudoperonospora cubensis* (B. & C.) Rostew. 1903.

Peronospora Corda, 1837.—P. rumicis. Corda.

Phleophythora Klebahn, 1905.—P. syringae Klebahn.

Phytophthora de Bary, 1876.—P. infestans (Mont.) de Bary.

Plasmopara Schröt. 1886.—P. pygmaca (Unger) Schröt.

Pseudoperonospora Rostew. 1903.—P. cubensis (B. & C.) Rostew.

Sclerospora (Schröt.) de Bary, 1881.—S. graminicola (Sacc.) Schröt. 1886.