[SCIENCE CONTRIBUTIONS.]

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Agricultural Experiment Station

OF THE

AGRICULTURAL AND MECHANICAL COLLEGE,

AUBURN.

A Preliminary List of Alabama Fungi.

L. M. UNDERWOOD and F. S. EARLE.

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* Dr. L. M. Underwood was Biologist of the Station from September 1, 1895, to August 1, 1896.

HISTORICAL SKETCH OF THE STUDY OF FUNGI IN ALABAMA.

LUCIEN M. UNDERWOOD.

Our present knowledge of the extent and distribution of the higher plants of the state of Alabama, while far from complete, is still considerable, due to the efforts of several botanists who have devoted much time to their study. Chief among these to whom we are thus indebted are the late Judge Peters of Moulton, Prof. E. A. Smith of Tuscaloosa, and especially, Dr. Charles Mohr of Mobile, who has studied Alabama plants ever since his arrival in the country in 1848. It is expected that the results of these long continued studies will soon be made public, and that we shall soon have, for the first time, a published Flora of Alabama. While the higher plants are thus likely to be well cared for, the study of the less conspicuous but no less interesting and important lower plants has not been so carefully nor so systematically conducted. Both Judge Peters and Dr. Mohr collected a number of mosses and liverworts, and several new species in these groups have been described with Alabama as a type locality, but this field has not been worked with any degree of thoroughness. Judge Peters also collected a considerable number of lichens which are preserved with his collections at Tuscaloosa. So far as we are aware the large group of filamentous fresh water Algae has received no attention whatever, there being not a single recorded species from the entire state, tho members of the group are very commonly distributed throughout the waters of the state. A most inviting and important virgin field is still open for students in this direction. Our knowledge of Alabama

Diatoms is due entirely to the labors of Mr. K. M. Cunningham, of Mobile, who has done much careful work on this interesting group.

The study of the Fungi of the state of Alabama commenced with the collections of Judge Thomas M. Peters, whose name will be linked inseparably with the future study of these organisms, because of the new and interesting things he brought to light, some of which have contributed not a little to the present knowledge of the relations of these difficult and interesting organisms. His field work was prosecuted largely in the vicinity of his home in Lawrence county, and on his farm property at "The Roost" * on a fork of the Sipsey river in Winston county adjoining Lawrence on the south. His collections were largely made during the years 1854–1864† and in the main were sent to Rev. Moses A. Curtis, who was engaged (1835-1872) in studying the mycologic flora of North Carolina. These, with others collected in various parts of the eastern and southern United States, were sent to Rev. M. J. Berkeley of England, by whom the new species were described in his "Notices of North America Fungi" which were published chiefly in Grevillea, 1872-1876, conjointly with Cur-

* This interesting locality takes its name from the fact that in former years the passenger pigeon (*Ectopistes migratorius*) used the trees in the vicinity as a roosting place and accumulated there in vast numbers. No traces of their former abode are left, but the entire region is one of the most interesting botanically in the entire state. The exact location is in Township 8, Range 9, section 10, Winston county.

† With Judge Peters' collection at Tuscaloosa, there is a MSS list bearing this inscription:

"A list of Alabama Fungi with genera arranged according to Dr. John Lindley but species under each order are set down alphabetically. Collected from 1854–1864 in the counties of Lawrence, Walker and Winston and adjacent counties in Alabama, dried specimens of most of which will be found in the "Peters collection" in the University of Alabama."

The list of species numbers some five hundred, but a large part of these are not in the collection which is preserved in three quarto volumes after the usual manner of exsiccatæ.

tis. These species are frequently alluded to as the "B. & C." species and have been the source of much difficulty to later mycologists from the very brief and often too general descriptions. The types of these fungi will be found at Kew, England, which contains Berkeley's herbarium among its collections. Specimens of many of them may doubtless be found in the Curtis collection, now owned by Harvard University, when that collection shall become as accessible to botanists as the one at Kew. The ultimate decision in regard to the status of these species, however, will necessarily depend on the examination of the types at Kew, since these are the ones on which Berkeley based his descriptions, and probably, tho not certainly, represent the same material that Curtis divided with him.

Some of Judge Peters' earlier collections were sent to H. W. Ravenel, of Aiken, S. C., and were distributed by him in his "Fungi Caroliniani Exsiccati" of which five fascicles (five hundred specimens) were issued, 1852-1860.

Judge Peters' own collection of fungi was presented with his botanical library and other collections to his alma mater, the State University of Alabama, and through the kindness of Dr. Eugene A. Smith, we have been permitted to examine the collections and include numerous notes of its contents. The State University also possesses a copy of Ravenel's work above noted which is now very rare and is especially valuable for the student of mycology in any portion of the south. The Peters' collection is in a very good state of preservation considering its age, but does not contain all the species included in the "B. & C." descriptions of Alabama fungi above noted.

The second Alabama botanist to give attention to these plants was John F. Beaumont, concerning whom comparatively little is now known. He lived for a time in Lawrence county, but afterwards removed to southeastern Alabama, and is said to have died at Troy, Pike county.*

*A brief sketch of Beaumont from which we have drawn facts concerning his work, appeared in the Journal of Mycology, 2: 81-83, 1886, written by his associate. It is desirable to place on record a more complete statement of his life and work, and if any persons reading this know anything further concerning him, they will confer a favor by communicating with either of the writers.

Beaumont, like Peters, sent numerous specimens of fungi to Curtis, and these are included in the emmeration in the "Notices" above alluded to. It is uncertain in what part of the state Beaumont's specimens were collected, but it is more than likely that it was in southeastern Alabama, where he is known to have resided during the latter part of his life.

Nothing more was accomplished toward making known the cryptogamic flora of Alabama until 1889, when Dr. George F. Atkinson assumed control of the department of biology in the Alabama Polytechnic Institute. He was an indefatigable collector and added especially to the knowledge of parasitic forms, publishing several papers on the economic, systematic and biological relations of various groups of species, during his residence in the state and since his removal. These contributions which added greatly to our exact knowledge of Alabama Fungi are enumerated below. In collecting, Dr. Atkinson was assisted by graduate students, notably B. M. Duggar, 1890–1, and C. L. Newman, 1889–92. A considerable portion of the fungi collected during this period (1889–1892) are preserved in the collection of the Alabama Polytechnic Institute. These include a large number of types (or duplicate types) of the new species described by him in his various publications. A fuller set is contained in his private collection † which we have not examined.

During the years 1893–5 the department of biology was under the control of Professor J. M. Stedman, who was primarily a zoologist, so that naturally little attention was given to the advancement of our knowledge of the Alabama flora. Some two or three specimens collected during this period may be found in the A. P. I. collection.

During the past year, 1895–6, the writer (since January, 1896, associated with Professor F. S. Earle) has devoted as much time as could be spared from other duties in active field work for the collection and study of the fungous flora. Since July 1896, Professor Earle has continued the field

† Now in Cornell University, Ithaca, New York.

work with such assistance as could be utilized. Naturally the collecting has been done within a distance of a few miles from Auburn, and so far as the parasitic forms are concerned, to a considerable extent it duplicates that done by Dr. Atkinson and his assistants; some interesting parasitic species, however, have been added from this section, and a considerable number of saprophytic forms (Pyrenos, Gastros and other fleshy fungi, have been added to the collection. In this connection, however, it should be stated that the season of 1895–6 was specially unfavorable for the extensive growth of fungi, being very dry during the fall of 1895 and during the spring of 1896. In fact not until July 1896, was the rainfall sufficient to bring out anything of the normal productiveness of this region.

A few trips were made to various parts of the state, largely for the purpose of gaining information as to the character of the country with the expectation of making more extended excursions later. During these trips a considerable amount of material was collected in various parts of the state and valuable data accumulated regarding distribution and desirable regions for prosecuting field work in the future. Professor Earle has twice visited Mobile county. The writer has also been once in the same county (December, 1895); one trip was made to Tuscaloosa, Hale and Dallas counties (May 1896) and one to DeKalb, Madison, Lawrence and Winston counties (June 1896).

It is thought best to publish this preliminary list of the species of fungi now known to exist in Alabama, as a basis for further work, as well as a stimulus to bring to light some of the species early described from the state that are now known only through their type specimens. For this purpose, and as some of the descriptions are not easily accessible, we have collated the original descriptions of all species which were described with Alabama as a type locality, and have further designated with a star those species of which specimens have not been seen by the writers. The material collected during the present year has been deposited in the

collection of the Alabama Polytechnic Institute, and so far as material would permit in the collections of the writers. It must be borne in mind that this list represents only a small part of the flora of the state, since only limited areas have been examined for a limited time. It will be many years before the fungi will be as fully known as the higher plants, for with only a single institution in the state that maintains a course in Botany, the task of field exploration and laboratory determination and investigation falls heavily on two or three workers.

The state of Alabama presents a very diversified flora, including many of the plants of the Appalachian mountain chain which extends through the highlands of the state beyond its centre, and many of the Gulf coast plants towards the southern limits. The differences of elevation are also considerable and furnish another element for the production of a diversified flora. As stated above, we have a good working knowledge of the higher plants of the state, so soon as it shall be made available to students by publication.* The state will probably be found to contain more spermaphytes than any state east of the Mississippi river, owing to its range of latitude, altitude, and its peculiar position. It is natural to infer that the fungous flora, when it shall be made known, will be proportionally large since the parasitic portion of it at least is directly dependent on the higher plants as the source of nutrition and sustenance. The fungous flora of the vicinity of Auburn has impressed neither of the writers as exceptionally rich. The generally poor quality of the soil may perhaps account for part of this condition,

*It should not be understood that even the higher plants are all enumerated. As an instance of what can be done in fairly well worked localities, we may cite the instance that of about two hundred Spermaphytes collected by Professor Earle and myself in the vicinity of Auburn during the Spring of 1896, at least a dozen were not known to Dr. Mohr as members of the Alabama flora, and two or three were new to science. And these were incidental gatherings in our search for fungi, having in view the establishment of a host herbarium of Alabama plants for reference, a great desideratum for the Biological Laboratory.

coupled with the fact that the timber is more largely pine than otherwise, a host that supports in this climate few fungi as compared with many deciduous trees.

The observations made on the various brief excursions through the state may properly be mentioned here as indicating some of the regions where exploration will yield good results in the future. There are doubtless many others perhaps equally advantageous. A few of these already noted are:—

(1) The spurs of the Appalachian system reaching our state, notably the Lookout range extending through DeKalb, Etowah and Cherokee counties.

This region can be reached from any point on the Alabama Great Southern between Chattanooga and Attalla. The basin of the Coosawattie, from Rome to Gadsden, will doubtless be well worth the exploration. The range parallel to Lookout, known as Sand mountain, will likewise repay careful exploration; one very promising portion of this is accessible from the railroad leading from Attalla to Guntersville, and other portions are accessible between Huntsville and Chattanooga.

(2) The river drainage of the northern portion of the State. This will form an interesting and peculiar region by itself, and can be reached from the various towns on the Tennessee river from Chattanooga to Florence.

(3) The river region of Tuscaloosa and Hale counties bordering on the Black Warrior, accessible by the Alabama Great Southern from Birmingham to Meridian. Parts of this region visited during May 1896, and at an unfavorable time because of the dry season—showed a rich and diversified flora.

(4) The coast region of Southern Alabama, comprised in Mobile and Baldwin counties. The peculiar parasitic flora developed by the labors of Professors Tracy and Earle in their account of Mississippi fungi, and collected largely at points on the Gulf coast only a few miles to the west of our state, would argue a like development in corresponding

areas in our own state, and the brief visits made by the writers to this region amply confirm the above statement.

(5) The highland counties of northwestern Alabama. From a single visit to this region we would predict for it the indication of being the region of the state most prolific in furnishing additions to the flora. This prediction is based on the fact that the higher flora, and especially the timber, is the most diversified of any portion of the state visited, and on the additional fact that a large part of the area is still covered with the original forest and has not suffered from the modifications induced by cultivation and civilization. The writer made a single trip from Decatur to Moulton, thence by the mountain road to the northern portion of Winston county, and thence to Haleysville on the railroad leading from Sheffield to Birmingham. The region throughout showed evidence of an exceedingly rich field for exploration. On account of the few settlements in this area it would be desirable to visit this region with a party provided with tent and supplies, allowing for delays in river crossings if the trip is to be taken during the period of heavy rains. Even a fortnight's trip taken either in early spring, in midsummer, or in early autumn, or even in November, would repay a rich reward, each season of course furnishing its own characteristic flora. The region may be reached either from Cullman or Decatur, or from Haleysville as above noted. It should be remembered that it was in this region that the greater part of Judge Peters' collections were made.

In a recent article in Garden and Forest* the writer has called attention to the fact that while the study of mycology in America commenced in the South (North Carolina) the later development of the mycologic flora of the Southern States has not been extensive. In only two of these states, in fact, is there a mycologist connected with the experiment station, and in several there is not even a botanist. Ala-

* Issue of 1 July, 1996 (9:263, 264).

bama, Mississippi and Texas are the three states of the southern tier that have contributed anything to a knowledge of the fungous flora from their experiment stations, and still it seems that it must be to these institutions mainly that we are to look for work in this direction.

The following are the more important local lists that have appeared from the Southern States:

North Carolina.—CURTIS, M. A. Geological and Natural History Survey of North Carolina. Part 3 Botany; containing a catalogue of the indigenous and naturalized plants of the state. 1867.

Contains a list of 2,392 species of fungi.

South Carolina.—RAVENEL, H. W. Contributions to the Cryptogamic Botany of South Carolina. Med. Jour. & Rev., Charleston, 4:428-433, J. 1849; 5:324-327, My. 1850; 6:190-199, Mh. 1851. *

The third part contains a list of 169 hymenomycetous fungi.

Georgia.—Nothing is known of the fungous flora except a few scattering species reported by Mr. Ravenel in his exsiccatæ.

Florida.—ELLIS, J. B. and MARTIN G. New Florida Fungi. Jour. Myc., 1:97-101. Au., 1885.

Descriptions of 16 species.

CALKINS, W. W. Notes on Florida Fungi. Jour. Myc., 2:6, 7; 23; 42; 53, 54; 70; 80, 81; 89-91; 104-106; 126-128. 1886; 3:7; 33, 34; 46; 58, 59; 70; 82. 1887.

List of some 300 species of fungi collected by the writer.

Mississippi.—TRACY, S. M., and EARLE, F. S. Mississippi Fungi. Bull. Miss. Agric. Exper. Sta., 34: 1895.

List of 353 species, largely parasitic.

—Mississippi Fungi. Bull. Miss. Agric. Exper. Sta., 38: 1896.

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* In addition, the Fungi Caroliniani exsiccati, above cited, and the later issue of Fungi Americani exsiccati, were quite largely supplied with specimens from this state.

An additional list of 85 species, mostly parasitic. Both this and the preceding paper contain descriptions of species of Mississippi fungi, first published from that state.

Louisiana.—FEATHERMAN, A. Report of Botanical Survey of Southern and Central Louisiana, 1871.

Contains among other plants, a list of 21 species of fungi.

—Third Annual Report of the Botanical Survey of Southwest Louisiana, 1872.

Contains among other plants, a list of 68 species of fungi.

LANGLOIS, A. B. Catalogue provisoire de Plantes Phanerogames et Cryptogames de la Basse Louisiane. 1887.

A list of some 644 fungi collected by Father Langlois.

ELLIS, J. B., and LANGLOIS, A. B. New species of Louisiana fungi. Jour. Myc., 6:35-37, Mh., 1890.

Descriptions of 16 species from the state.

Texas.—RAVENEL, H. W. Report on the Fungi of Texas. Rep. Comm. Agric. on Diseases of Cattle, 171-174. 1871.

COOKE, M. C. The Fungi of Texas. Annals New York Acad. Sci., 1:177-187. 1878.

List of 149 species from the state, largely collected by Ravenel.

JENNINGS, H. S. Some Parasitic Fungi of Texas. Bull. Texas Agric. Exper. Sta., 9:23-29. 1890.

List of 95 species from the state.

Arkansas.—We know nothing of its fungous flora.

Tennessee.—Any knowledge of the fungus flora of this state is likewise lacking.

The above includes, of course, only the more important papers. Scattered descriptions of species from several of the Southern States are also to be found in descriptive literature, periodical or otherwise. We now give in conclusion the complete list, as we know it, of papers relating to the mycologic flora of our own state.

LIST OF WORKS AND PAPERS TREATING OF ALABAMA FUNGI.

(Authors chronologically arranged.)

RAVENEL, H. W. Fungi Caroliniani Exsiccati. Fasc. 1-5, 1852-1860.

Contains numerous Alabama species, contributed chiefly by T. M. Peters.

BERKELEY, M. J. Notices of North American Fungi. Grevillea, 1:33-39, 49-55, 65-71, 97-102, 145-150, 161-166, 177-180. 1872-3; 2:3-7, 17-20, 33-35, 49-53, 65-69, 81-84, 97-101, 153-157, 177-181. 1873-4; 3:1-17, 49-64, 97-112, 145-160. 1874-5; 4:1-16, 45-52, 93-108, 141-162. 1875-6.

Contains references to some 227 species of Fungi collected in Alabama by Peters and Beaumont. Many of these were new to science and are briefly described in both Latin and English by Berkeley and Curtis.

BERKELEY, M. J., and CURTIS, M. A. Fungi Cubenses. Jour. Linn. Soc., 10:280-392. 1869.

Describes a large number of Cuban fungi, some of which also occurred in various parts of the United States. Among these are five species of which the type is reported from Alabama. It is probable that the material was collected by Peters, but the fact is not stated.

FARLOW, W. G. The Synchitria of the United States. Bot. Gazette, 10:235-245. Pl. 1885.

Mentions and describes *Synchitrium pluriannulatum* collected by Peters in Alabama.

COOKE, M. C. Precursores ad Monographiam Polypororum. Grevillea, 15:19-27. 1886.

Describes *Poria Beaumontii* B. & C., from the Berkeley collection, originally sent from Alabama by Beaumont.

ATKINSON, G. F. A New Ramularia on Cotton. Bot. Gazette, 15:166-168. J. 1890.

Describes *R. areola* from Auburn, Alabama.

—Some Erysiphei from Alabama and Carolina. Jour. Elisha Mitchell Sci. Soc., 7:61-74. 1890.

Describes sixteen species of mildews from Alabama stations.

—Black rust of cotton. Bulletin Ala. Exper. Sta. 27: May, 1891.

General account of the "rust" of cotton, with account of *Cercospora gossypina*, *Colletotrichum gossypii*, and *Macrosporium nigricantium*.

—Sphaerella gossypina n. sp. the perfect stage of Cercospora gossypina Cke. Bull. Torr. Bot. Club, 18: 300, 301. *Pl. 122. October, 1891.*

Species described from material collected at Auburn, Eutaw, and Alberta Station, Alabama.

—On the structure and dimorphism of Hypocrea tuberiformis. Bot. Gazette, 16: 282-285. *Pl. 25*, October, 1891.

Results of study based on material collected at Auburn, Alabama.

A new Ravenelia from Alabama. Bot. Gazette, 16: 313-314. November, 1891.

Describes *R. cassiaecola on C. nictitans* from Auburn, Alabama.

—Some Cercosporae from Alabama. Jour. Elisha Mitchell Sci. Soc., 8: 33-66. 1891. (Separate pp. 1-36).

Describes some 79 species collected in Alabama, of which 27 are new.

—Some leaf blights of cotton. Bull. Alabama Agric. Exp. Sta. 36. March, 1892.

Discusses the economic relations of several of the diseases of cotton, some of which are produced by various fungi.

—The Genus Frankia in the United States. Bull. Torr. Bot. Club, 19: 171-177. Pl. 128. June, 1892.

Account of *F. alni* and *F. ceanothi* n. sp. based on material collected at Auburn, Alabama.

—Some diseases of cotton. Bull. Alabama Agric. Exp. Sta. 41. D, 1892.

General summary of cotton diseases, including those produced by species of *Cercospora, Colletotricium, Macrosporium* and *Sphaerella.*

—Additions to the Erysiphei of Alabama. Jour. Elisha Mitchell Sci. Soc. 10: 74-76. 1893.

Notes on twelve additional species of this group.

—Some Septoriae from Alabama. Jour. Elisha Mitchell Sci. Soc. 10: 76-78. 1893.

Notes on fifteen species observed in the State, including *S. Alabamensis* n. sp. parasitic on *Nepeta glechoma.*

—Germination of the spores of Cerebella paspali. Bull. Torr. Bot. Club, 21: 127-128. *Pl. 183.* March, 1894.

Based on material collected at Auburn, Alabama.

—Steps towards a revision of the linosporous species of North American graminicolous Hypocreaceae. Bull. Torr. Bot. Club, 21: 222-225. May, 1894.

Establishes three genera with two new species based on material collected in Alabama.

—Notes on some Exoasceæ of the United States. Bull. Torr. Bot. Club, 21: 372-380. August, 1894.

Describes among other new species, *E. mirabilis, E. rhizipes, E. varius* and *E. australis,* on material collected at Auburn, Alabama.

—Leaf-curl and Plum-pockets. Bull. Cornell University Agric. Exper. Sta. 73. S, 1894.

Gives general account and illustrations of three of the species described in the above paper.

ELLIS, J. B., and EVERHART. B. M., North American Fungi. Centuries 25 (1890), 28 (1892) and 35 (1896).

Includes four species of Alabama fungi.

SEYMOUR A. B. and EARLE, F. S., Economic Fungi. Fasc 2-9. 1891—1895.

Contains several species of Alabama fungi contributed chiefly by G. F. Atkinson.

DUGGAR, B. M. Germination of the teleutospores of Ravenelia cassiaecola. Bot Gazette, 17: 144-148, *Pl. 9, 10,* May, 1892.

Study made at the Alabama Polytechnic Institute, with illustrations of the germinating teleutospores.

MORGAN A. P. North American Fungi. IV. Gastromycetes. Cincinnati Soc. Nat. Hist., 13: 5-21. *Pl. 1, 2.* April, 1891.

Mentions *Lycoperdon pedicellatum*, *L. Peckii*, and *L. cepaeforme* as occurring in Alabama collected by G. F. Atkinson.

—New North American Fungi. Jour. Cincinnati Soc. Nat. Hist. 18: 36-45. *Pl. 1-3.* 1895.

Describes and illustrates among other species, *Hydnum atroviride* collected in Alabama by G. F. Atkinson.

UNDERWOOD, L. M., and EARLE, F. S. Treatment of some fungous diseases. Bull. Alabama Agric. Exper. Sta. 69. F 1896.

General account of fungi and their habits, and treatment of the principal diseases of the leading cultivated crops occurring in the State.

—The distribution of the species of Gymnosporangium in the South. Bot. Gazette, 22: 255-258. S 1896.

Notes on the six species of the Eastern United States parasitic on Juniperus Virginiana, five of which occur in Alabama.

—Notes on the Pine-inhabiting species of Peridermium. Bull. Torr. Bot. Club, 23: 400-405. O 1896.

Describes the three species of the Eastern United States, two of which are common in Alabama.

TRACY, S. M., and EARLE, F. S. New Species of Fungi from Mississippi. Bull. Torr. Bot. Club, 23: 205-211. 1896.

Mentions *Glonium macrosporium* from Auburn, Alabama.

UNDERWOOD, L. M. Mycology in the Southern States. Garden and Forest, 9:263, 264. Jy, 1896.

Alludes to the mycologic work done in Alabama,

—Edible Fungi; a wasted food product. Bull. Agric. Exper. Sta., 73: 337-346, O 1896.

General account of Fungi as food; alludes to certain edible and poisonous species occurring in Alabama with figures of *Amanita caesarea A. muscaria* and *Agaricus campestris.*

—Some new Fungi,chiefly from Alabama. Bull. Torr. Bot. Club, 24: 81-86. 28 F, 1897.

Describes ten species of Fungi from Alabama, together with two others also collected in this state, but not originally described from Alabama material.

PECK, C. H. New species of Fungi. Bull. Torr. Bot. Club, 23: 411-420. O, 1896.

Describes *Lentinus Underwoodii, L. ventricosus, Pholiota sabulosa, Flammula Underwoodii* and *Boletus tabacinus* from material sent from Alabama by the writer.

—New species of Fungi. Bull. Torr. Bot. Club, 24:137-147. March, 1897.

Describes, with others, ten new species of fungi from Alabama material.

EARLE, F. S. New species of Fungi imperfecti from Alabama. Bull. Torr. Bot. Club, 24:28-32. 1897.

Describes twelve new species of fungi from Alabama belonging to the group of imperfect fungi.

PRELIMINARY LIST OF THE KNOWN SPECIES OF ALABAMA FUNGI.

L. M. UNDERWOOD AND F. S. EARLE.

The following list includes the species of Fungi at present known to inhabit the State of Alabama. In the case of those species described by Berkeley all have been included in the list whether they have been collected recently or not. In the case of those whose type locality is Alabama, Berkeley's descriptions in both Latin and English are given, since the two are usually more or less supplementary to each other. Those which have not been collected since their publication are marked with a star. All the species not so marked are represented by specimens in some American collection and their location can be determined from the following statement of the basis on which the list rests. It is founded on the following material:

1. The species reported by Berkeley in his notices, and, presumably, to be found in the Berkeley collection at Kew, England.

2. Species preserved in the Peters collection, now owned by the State University of Alabama.

3. Species collected by Judge Peters in Alabama and distributed in Ravenel's Fungi Caroliniani exsiccati.

4. Species collected by Professor G. F. Atkinson or his assistants and deposited in the herbarium of the Alabama Polytechnic Institute. * Also species described by this author in recent papers.

5. Material collected by the writers, 1895-1896.

Whenever possible, the location is noted by counties, and the time of collection by months. That from Lee county, which naturally includes the greater part of the list, was collected by the writers jointly from January to July 1896; that collected before that time (October- December 1895,) was collected by L. M. Underwood, and that since July 1896, by F. S. Earle.

6. Material collected by G. W. Carver, of the Tuskegee Normal and Industrial Institute, in Macon County.

Much of the material collected by Professor Atkinson has been again collected by the writers in the vicinity of Auburn, Lee county, but no mention of this appears in the list, the original collector alone being indicated for each county. The herbarium of the Polytechnic Institute therefore contains, in addition to general material, considerably more Alabama material than the present list would indicate, especially in parasitic forms. The recent collections outside of Lee county, unless otherwise noted, were made by L. M. Underwood, except those collected in Mobile county, 1896, which were collected by F. S. Earle. Specimens of the material collected by the writers, if in quantity sufficient for division, were also deposited in their private collections. It is the intention of the list to include no species that cannot be verified by subsequent examina-

* Besides this material, Professor Atkinson left a record containing collector's numbers of quite a number of fungi collected in Alabama; some of these give localities, a few give names, many neither; also a host index of Alabama parasitic species; altbough these contain references to some species not mentioned in the following list, no use has been made of these notes, since we have had access to no specimens to represent them.

tion. The material, therefore, reported in the manuscript list of Judge Peters, unless represented in some of his collections above noted, has been omitted from the text.

The classification followed is a slight modification of that proposed by Schroeter, * with the adaptation of ordinal and family names to a uniform system. The genera and species are arranged alphabetically, under each family or order, as the simplest method of citation, and with a few exceptions follow Saccardo's limitations. In the case of parasitic species, reference is made to all the hosts on which the species has been collected in the state. For the use of those who will continue to study the fungi of the state, a generic index and a host index are added as a matter of convenience. In the citation of hosts the reformed nomenclature is used with generic citation of such synonymy as appears necessary to render the reference clear.

The list, of course, makes no pretense at completeness, for it represents only a beginning, mostly confined to two or three counties of the state. Probably three times the number of fungi it mentions will ultimately be found in the state. It has been found by experience that when attention is called to any certain group of plants and the imperfectly known and limited number from a given area is noted, that a stimulus is thereby given to further search and exploration. It is hoped that the citation of the unknown "B. & C." species, with their limited descriptions, will lead to their rediscovery, and that the list will in other ways stimulate the study of these plants in the state until its flora becomes reasonably well known.

For the benefit of those who are not conversant with the lower plants, it may be desirable to indicate briefly some of the characteristics of the Fungi and to outline, as far as possible by common names, the various groups into which this

* In Engler-Prantl: Die naturalichen Pflanzenfamilien.

series of plants is divided. It will thus serve to interpret to such persons what might otherwise appear to be a mere list of unpronounceable names.

The Fungi, known under various names, like moulds, mildews, toadstools (or in this state frogstools) and mushrooms, are plants that are (1) Of simple structure and organization; (2) Contain no chlorophyl (the green coloring matter of ordinary vegetation) and are therefore unable to live on inorganic matter like other plants, and (3) Reproduce by means of microscopic spores instead of seeds. Since they are unable to live on inorganic food they must draw their nourishment from other living plants or animals and thus act as parasites, or else draw their food supply from decaying organic matter. Of the former type a considerable number are directly injurious to cultivated plants and play an important part in agriculture. These have already served as the subject of a general bulletin from this station (No. 69) and several special bulletins (Nos. 26, 36, 41, 50 and 55). Much yet remains to be done in the direction of learning the life histories of these parasitic species and determining the best means of checking their ravages; in fact, we have only made a beginning in this direction. Some of the species living on decaying organic matter form valuable articles of food, and attention has been called to a few of these in a preliminary bulletin from this station (No. 73). Many species are not at present known to have any economic character. It is, however, desirable to know them all, and we therefore present a classified arrangement that will serve as a sort of synopsis of the list that follows.

Fungi are variously classified by different botanists but it is convenient here to separate them primarily into five classes, two of which are often not regarded as true fungi, but nevertheless share with them many of their characters. These classes are again divided into orders and these again into families. These various groups with such common names as have been applied to them may be arranged as follows:

I. Class Schizomycetes.—Includes the bacteria, many of which are exceedingly useful to man; many produce disastrous diseases of men and animals; some are of considerable economic importance to horticulturists in our state, viz: the *Bacillus amylovorous* producing pear blight; and *Bacillus solanacearum* causing blight of tomatoes and blight and rotting of potatoes. The bacteria are not usually regarded as true fungi; at least they have no place in a flora.

II. Class Myxomycetes (slime moulds).—Represented with us by two orders, one of which (*Plasmodiophorales*) contains root parasites, some of which attack cultivated plants. The other order (*Myxogastrales*) contains a series of organisms that are among the most remarkable in existence. They grow on rotten wood, possess no economic importance, and on account of their characters while in the growing condition, are, by some botanists, regarded as animals. The zoologists, however, do not claim them and they are here retained. In their later or spore-bearing stages some of them bear considerable superficial resemblance to the puff-balls and were, indeed, classified with them by the early mycologists. As a matter of fact, no two groups could be more different from each other, and they here appear at opposite ends of the list.

Class III. Phycomycetes.—(The lower or algal fungi).

Order *Chytridiales.* (Simple parasites, a few affecting higher plants.)

Order *Mucorales.* (Moulds, including ordinary well known forms, the common green mould excepted.)

Order *Entomophthorales.* (Insect parasites; mostly beneficial.)

Order *Saprolegniales.* (Aquatic moulds, sometimes parastitic on fish. (This group, often of economic importances in fish hatcheries, has not been studied in the state.)

Order *Peronosporales.* (White rusts and downy mildews; an important parasitic group.)

Class IV. Ascomycetes. (The spore-sac fungi.)

Order *Gymnoascales.* (Leaf-curl and "plum-pockets;" an important economic group.)

Order *Perisporiales.* (Powdery mildews; some are of considerable economic importance.)

Order *Hypocreales.* (A few like the ergot of grain are economic; the majority are saprophytic.)

Order *Sphaeriales.* } (The black fungi. A very few like the "black knot" of the plum are parasitic; the greater number are saprophytes.)
Order *Dothideales.* }

Order *Hysteriales.* (Of little economic importance.)

Order *Phacidiales.* (Mainly leaf parasites, a few of economic importance.)

Order *Pezizales.* (Cup fungi; mostly fleshy.)

Order *Helvellales.* (Fleshy fungi; a few edible.)

(As so-called inperfect forms (*Fungi imperfecti*) we have three orders that in the list are placed between this class and the preceeding; some of them are stages of ascomycetous fungi; others probably are not related to ascomycetous forms, and are probably complete in themselves; many members of these three orders are parasitic and of economic importance.)

Class V. Basidiomycetes.

Order *Ustilaginales.* (Smuts; parasitic on corn, cereals and grasses.)

Order *Uredinales.* (Rusts; parasitic on various plants; a highly economic group.)

Order *Tremellales.* (Jelly-like fungi.)

Order *Hymeniales.* (Mushrooms, toadstools, woody or bracket-fungi; many fleshy forms are edible)

Order *Gastrales.* (Puff-balls; many species edible.)

As far as it is possible to arrange the diverse forms in a lineal series these groups are arranged in the order of complexity of structure, the simplest forms coming first; no lineal arrangement, however, can satisfactorily express affinities.

CLASS MYXOMYCETES.

Order Plasmodiophorales.

Frankia Alni (Wor.) Atk.
On roots of Alnus sp. Lee, 7, 1896.
Frankia Ceanothi Atk.
On roots of Ceanothus Americanus, Lee, 5, 7, 1895.
Described by Professor Atkinson in Bull. Torr. Bot. Club, 19 : 171-177, *pl. 128, f. 2-4.* 1892, from Alabama material, but the description is not sufficiently compact to be readily quoted.

Order Myxogastrales.

Arcyria ferruginea Sauter.
Lee, 2, 1896.
Arcyria punicea Pers.
Lee, 12, 1895; 2, 1896.
Badhamia decipiens (Curt.) Berk. *
"Alabama (Peters)."
Described from Alabama specimens under the name of *Physarum chrysotrichum* B. & C. from Alabama, in Grevillea, 2 : 66 as follows :
"Sessile, subglobosum, peridio floccisque fulvis."
"Sessile, globose; somewhat depressed; tawny; the upper part soon breaking off; flocci springing from the base, tawny like the peridium."
Calonema aureum Morg.
Lee, 12, 1895.
Ceratiomyxa mucida (Pers.) Schroet. (*Ceratium hydnoides.*)
"Alabama (Peters, Beaumont)"; Lee, 4, 1896.
Clathroptychium rugulosum (Wallr.) Rost.
On Quercus 1873. (Peters). Peters coll.
Comatricha Friesiana (DeBy.) Rost. *
"Alabama (Peters)."
Comatricha typhina (Roth.) Rost. (*Stemonitis typhoides* Bull.)

Alabama (Peters). Peters coll.

Cribraria argillacea Pers. *

"Alabama (Beaumont)." Described in Grevillea, 2: 68, as *Licea spermoides* B. & C. from Alabama material.

Dictydium cernuum (Pers.) Nees.

Alabama (Peters). In the Peters coll. as *D.umbilicatum.*

Didymium clavus (A. & S.) Rost.

Alabama, 8, 1855 (Peters). Peters' coll.

Enteridion olivaceum Ehrh.

Alabama (Peters). Peters' coll., No. 125a, under the name of *Licea applanata.*

Fuligo septica (Link.) Gmel.

Alabama (Peters). Peters' coll., No. 107; Lee, 4, 1896.

Hemiarcyria clavata (Pers.) Rost.

On Pinus. Alabama (Peters). Peters' coll.

Hemiarcyria funalis Morg.

Lee, 12, 1895.

Hemiarcyria rubiformis (Pers.) Rost.

Lee, 11, 1895; 2, 1896.

Hemiarcyria serpula (Scop.) Rost.

Alabama (Peters). Peters' coll., No. 105; Lee, 12, 1895.

Lycogala epidendron (L.) Buxb.

Lee, 2, 3, 1896.

Perichaena corticalis (Batsch.) Rost. (*P. populina*).

Alabama (Peters). Peters' coll., No. 106.

Physarum cinereum (Batsch.) Pers.

Lee, 3, 1896.

Physarum flavicomum B. & Br. (*P. cupripes* B. & C.)

Alabama, 1855 (Peters). Peters' coll.

Physarum Petersii B. & C.

Alabama (Peters). Peters' coll., No. 104. In poor condition. Described in Grevillea, 2: 66, from Alabama specimens as follows: "Stipi aequali lateritio, peridio globoso luteo; floccis sub-flavis; sporis atris."

"Stem equal, brick-red; head globose, delicate yellow when free from the dark spores; flocci yellowish."

Physarum pulchripes Pk.

Lee, 3, 1896.

Reticularia atra (A. & S.) Fr.
Lee, 3, 1896.
Spumaria alba (Bull.) D. C. (*Didymium spumarioides* Fr.)
Alabama, 1865. (Peters). Peters' coll.
Stemonitis fusca Roth.
Lee, 2, 1896.
Stemonitis microspora Lister.
Lee, 2, 3, 1896.
Stemonitis tenerrima B. & C.
Lee, 11, 1895.
Trichia affinis DeBary.
Lee, 2, 1896.
Trichia chrysosperma (Bull.) D. C.
Lee, 11, 12, 1895.
Trichia varia Pers.
Lee, 12, 1895.
Tubulina cylindrica (Bull.) D. C.
Lee, 3, 1896.

CLASS PHYCOMYCETES.

ORDER CHYTRIDIALES.

Synchytrium decipiens Farlow.
On Falcata comosa (Amphicarpaea), DeKalb, 5, 1896.
Synchytrium fulgens Schroet.
On Œnothera laciniata (Œ sinuata), Lee, 4, 1896.
Synchytrium puriannulatum (B. & C.) Farlow.
On Sanicula sp. (Peters).
Described as *Uromyces puriannulata* in Grevillea, 3: 57, as follows:

"Maculis nullis; soris cuticula arcte inclusis; sporis magnis nucleatis, globosis, episporio concentrice membranaceo."

"Spots none, sori closely imprisoned in the cuticle; spores globose, .0024 in diameter, the epispore consisting of many concentric membranes; outer membrane splitting off."

ORDER MUCORALES.*

Mucor Beaumontii B. & C.

On Brassica oleracea (Beaumont).

Described in Grevillea, 3:148, as follows:

"Floccis curtis hyalinis; sporis oblongis vel ellipticis obtusissimus atropurpureis."

"Flocci short, hyaline; spores elliptic or oblong, very obtuse, .008 long, about half as wide, dark purple."

Sporodinia Aspergillus (Scop.) Schroet.

On decaying Boletus sp., Lee, 7, 10, 1896.

The zygosporous stage of this fungus has been called *Syzygites megalocarpus* Ehr.

ORDER ENTOMOPHTHORALES.

Empusa Muscae (Fr.) Cohn.

On dead flies, Lee, 5, 1896.

ORDER PERONOSPORALES.

Albugo Amaranthi (Schw.) O. Kuntze.

On Amaranthus sp. Hale, 5, 1896; Lee, 7, 1896.

Albugo candidus (Pers.) O. Kuntze.

On Arabis Virginica (Cardamine Ludoviciana), Lee, 4, 1896.

On Lepidium Virginicum, Lee, 3, 1890 (R. S. Edwards).

On Senebiera sp. Lee, 5, 1896.

Albugo Ipomoeæ-panduranae (Schw.) Swingle.

On Ipomoea Batatas, Lee, 7, 1890 (Atkinson).

On Ipomoea pandurata, Lee, 7, 1896.

On Ipomoea purpurea, Lee, 6, 1890 (Atkinson).

On Ipomoea tamnifolia, Lee, 7, 1896.

Albugo Portulacae (D. C.) O. Kuntze.

On Portulaca oleracea, Lee, 7, 1890, (Atkinson).

Albugo Tragopogonis (Pers.) S. F. Gray.

*A number of the common moulds belonging here have been noted from time to time, but no attempt has been made to include them in the list.

On Ambrosia artemisiæfolia, "Pike Roads," 6, 1891, (Atkinson).

On Tragopogon porrifolius, Lee, 5, 1890, (Atkinson).

Peronospora Arthuri, Farlow.

On Enothera laciniata, Lee (Œ sinuata) (Atkinson).

Peronospora Lamii (Al. Braun) DeBary.

On Lamium amplexicaule, Lee, 1, 1890 (R. S. Edwards).

Peronospora parasitica (Pers.) Fr.

On Brassica oleracea (young plants from seed-bed), Mobile, 3, 1896 (Reese).

On Lepidium Virginicum, Lee (Atkinson).

Peronospora Seymourii Burrill.

On Houstonia patens, Lee, 3, 1896.

Peronospora plantaginis Underw.

On Plantago aristata, Lee, 5, 1896. Described from Alabama material in Bull. Torr., Bot. Club, 24: 83, as follows:

"Mycelium parasitic in well-defined yellow areas of the leaf, occupying the entire width and a length of 1–3 cm.; conidiophores usually solitary, long exserted, irregularly 5-6 times dichotomous; ultimate ramulae short, unequal, recurved, 4–12 μ long; conidia narrowly oval or lemon-shaped, pointed at each end, dark, almost black by reflected light, brownish violet by transmitted light, 40–44x16–18 μ. Oospore unknown.

On leaves of *Plantago aristata*, Auburn, Alabama, May, 1896. F. S. Earle."

Peronospora Violae DeBary.

On Viola tenella, Lee, 2, 1890 (Atkinson).

Plasmopara Geranii (Peck) Berl. & DeToni.

On Geranium Carolinianum, Lee, 3, 1896.

Plasmopara Halstedii (Farl.) Berl. & DeToni.

On Bidens frondosa, Lee, 8, 1890 (Atkinson).

On Gnaphalium purpureum, Lee, 6, 1890 (Atkinson in Economic Fungi, 314).

Plasmopara obducens Schroet.

On Impatiens aurea (I. pallida) Lee, 4, 1896.

Plasmopara viticola (B. & C.) Berl. & DeToni.

On Parthenocissus quinquefolius (Ampelopsis), Dallas, 5, 1896.

On Vitis sp. (various cultivated varieties), Lee (Atkinson).

On Vitis rotundifolia, Lee, 10, 1890 (Atkinson).

(FUNGI IMPERFECTI.)

Order Hyphales.

Family Mucedinaceæ.

Botrytis curta (B. & C.) Sacc. *

On Magnolia sp. (Beaumont).

Described under *Polyactis curta*, in Grevillea, 3:110, as follows:

"Minuta curta e maculis orbicularibus brunneis oriunda; floccis simplicibus vel apice lobatis; sporis subglobosis."

"Growing on orbicular brown spots; stems very short, with from one to two septa, simple or slightly divided at apex; spores subglobose, .0008 in diameter."

Cercosporella persica Sacc.

On Amygdalus persica, Lee, 9, 1890 (Atkinson); Macon, 8, 1896 (Carver).

Chromosporium fulvum (B. & C.) Sacc.*

On Peziza psammophila (Peters).

Described in Jour. Linn. Soc., 10:355, in part from Alabama material, under *Gymnosporium*, as follows:

"Effusum, tenue, sporis obovatis peroxydatis stratum pallidius membranaceum insidentibus (494)."

"On dead twigs. Hab. Alabama, No. 5,224. On Peziza psammophila B. & C., Car. Inf. on dead wood. Resembles Oidium fulvum. Spores .001 inch long, shortly pedicellate."

Microstroma Juglandis (Bereng.) Sacc.

On Hicoria alba, Lee. 4, 1890 (Atkinson in Economic Fungi, 162).

On Hicoria glabra, Lee, 4, 1896.

Monilia fructigena Pers.

On Amygdalus persica, Lee, 7, 1892 (Richards).

Monilia megalosporum (B. & C.) Sacc.

Described in Jour. Linn. Soc., 10:363, in part from Alabama material, under *Oidium*, as follows:

"Soris pulvinatis melleis, articulis ellipticis subglobosisque maximus lævibus (431)."

"On dead bark. Hab. Alabama, No. 6,094. Spores with three distinct membranes, the intermediate ones with short cylindrical connecting processes .002-.0028 inch long. Habit like that of Bactridium. The Alabama specimens are on some Polyporus."

Ovularia obliqua (Cooke) Oud.

On Rumex sp., Lee, 7, 1891 (Duggar).

Piricularia grisea (Cooke) Sacc.

On Panicum sanguinale, Lee, 7, 1891 (Newman).

On Panicum sp., Lee, 7, 1891 (Atkinson).

On Paspalum undulatum, Lee, 8, 1891 (Atkinson).

On Paspalum sp., Lee, 7, 1891 (Newman).

On Chaeticloa Italica (Setaria Germanica), Lee, 8, 1890 (Atkinson in Economic Fungi, 61).

Ramularia areola Atks.

On Gossypium herbaceum, Lee, 9, 1890 (Atkinson in Economic Fungi, 407); Macon, 8, 1896 (Carver).

Described in Bot. Gazette, 15:168, as follows: "Spots hypophyllous, rarely amphigenous, pale at first, becoming darker, 1-10mm. (mostly 3-4mm.), angular, irregular in shape, limited by the veins of the leaf, conidia in profusion giving a frosted appearance to the spots. Hyphæ hypophyllous, rarely amphigenous, fasciculate in small clusters over the spots, subnodose, older ones frequently branched below, more rarely above where they are toothed, teeth frequently unilateral when the hyphæ are curved instead of zigzag, several times septate, stouter below, hyaline, 25-75 x 4½-7 μ. Conidia oblong, usually abruptly pointed at the ends, sometimes rounded, 1-3 septate, concatenate in the early development of the hyphæ, hyaline, 14-30 x 4-5 μ."

Ramularia Liriodendri E. & E.
On Liriodendron, Lee, 10, 1895.
Ramularia macrospora Asteris Trelease.
On Aster sp., Lee, 5, 1896.
Ramularia Virgaureæ Thuem.
On Solidago sp., Lee, 7, 1891 (Duggar).
Rhinotrichum bellum B. & C. *
On dead wood (Beaumont).
Described in Grevillea, 3:108, as follows: "Vivide aurantiacum; effusum; sporis oblongo-ellipticis."
"Bright orange, forming a thin stratum; spores oblong, elliptic, .0006 long."
Rhinotrichum macrosporum Farlow.
On Gossypium herbaceum, Lee, 1891 (Atkinson).
Rhinotrichum tenellum B. & C.
On Gossypium herbaceum, Lee, 1890 (Atkinson).
Sepedonium Americanum B. & C.
On rotten wood, Peters Coll., 1:123.
This is probably only an herbarium name, as it does not appear in Notices of North American Fungi in Grevillea, and cannot be traced in Sacc. Syll. Fung. The specimen consists of a mass of sulphur-yellow spores on very rotten wood. No hyphæ are observable. The spores are light yellow, orbicular, roughened, 8-10 μ.
Sepedonium subochraceum B. & C.
On rotten wood (Peters); Lee, 7, 1896.
Described in Grevillea, 3:147, as follows: "Effusum alutaceum; sporis globosis granulatis.
"Forming a continuous tan-colored stratum; spores globose, studded with little papillæ, .0004 in diameter."
Trichothecium roseum (Pers) Link.
On Ficus carica, Lee, 10, 1891 (Atkinson).
On Amygdalus persica, Lee, 11, 1890 (Atkinson).

FAMILY DEMATIACEÆ.

Cercospora Acalyphae Peck.

On Acalypha Ostryaefolia (A Caroliniana,) Lee, 8, 1891, (Newman).

Cercospora Agrostidis Atks.*

On Agrostis sp. Lee, 7, 1891, (Duggar & Newman.

Described in Jour. Elisha Mitchell Sci. Soc. 8: (Separate: 12) as follows:

"Spots amphigenous, broadly elliptical, very light brown center with broad border of dull red brown, 3-5mm. long. Hyphae amphigenous, loosely fasciculate, tufts irregularly scattered and few in a spot, bright reddish brown, septate, nearly straight to subflexuous and sparingly toothed near apex, 40-65x31-24. Conidia hyaline, 1-7-septate, terete, straight or little curved, 10-60x2½."

Cercospora Alabamensis Atks.

On Ipomoea purpurea, Lee, 8, 1891, (Newman), Macon, 8, 1896, (Carver).

Described from Alabama specimens (l. c. 19) as follows:

"Spots amphigenous, dirty white definitely limited by dark purple or black with raised margin, 2-3mm. Hyphae amphigenous, loosely fasciculate, fascicles numerous, faintly septate, dilutely reddish brown, nearly straight, denticulate, or abruptly shouldered and promptly scarred at the angles, 50-100x4½. Conidia long, slender, straight or curved, hyaline, closely multiseptate, terete, 70-250x3-4."

Cercospora althaeina Sacc.*

On Althaea rosea, Perry, 7, 1890, (Atkinson, l. c. 28).

Cercospora althaeina Modiolae Atks.*

On Modiola multifida, Lee, 1890, (Atkinson).

Described (l. c. 28) as follows: "Spots same [as in type] but little smaller, with narrow raised margin. Hyphae amphigenous, fasciculate, fuscidulous, continuous, cylindrical, 30-70x4½. Conidia hyaline, slender and tapering to the very narrow apical portion, multiseptate, 50-100x3-4."

Cercospora anthelmintica Atks.

On Chenopodium anthelminticum, Lee, 8, 1891, (Duggar).

Described (l. c. 16) as follows: "Spots small, amphigenous, 1-3mm., white with narrow raised margin surrounded by a dark border. Hyphae epiphyllous, fasciculate, spreading, subflexuous, subnodose and profusely toothed, septate, fuliginous with faint reddish tinge, 30-100 x4½. Conidia hyaline, terete 4-10 septate, 25-100x4-4½."

Cercospora asterata Atks.*

On Aster sp. Lee, 11, 1891, (Atkinson).

Described (l. c. 18) as follows: "Spots amphigenous, about 6mm. in diameter, generally in edge of leaf, dirty grey bordered by black, exterior to this effused with reddish purple. Hyphae amphigenous, fasciculate, dull reddish brown, subhyaline at the tips, septate, geniculate, subflexuous, torulose to denticulate, minutely guttate, 70-120x4-5. Conidia hyaline, nearly cylindrical, tapering gradually to each end, septate, 30-50x3."

Cercospora atromaculans E & E.

On Cassia occidentalis, Lee, 10, 1895.

On Cassia Tora, Lee, 9, 1891, (Atkinson).

***Cercospora atramarginalis** Atks.

On Solanum nigrum (?), Lee, 1890, (Atkinson).

Described (l. c. 27) as follows: "Spots amphigenous, orbicular, 4-6mm., light brown or dirty grey with black border above. Hyphae hyphophyllous, fasciculate from stroma, short, flexuous or denticulate, continuous, faintly fuliginous, 10-30x4-4½. Conidia obclavate or cylindrical, 1-10 septate, guttulate, yellowish, 10-70x4-5."

Cercospora avicularis Wint.

On Polygonum punctatum (P acre) (?), Lee, 8, 1891, (Atkinson).

Cercospora avicularis sagittati Atks.

On Polygonum sagittatum, Lee, 10, 1891, (Duggar).

Described (l. c. 16) as follows; "Spots amphigenous, light brown with narrow elevated margin frequently bordered by reddish brown, 2-3mm. Hyphae olive brown, frequently with reddish tinge, fasciculate, septate, sometimes subgeniculate to denticulate, 70-170x4. Conidia faintly colored, septate, 100-300x3-5."

Cercospora beticola Sacc.*

On Beta vulgaris (Sugar beet), Lee, 11, 1890, (Atkinson 1, c. 14).

Cercospora Bolleanea (Thuem.) Speg.

On Ficus carica, Lee, 11, 1895; 10, 1896.

Cercospora Boehmeriae Peck.

On Boehmeria cylindrica, Lee, 11, 1891, (Atkinson).

Cercospora canescens E. & M.

On Phaseolus vulgaris, Lee, 7, 1891, (Newman).

Cercospora catenospora Atks.

On Sambucus Canadensis, Lee, 8, 10, 1891, (Atkinson).

Described (l. c. 34) as follows: "Diffused in irregular patches or over large surface of under side of leaves, giving dirty green color. Hyphæ fasciculate from stomata of leaf, divergent, 20-30 up to 75x5-6, septate, nearly cylindrical, often toothed, bearing conidia laterally as well as at the apex, olive yellowish, rarely darker and inclined to faint reddish tinge. Conidia lateral and acrogenous, concatenate or single, cylindrical when concatenate and then abruptly tapering each way to small truncate end, terete when single, more rarely somewhat clavate, dilutely olive yellowish, often guttulate, 1-6 septate, 20-100x4-5."

Cercospora Cephalanthi E. & K.*

On Cephalanthus occidentalis, (Atkinson, l. c. 35).

Cercospora ceracella Sacc.

On Prunus avium, Lee, 7, 1891 (Newman).

Cercospora cercidicola Ell.

On Cercis Canadensis, Hale, 5, 1896, Lee, 8, 1892, (Newman & Duggar).

Cercospora citrulina Cke.*

On Citrullus vulgaris (watermelon), 9, 1890, (Atkinson, l. c. 13).

Cercospora Clitoriæ Atks.*

On Clitoria mariana, Lee, 8, 1891, (Atkinson).

Described (l. c. 30) as follows: "Spots angular, rather large, 3-6mm., black or nearly black above, brown below.

Hyphae epiphyllous, fuliginous, short, projecting but little above the tuberculate stroma, 5-10 long. Conidia long, slender, terete, faintly colored, straight or curved, several times septate, 50-70x3."

Cercospora consociata Wint.

On Ruellia ciliosa, Lee, 7, 1896.

Cercospora crinospora Atks.*

On Rhyncospora glomerata, Lee, 8, 1891, (Atkinson).

Described (l. c. 26) as follows: "Hyphae fasciculate, 3-6 in a tuft, undulate, sparingly toothed and nearly hyaline at apex, dark brown for nearly the entire length. Conidia very slender, straight, terete, hyaline, 4-6 septate, 20-60x1½-2."

Cercospora cruenta Sacc. (*C. Dolichi E. & E.*)

On Dolichos sinensis, Lee, 7, 1891, (Duggar), Macon, 10, 1896, (Carver), Perry, 7, 1881, (Atkinson).

Cercospora Cucurbitae E. & E.

On Cucurbita sp. (dish-rag squash), Lee, 1890, (Atkinson).

On Lagenaria vulgaris, Lee, 9, 1891, (Duggar).

Cercospora Davisii E. & E.

On Melilotus alba, Macon, 8, 1896, (Carver); Perry, 7, 1890, (Atkinson, l. c. 28).

Cercospora depazeoides (Desm.) Sacc.

On Sambucus Canadensis, Lee, 9, 1890, (Atkinson).

Cercospora Desmodii E. & K.*

On Meibomia mollis, (Desmodium), Lee, 1890, (Atkinson l. c. 21).

On Meibomia sp., Perry, 7, 1890, (Atkinson l. c. 21).

Cercospora Diodiæ Cke.

On Diodia teres, Lee, 7, 1891, (Newman & Duggar).

Cercospora Diodiæ-virginianæ Atks.

On Diodia Virginiana, Lee, 9, 1891, (Duggar).

Described (l. c. 26) as follows: "Spots amphigenous, brown or dirty white with a broad, ill-defined purple border above, 2-5mm. Hyphae amphigenous, fasciculate, tufts numerous, fuliginous, nearly straight, denticulate, 40-250x4-5. Conidia hyaline, stout at base, tapering to a long, slender apical portion, multiseptate, 80-350x4."

Cercospora Diospyri Thuem.

On Diospyros Virginiana, Lee, 9, 1891, (Duggar).

The variety C. Diospyri ferruginosa Atks. seems to be only the fully matured form of the fungus. See Miss. Agr. Exp. Sta. Bull. 38 : 151.

Cercospora effusa (B. & C.) Ell.

On Lobelia amoena, Lee, 10, 11, 1891, (Atkinson).

Cercospora Elephantopodis E. & E.

On Elephantopus tomentosus, Lee, 6, 1890, (Atkinson l. c. 23).

On Elephantopus sp. Lee, 10, 1896.

Cercospora Erechtitis Atks.*

On Erechtites hieracifolia, Lee, 11, 1891, (Duggar).

Described (l. c. 34) as follows: "On dead parts of the leaf. Hyphae epiphyllous, fasciculate, reddish brown, geniculate or scarred, in which case hyphae are cylindrical, frequently guttute, 50-240x4. Conidia hyaline, septate and guttulate, 70-230x3-4."

Cercospora erythrogena Atks.

On Rhexia mariana, Lee, 7, 1890, (Atkinson).

On Rhexia Virginica, Lee, 10, 1890, (Atkinson).

Described (l. c. 33) as follows: "Hypophyllous, spots indefinite, usually reddening the leaf above, giving dirty appearance to large part of under surface of leaves. Hyphae scattered, frequently creeping, often branched, septate, dull reddish brown, flexuous, denticulate, 50-70x4-5. Conidia slender, usually curved, longer ones terete, faintly olive brown, multiseptate and usually guttulate, 30-100x3½-4."

Cercospora flagellaris E. & M.

On Phytolacca decandra, Lee, 7, 1891, (Newman & Duggar).

Cercospora flagellifera Atks.

On Galactia pilosa, Lee, 9, 1891, (Atkinson).

Described (l. c. 19) as follows: "Spots amphigenous, suborbicular to angular, 3-4mm. or large and indefinitely limited (this may be due to the presence of other fungus), dark brown above, lighter below. Hyphae amphi-

genous, rather compactly fasciculate or spreading, reddish brown, prominently scarred and flexuous and denticulate toward tips, or cylindrical, 40-150x4-5. Conidia hyaline, very long and slender, multiseptate, 70-250x2½-3 at base."

Cercospora fuscovirens Sacc.

On Passiflora incarnata, Lee, 10, 1891, (Duggar).

Cercospora fusimaculans Atks,

On Panicum dichotomum, Lee, 8, 1891, (Duggar).

Described (l. c. 18) as follows: "Spots amphigenous, light brown bordered by dark brown, broadly fusoid or elliptical, 3-4mm. long, frequently confluent. Hyphae epiphyllous, fasciculate, olive reddish brown, straight, subgeniculate or nodulose, sparingly denticulate toward apex, septate, 50-100x4-4½. Conidia small, hyaline, 3-4 septate, tapering little toward each end, 25-40x2."

Cercospora Galii E. & Hol.*

On Galium pilosum punctulosum, Lee, 7, 1890, (Atkinson l. c. 21).

Cercospora gossypina Cke.

On Gossypium herbaceum, Lee, 10, 1890, (Atkinson).

Cercospora Hydrangeae E. & E.*

On Hydrangea sp. (cult.), Lee, 1890, (Atkinson).

Herbarium name given by Ellis to Alabama specimens. Described by Atkinson (l. c. 20) as follows: "Spots large, angular, limited by veins, blackish above, frequently becoming whitish in center, light brown below. Hyphae amphigenous, fasciculate from tuberculate base, olive brown with dull reddish tinge in age, subgeniculate and denticulate, 40-70x3-4½. Conidia hyaline, long, slender, terete, curved, multiseptate, 70-150x3-4."

Cercospora Hydrocotyles E. & E.

On Hydrocotyle umbellata, Lee, 8, 1891, (Duggar).

Cercospora Jatrophae Atks.*

On Jatropha stimulosa, Lee, 7, 1890, (Atkinson).

Described (l. c. 32) as follows: "Spots indefinite, at first yellowish above and dirty yellow below from hyphae first developing below; when badly attacked and old, hyphae

are amphigenous and then the spots dirty grey with indefinite yellow border. Hyphae fasciculate from yellowish brown stroma, dilutely yellowish brown, short, subflexuous, 10–20x3. Conidia long and slender, hyaline or subhyaline, 5–12 septate, tapering little to distal end, 50-100x1½–2."

Cercospora Jussiaeae Atks.

On Jussiaea decurrens, Lee, 9, 1891, (Atkinson).

On Jussiaea leptocarpa, Lee, 9, 1891, (Duggar).

Described (l. c. 18) as follows: "Epiphyllous, small white spots surrounded by indefinite reddish purple border. Hyphae fasciculate, reddish, septate, geniculate and denticulate toward the apex, 40–120x4–4½. Conidia hyaline, obclavate, 3-10 septate, 100-150x4."

Cercospora leucosticta E. & E.

On Melia Azederach, Lee, 11, 1895.

Cercospora Liquidambaris C. & E.

On Liquidambar styraciflua, Lee, 10, 1891, (Atkinson); Macon, 10, 1896; (Carver).

Cercospora Liriodendri E. & Hark.

On Liriodendron tulipifera, Lee, 7, 1891, (Newman).

Cercospora Lobeliae K. & S.

On Lobelia sp. Lee, 10, 1891, (Atkinson).

Cercospora Ludwigiae Atks.

On Ludwigia alternifolia, Lee, 9, 1891, (Atkinson).

Described (l. c. 26) as follows: "Spots amphigenous, subcircular, irregular, reddish brown or purple, sometimes with white in center, 1-3 mm. Hyphae epiphyllous, densely fasciculate from tuberculate base, short, olive brown or faintly fuliginous, straight or flexuous, 20-30x4-5. Conidia slender, terete, straight or curved, sometimes guttulate, 3-10 septate, faintly colored, 25-100x2½-3."

Cercospora macroguttata Atks.

On Chrysopsis graminifolia, Lee, 8, 1891, (Atkinson).

Described (l. c. 32) as follows: "Hypophyllous forming small oval or larger narrowly oblong patches, olive brown in color, from the profusion of the development of the fungus. Hyphae long, flexuous, geniculate, sparingly toothed

near apex, multiseptate and multiguttulate with large guttulae, dark brown in age with olive tinge, growing tips and young ones decided olive green tinge, 100-250x5-6. Conidia nearly cylindrical, very narrowly terete-fusoid, dilutely olive green, 3-8 septate, 10-80x4½-5."

Cercospora Mali E. & E.*

On Pirus malus, Lee, 9, 1890, (Atkinson, l. c. 23.)

Cercospora moricola Cke.*

On Morus sp. Lee, (Atkinson. l. c. 11.)

Cercospora Nymphaeae E. & E.

On Castalia odorata (Nymphaea), Lee, 9, 1891, (Duggar).

Cercospora occidentalis Cke.

On Cassia occidentalis, Lee, 9, 1891, (Duggar); Macon, 10, 1896, (Carver).

Cercospora omphakodes E. & Hol.*

On Phlox Floridana, Lee, 6, 1890, (Atkinson, l. c. 10).

Cercospora pachyspora E. & E.

On Peltandra sagittaefolia (P. alba), Lee, 7, 1890, (Atkinson).

Cercospora papillosa Atks.*

On Verbena sp. (cult.), Lee, 12, 1891, (Atkinson).

Described (l. c. 20) as follows: "Spots orbicular or irregular, sometimes in edge of leaf, dirty white, 2-5mm. Hyphae amphigenous, fasciculate, nearly straight, denticulate to papillate, the scars sometimes being on minute protuberances. In some cases I have seen them several in a whorl, reminding one of the appearance of some sexual shoots of some algae of the family Lemaneaceae, fuliginous with very faint brick red tinge, 50-70x4-5. Conidia hyaline, long, rather stout at base, usually tapering rather abruptly into slender, thread-like apical portion, multiseptate, sometimes faintly so, 80-200x4-4½ at base.

Cercospora Penstemonis E. & K.

On Penstemon pubescens, Lee, 4, 1892, (Atkinson).

Cercospora personata (B. & C.) Ell.

On Arachis hypogea, (Beaumont) in Rav. F. Car. Exs. 3:85, (under Cladosporium).

On Arachis hypogea, Lee, 9, 1891, (Atkinson).

Cercospora Petersii (B. & C.) Atks.

On Smilax glauca, Lee, 12, 1891, (Atkinson).

On Smilax laurifolia, Lee, 3, 1896.

In *Helminthosporium Petersii* B. & C. (Grevillea 3:102) Berkley evidently confused two very different fungi, and it may be a question which is entitled to the specific name. Under the description, he cites first specimens on Smilax from So. Car., and, second, specimens on Laurus Benzoin from Ala.; but in naming the species after the collector of the Alabama specimens he seems to imply that he considers that the type of the species. Unfortunately the brief description does not help us to decide the question. As priority on the page favors the other supposition, we concur with Atkinson in writing the name for the form on Smilax as above. A single fragment on a leaf preserved in the Peters Collection (1:142) under this name seems without question to be the well known *Isariopsis Linderae* (E. & E.) Sacc., but unfortunately the hyphae and spores are entirely worn away so that positive identification is impossible.

Cercospora pinnulaecola Atks.

On Cassia nictitans, Lee, 10, 1891, (Duggar).

Described (l. c. 32) as follows: "Diffuse, hypophyllous, giving dirty appearance to under surface of the pinnules, which are usually paled above. Hyphae in loose tufts distributed over the affected area, reddish brown, septate, minutely guttulate, irregularly flexuous, geniculate and profusely denticulate, 100-200x4½. Conidia, obclavate, hyaline, multiseptate and multiguttulate, 50-150x4-5."

Cercospora polygonacea E. & E.

On Polygonum scandens, Lee, 10, 1891, (Duggar).

Cercospora purpurea Cke.

On Persea palustris, Lee, 4, 1896.

Cercospora rhuina C. & E.

On Rhus copallina, Lee, 11, 1895.

On Rhus glabra, Lee, 8, 1891, (Newman & Duggar).

On Rhus toxicodendron, Lee, 6, 1890, (Atks).

On Rhus vernix (R. venenata), Macon, (Atks).

Cercospora richardiæcola Atks.

On Richardia Africana, Lee, 9, 1891, (Atkinson).

Described (l. c. 19) as follows: "Spots amphigenous, black with small white center and concentric lines, suborbicular, 2-6mm. Hyphae epiphyllous, fasciculate, faintly fuliginous when young with reddish tinge, reddish brown with age, usually straight but sometimes geniculate or subflexuous to denticulate toward apex, 10-80x5. Conidia hyaline, obclavate, 4-10 or more septate, 50-100x3-4."

Cercospora rigospora Atks.

On Solanum nigrum, Lee, 7, 1890, (Atkinson).

Described (l. c. 33) as follows: "Spots indefinite or absent, but parts of leaf affected usually obscurely yellowish above. Hyphae hypophyllous, fasciculate, divergent, in sooty patches sometimes very indistinct, or distributed over large areas, fuliginous with olive tinge, subflexuous, denticulate or torulose, longer ones faintly septate and multiguttulate, 50-60x3½-4. Conidia straight or curved, subcylindrical, abruptly tapering at each end or terete, 3-10-septate, multiguttulate, dilutely olive yellow, 50-70x3-4."

Cercospora Rubi Sacc.

On Rubus cuneifolius, Lee, 8, 1890, (Atkinson).

Cercospora Sagittariae E. & K.*

On Sagittaria latifolia (S. variabilis), 7, 1891, (Duggar & Newman, l. c. 29).

Cercospora Saururi E. & E.*

On Saururus cernuus, Montgomery, 7, 1890, (Atkinson, l. c. 22).

Cercospora seriata Atks.

On Sporobolus asper, Lee, 7, 8, 1891, (Newman & Duggar),

Described (l. c. 27) as follows: "Spots amphigenous. cinereous with definite brown border margined by indefinite yellow, irregularly oblong, sometimes confluent. Hyphae epiphyllous, fasciculate, faint reddish brown, in age darker, flexuous and toothed, 20-50x4, tufts in parallel

rows. Conidia hyaline, nearly cylindrical, straight or curved, faintly 2-6 septate, 30-70x3-3½."

Cercospora Setariae Atks.

On Chaetochloa glauca, Lee, 9, 1891, (Duggar).

Described (l. c. 18) as follows: "Spots amphigenous, dark with indefinite pale border, elliptical. Hyphae epiphyllous, dull reddish brown, fasciculate, sometimes very dense, others divergent, sometimes branched from near the base, septate, with a few small guttulae, scars small, giving denticulate appearance near apex, 50-100x4½-5. Conidia hyaline, 1-pluriseptate, cylrindical or obclavate, straight or curved, 20-150x4-5."

Cercospora Silphii E. & E.*

On Silphium compositum, Lee, 6, 1890, (Atkinson, l. c. 28).

Cercospora smilacina Sacc.?

On Smilax sp. Lee, 5, 1896.

There seems to be much confusion as to the forms of Cercospora on Smilax leaves and these specimens are determined as above with considerable doubt.

Cercospora solanicola Atks.*

On Solanum tuberosum, Lee, 6, 1890, (Atkinson).

Described (l. c. 21) as follows: "Spots small, dark border, or indeterminate on dead areas of the leaf. Hyphae fasciculate, olive brown with faint reddish tinge, straight to flexuous or geniculate toward apex, 3-5 septate, 40-120x5. Conidia hyaline, terete, obtuse, 10-30 septate, 100-230x4-5."

Cercospora sordida Sacc.

On Tecoma radicans, Lee, 9, 1891, (Atkinson).

Cercospora Sorghi E. & E.

On Sorghum halapense, Macon, 8, 1896, (Carver).

Cercospora Stylismae Tracy & Earle.

On Breweria humistrata (Stylisma), Lee, 7, 1896.

Cercospora Tephrosiae Atks.

On Cracca hispidula (Tephrosia), Lee, 9, 1891, (Atkinson).

Described (l. c. 12) as follows: "Spots amphigenous, small, angular or suborbicular, 1-2mm., elevated, blackish brown. Hyphae epiphyllous, fasciculate, fascicles crowded,

reddish, flexuous or dentate, 50-100x4½-5. Conidia obclavate, subhyaline and tinge of same color as hyphae, 5-8-septate, usually straight, 70-130x4-4½."

Cercospora tessellata Atks.*

On Eleusine Aegyptiaca, Lee, 11, 1891, (Atkinson).

Described (l. c. 27) as follows: "Spots indefinite above, usually narrowly oblong, nearly black below with bluish tinge caused by numerous black tufts and bluish cast of tissue affected. Hyphae hypophyllous, densely fasciculate, fuliginous, short, 10-12x2½-3, denticulate, tufts in longitudinal and usually transverse rows, giving a checkered appearance to the group. Conidia slender, hyaline, terete, curved, septate, 50-90x2-2½."

Cercospora Thaspii E. & E.

On Angelica villosa (A. hirsuta), Lee, 7, 1890, (Atkinson).

Cercospora Tropaeoli Atks.

On Tropaeolum sp. (cult.), Lee, 9, 1891, (Atkinson).

Described (l. c. 27) as follows: "Spots amphigenous, very light brown with narrow elevated margin above, suborbicular, 2-4mm. Hyphae epiphyllous, few in a cluster, stout, short, faintly fuliginous, 20-40x5, dentate. Conidia hyaline, rather stout at base and quickly tapering into long, slender apical portion, reminding one of *C. flagellaris*, multiseptate, 50-100x3½-4½ at base."

Cercospora truncatella Atks.*

On Passiflora incarnata, Lee, 8, 1891, (Atkinson).

Described (l. c. 12) as follows: "Spots amphigenous, suborbicular, whitish with narrow light brown border, 2-4mm. Hyphae amphigenous, fasciculate, reddish brown, septate, geniculate or nearly straight, conidial scars distributed along at geniculations, 70-250x4-5. Conidia hyaline, faintly septate, tapering very gradually from truncated base to obtuse apex, rarely rounded at base, 50-150x3½-4."

Cercospora tuberosa E. & K.

On Apios Apios (A. tuberosa), Macon, 8, 1896, (Carver).

Cercospora Vernoniae E. & K. (?)

On Vernonia noveboracensis, Lee, 8, 1891, (Atkinson).

Cercospora Violae Sacc.

On Viola odorata, Lee, 7, 1891, (Atkinson).

On Viola villosa, Lee, 5, 1892, (Duggar).

Cercospora viticola (Ces.) Sacc.

On Vitis sp. (cult), Lee, 1891, (Newman).

Cercospora Zinniae E. & M.

On Zinnia multiflora, Lee, 1890, (Atkinson).

Cladosporium fulvum Cooke.

On Lycopersicum esculentum (tomato), Lee, 10, 1895; Macon, 8, 1896, (Carver).

Cladosporium graminum Corda.

On Chrysopogon nutans, Lee, 9, 1891, (Duggar).

On Avena sativa, Lee, 1, 1891, (Newman).

Cladosporium herbarum (Pers.) Link.

On Ficus carica (mummied fruits still hanging on tree), Lee, 2, 1896.

On Zea mays, Lee, 6, 1891, (Newman).

Cladotrichum scyphophorum Corda. (?)

Peters Coll. 1:124.

This seems to be a good *Cladotrichum*, but the specific determination is very doubtful. There is nothing to indicate who made the determination. The enlarged ends of the hyphal cells at length collapse and become goblet-shaped, but the fungus forms a dark purplish black confluent mass, and the spores are dark fuscous, very obtuse, flattened at the ends, formed concatenately, about 12x8u.

Coniosporium Arundinellae Ell. & Tracy.

On Arundinaria tecta, Lee, 12, 1888, (Newman).

Coniosporium Arundinis (Corda) Sacc.

On Saccharum officinarum, Macon, 8, 1896, (Carver).

Coniosporium gramineum (E. & E.) Sacc.

On Arundinaria tecta, Lee, 1891, (Atkinson).

Fusicladium pirinum pyracanthae Thuem.

On Crataegus pyracantha, Lee, 9, 1891, (Atkinson in Ellis, N. A. F. 2792).

Glenospora Curtisii Berk & Desm.

On Nyssa (living bark), Lee, 1, 2, 1896.

Helicosporium pulvinatum (Nees) Fr.

On rotten wood, Lee, 3, 1896.

Tentatively determined as above by Mr. A. P. Morgan.

Helminthosporium Beaumonti Sacc.* (*H. dubium, B. & C.*)

On Viburnum, (Beaumont).

Described in Grevillea, 3:104, as follows: "Molle; floccis brevibus obtusis basi divaricato-divisis; sporis oblongis, 7-septatis."

"Flocci short, divided in a divaricate manner at the base, obtuse; spores oblong, with about seven septa, .0016 long. There is occasionally a single vertical septum."

Helminthosporium interseminatum B. & Br.

On Sambucus Canadensis, Lee. 11, 1891, (Atkinson).

On Solidago sp. Lee, 9, 1891, (Atkinson).

Helminthosporium Leersiae Atks.

On Homalocenchrus Virginicus (Leersia Virginica), Lee, 9, 1891, (Atkinson).

No description has been found of this species. It may be only an herbarium name.

Helminthosporium macrocarpum Grev.

On dead twigs, 2, 1896.

Helminthosporium macrocarpum caudatum B. & Br.

On dead twigs, Lee, 1, 1896.

Helminthosporium Ravenelii B. & C.

On Sporobolus Indicus, Lee, 6, 1890, (Atkinson); Macon, 10, 1896, (Carver).

Helminthosporium turcicum Pass.

On Sorghum halapense, Lee, 7, 1890, (Atkinson).

Heterosporium Sambuci Earle.

On Sambucus Canadensis, (dead stems), Lee, 3, 1896.

Described in Bull. Torr. Bot. Clbb, 23:30, as follows: "Effused, covering considerable areas with a black, velvety tomentum; hyphae long, 100-200 μ, dark fuscous, erect, often fascicled, branching, septate, nodular, bearing spores pleurogenously at the enlarged nodes; spores oblong, dark fuscous, 3-septate, surface conspicuously roughened by minute tubercles, about 20-30x5 μ."

Macrosporium antennaeforme B. & C.*

On leaves of Celtis sp. (Peters).

Described in Grevillea, 3:105, as follows: "Floccis brevibus, sporis torulosis elongatis deorsum attenuatis plurisseptatis."

"Threads short, sometimes acute, sometimes dilated at the apex and fertile; spores attenuated below, elongated above, 12-18 septate torulose; occasionally they are shorter, more obtuse, with a few vertical septa. Two spores are sometimes formed at the two angles of the wedge-shaped terminal joint."

Macrosporium Brassicae Berk.

On Brassica oleracea (cabbage), Washington, 7, 1896.

Macrosporium Catalpae E. & M.

On Catalpa Catalpa (C. bignonoides), Macon, 10, 1896, (Carver).

Macrosporium Cheiranthi (Lib.) Fr.

On Rosa sp. (Beaumont), in Grevillea, 3:105.

Macrosporium Cookei Sacc.

On Datura Stramonium, Lee, 8, 1891, (Duggar).

Macrosporium Iridis C. & E.

On Iris sp., Lee, 8, 1891, (Duggar).

Macrosporium leguminum Cooke.

On pods of Dolichos sinensis, Macon, 8, 1896, (Carver).

Macrosporium nigricantium Atks.

On Gossypium herbaceum, Lee, 1891, (Atkinson); Macon, 8, 1896, (Carver).

Described in Bot. Gazette, 16:62, as follows: "The hyphae are amphigenous, subfasciculate or scattered, .050-.140mm. long x .006-.007mm. in diameter, nodulose, septate, olive brown. Conidia .018-.022mm. x .036-.050mm. strongly constricted about the middle, stoutly rostrate at one side of the apex, smooth, transversely, longitudinally and obliquely septate, olive brown. The nodulose hyphae resemble those of such species as M. parasiticum Thuem."

Macrosporium Ravenelii Thuem. (?).

On Meibomia mollis, (Desmodium), Lee, 3, 1896.

Macrosporium stilbosporoideum B. & C.

On leaves of Crataegus sp. (Beaumont).

Described in Grevillea, 3:105, as follows: "Floccis brevissimis, quandoque obsoletis; sporis obvatis fenestratis."

"Mycelium creeping; fertile branches very short or obsolete; spores obovate, with about three transverse and several vertical divisions, resembling those of Stegonospora, Cd., .001-.0013 long, about two-thirds as much broad, with a short pedicel."

Periconia pycnospora Fr.

On Dolichos sinensis, Lee, 12, 1890, (Atkinson).

Polythrincium Trifolii Kunze.

On Trifolium reflexum, Lee, 5, 1896.

Scolecotrichum Euphorbiae Tracy & Earle.

On Euphorbia nutans, Lee, 9, 1896; Macon, 8, 1896, (Carver).

Scolecotrichum Graminis Fckl.

On Arundinaria tecta, Lee, 10, 1891, (Duggar).

Septonema spilomeum Berk.

On Quercus, (Beaumont), Rav. Fung. Car. Exsce. 4:87.

Streptothrix atra B. & C.

On Juniper, (Peters).

On dead wood, Lee, 11, 1895.

Described in part from Alabama specimens in Grevillea, 3:107, as follows: "Floccis parce articulatis sursum ramosis crenulato-flexuosis; sporis globosis vel subellipticis inquinantibus."

"Threads branched above, repeatedly undulated, with short constrictions; spores globose or subelliptic, abundant, falling off as a black powder."

Zygodesmus fuscus Corda.

Peters Coll. 3:67.

Family Stilbaceæ.

Isaria radiata B. & C.*

On pine wood, (Peters). This species is not given by Saccardo.

Described in Grevillea, 3:62, as follows: "Prostrata radians albida receptaculis filiformibus obtusiusculis; sporis globosis."

"Forming little patches on the wood, consisting of radiating, filiform, rather obtuse, whitish receptacles, which become yellowish when dry, simple, except at the base, composed of jointed threads, which towards the base are less closely compacted and without septa; spores globose, .0002 in diameter."

Isariopsis Linderæ (E. & E.) Sacc.

On Benzoin Benzoin, Peters' Coll. 142, under *Helminthosporium Petersii* B. & C. (See note under *Cercospora Petersii* [B. & C.] Atks.)

FAMILY TUBERCULARIACEÆ.

Fusarium Alabamense Sacc.*

On dead bark (Beaumont).

This was described in Grevillea, 3:98, under *F. erubescens B. & C.*, but as this name was preoccupied Saccardo (Syll. Fung. 4:722) renamed it as above.

The original description is as follows: "Punctiforme pallide roseum demum albidum tomentosum; sporis minutissimis."

"Scattered or arranged in lines, pale rose-colored, becoming nearly white, tomentose; spores extremely minute."

Fusarium cinnabarinum (B. & C.) Sacc.

On Acer Negundo, (Peters), Grevillea, 3:146.

On Carpinus Caroliniana, (Peters), Rav. Fung. Car. 3:80.

Originally described under *Fusisporium* as follows: "Effusum, demum crustaceum, cinnabarinum: sporis breviori-bus quadrinucleatis."

"Forming a continuous stratum, which in drying cracks up into detached portions: spores short with four nuclei."

Fusarium helotioides B. & C.*

On Ilex decidua (I. prinoides), (Peters).

Described in Grevillea, 3:98, as follows: "Disco con-

vexo carneo quandoque brevissime stipitato; sporis minutissimis."

"Disc convex, flesh colored, occasionally with a very short stem; sometimes two or three burst through the bark together; spores even smaller than in the last." [*F. microspermum.*]

Fusarium marginatum B. & C.*

On stems of Smilax (Beaumont).

Described in Grevillea, 3:97, as follows: "Disco carneo, albo-marginato; sporis minutis oblongis."

"Disc flesh-colored, with a narrow white margin; spores oblong, minute."

Fusarium miniatum (B. & C.) Sacc.

On pine wood, (Peters), Grevillea, 3:147.

On Vitis rotundifolia, Lee, 3, 1896.

Described under *Fusisporium* in part from Alabama specimens as follows: "Effusum miniatum; sporis brevioribus quadrinucleatis."

"Differs from the last [*F. cinnabarinum*] in its much brighter color; the spores are the same." In our specimens on *Vitis* the spores are uniseptate, constricted at the middle, somewhat curved, about 25x4 μ.

Fusarium sarcochroum (Desm.) Sacc.

On Melia Azederach, Lee, 8, 1891, (Newman).

Fusarium Solani Mart.

On Solanum tuberosum, "Athens," 7, 1890, (Newman).

Fusarium vasinfectum Atks.

On Gossypium herbaceum, Lee, 7, 1891, (Atkinson).

Described in Ala. Agr. Exp. Sta. Bull. 41:19-29. The following is condensed from the above: "Causing the disease of cotton called 'Frenching,' infesting the ducts and staining the fibro-vascular system light brown; threads of the parasite colorless when young, with age bright yellow, 2-4 μ in diameter; minute spores found in the ducts 1-2x 2-4 μ—spores obtained in cultures vary from 2-4½x4-4 μ, continuous or 1 to 4 or 5 septate according to length, minute ones narrowly oval, with increasing length in equilateral

and curved, colorless, faintly granular, frequently one to several vacuoles according to size, short ones usually with one end rounded, opposite end rather sharply pointed, longer spores tend to be pointed at both ends when mature."

Illosporium minimum E. & E.*

On rotten wood, (Atkinson).

Described from Alabama material in Proc. Acad. Nat. Sci. Phil. 1893 : 465, as follows: "Sporodoche minute, 76-85μ in diameter, very short stiped or subsessile, white becoming yellowish; hyphae septate, 2-3 times dichotomous; spores biconic, 5-6μ in diameter."

Microcera coccophila Desm.

On Quercus nigra (Q. aquatica), Lee, 11, 1891, (Atkinson)

Myrothecium verrucaria (Alb. & Schw.) Ditm.*

On grass, (Beaumont), Grevillea, 3 : 99.

Spegazzinia tessarthra (B. & C.) Sacc.

On Saccharum officinarum, Macon, 8, 1896, (Carver).

Tubercularia Ailanthi Cooke.

On Juglans regia, Lee, 1, 1896.

On Melia Azederach, Lee, 1, 1896.

On Ficus carica, Lee, 1, 1896 (?).

The form on Ficus varies somewhat from the others in external appearance, and it is placed here with some doubt, though the microscopic characters are much the same.

Tubercularia vulgaris Tode (?).

On Morus sp. (cult.), Lee, 1, 1896.

Determined as above with some doubt; the sporodoches are less convex and more brilliantly colored than in our specimen of this species in Thuem. Myc. Univ. 480, and the conidia average smaller. It is very different from the specimen called *T. vulgaris* in Ell. &. Ev. N. A. F. 3397, which is like the forms we have recognized as *T. Ailanthi.* The specimen in Rav. F. C. Ex. 3 : 78 on Morus, called *Fusarium lateritium* Nees, is the same as our fungus. *Fusarium lateritium* of Thuem. Myc. Univ. 375, also on Mor-

ris, in our set at least, is also a *Tuberculariа*, possibly the same as ours, though it differs somewhat in appearance.

Volutella setosa (Grev.) Berk.

On dead stems, Lee, 1891, (Atkinson).

ORDER MELANCONIALES.

Colletotrichum cladosporoides (E. & E.) Atks.

On Hypericum mutilum, Lee, 9, 1891, (Duggar).

Colletotrichum Gossypii Southworth.

On Gossypium herbaceum, Brunley, 9, 1891, (Atkinson).

Colletotricum Jussiaeae Earle.

On Jussiaea decurrens, Lee, 8, 1891, (Atkinson).

Described from the above specimens in Bull. Torr. Bot. Club., 24:29, as follows: "On orbicular, yellowish white, arid, purple bordered spots, 2-10mm. in diameter; ascervuli scattered, not erumpent, small, about 100μ; setae few, brown, transparent, occasionally septate, obtuse, mostly straight, from a somewhat enlarged base, about 70-100μ; conidia cylindrical or somewhat clavate, ends obtuse, continuous, irregularly guttate, 18-20x6-8μ."

Colletotrichum Lindemuthianum(Sacc. & Magnus)Scribner.

On Phaseolus vulgaris, Lee, 8, 1891, (Newman).

Coryneum disciforme ellipticum B. & Br.

On Betula nigra, Lee, 4, 1896.

Coryneum microstictum B. & Br.

On Rosa sp. (Peters). Mentioned in Grevillea, 2:153.

Cylindrosporium Celtidis Earle.

On Celtis sp. Montgomery, 11, 1891, (Atkinson).

Described from these specimens in Bull. Torr. Bot. Club, 24:29, as follows: "Spots small, yellowish, indefinite and indistinct; ascervuli hypophyllous, scattered, often only one on a spot, yellowish brown; spores clyindrical or clavate, guttate, at length obscurely several septate, 20-25x3μ."

Cylindrosporium Padi Karst.

On Prunus serotina, Lee, 8, 1891, (Newman & Duggar); Macon, 8, 1896, (Carver).

On Prunus sp. (cultivated plum), Lee, 7, 1890, (Atkinson in Econ. Fungi, 431).

Cylindrosporium saccharinum E. & E.

On Acer rubrum, Lee, 10, 1891, (Duggar).

Cylindrosporium ulmicolum E. & E.

On Ulmus Americana, Lee, 10, 1891, (Duggar).

Gloeosporium fructigenum Berk.

On Pirus malus, Lee, 8, 1891, (Atkinson).

On Vitis sp. (cultivated grapes), Washington, 7, 1896.

Gloeosporium lagenarium foliicolum E. & E.

On Citrulla vulgaris, Washington, 7, 1896.

Melanconium oblongum Berk.

On Juglans cinerea, (Peters).

Described in part from Alabama specimens in Grevillea, 2:153, as follows: "Pustulis elevatis late conicis tectis; sporis oblongis."

"Spores .0008 long, with an oil globule, one side curved. A very different plant from *Stilbospora ovata*, which also occurs on walnut."

Myxormia atroviridis B. & Br.*

On Rubus, (Beaumont), Grevillea, 3:100.

Pestalozzia annulata B. & C.

On Ilex sp. (Beaumont).

Described from Alabama specimens in Grevillea, 2:155, as follows: "Pustulis punctiformibus mucula alba fusco-cincta oriundis; epidermide centro excepta tectis annulatis; sporis fusiformibus 2-3 septatis."

"Pustules punctiform, perforated in the centre, covered with the cuticle, and surrounded by a black ring, springing from a large marginal white spot with a brown border; spores fusiform, bitriseptate .002 long, with a pedicel of the same length, attenuated downwards. Quite distinct from the last species." [*P. stellata* B. & C. on Ilex opaca.]

Pestalozzia concentrica B. & Br.

On Castanea pumila, (Beaumont).

On Crataegus sp. (Beaumont).

On Cydonia vulgaris, Washington, 7, 1896.

Described in part from Alabama specimens in Grevillea, 2:156, as follows: "Pustulis concentricis e macula pallida oriundis; sporis triseptatis, utplurimum monochaetis."

"Pustules concentrically arranged in the more typical form on a pallid or white spot; spores rather variable in form, about .001 long, with, in general, a single oblique process at the apex, more rarely with a three headed crest. The process is sometimes quite horizontal. Nearly allied to *P. monochaeta* Desm."

Pestalozzia flagellata Earle.

On Quercus sp. Lee, 8, 9, 1891, (Duggar).

Described from the above specimens in Bull. Torr. Bot. Club, 24:30, as follows: "Epiphyllous on large, orbicular or irregular, brown spots, bordered by a narrow darker brown line: ascervuli confined to a definitely limited, central, pallid area, usually elongated, seeming to follow the smaller veins, rimosely dehiscent: spores blackening the epidermis, fusoid, 4-septate, not constricted, three central cells dark fuscous, end cells hyaline, about 16x6μ stipe: straight, slender, about equalling the spore, the single seta or flagellum bent at an abrupt angle, and prolonged nearly twice the length of the spore, reaching 28 μ."

Pestalozzia stictica B. & C.*

On Tilia sp. (Beaumont).

Described in part from Alabama specimens in Grevillea, 2:155, as follows: Pustulis minutissimus; sporis subdoliiformibus biseptatis."

"Pustules very minute; spores swollen in the middle, with two septa, exclusive of those which separate the highly developed crest and the short pedicel. The dark part is .0006 long and almost as wide."

Steganosporium irregulare (B. & C.) Sacc.*

On Betula sp. (Beaumont).

Described under *Coryneum* from Alabama specimens in Grevillea, 2:154, as follows: "Pustulis elevatis distinctis; sporis obovatis 4-6-septatis; endochromatibus verticaliter divisis; pedicellis tenuissimus."

"Pustules distinct, raised; spores large, .002 long, obovate, attenuated below, 4-6 septate, the lower divisions very narrow, and gradually passing into the short very slender stem, the endochrome divided vertically, each division containing a single globose nucleus."

ORDER SPHAEROPSIDALES.

FAMILY SPHAERIOIDEACEAE.

Actinonema Rosae (Lib.) Fr.

On Rosa sp. (cult), Lee, 12, 1891, (Atkinson).

Aposphaeria Petersii (B. & C.) Sacc.*

On wood, (Peters).

Described in Grevillea, 2:81, under *Phoma*, as follows: "Erumpens, demum superficiale, hysteriiforme in lignum dealbatum situm, sporis ellipticis, binucleatis."

"Scattered, hysteriform, erumpent, then free; spores elliptic, .0003 long, with two nuclei. Distinct from *Phoma epileucum* B., in which the spores are .00015 long, and not so elliptic."

Botriodiplodia Ailanthi (Cooke) Sacc.

On Ailanthus, Lee, 1, 1896.

Cicinnobolus Cesatii De. By.

On Erysiphe (on Ambrosia), Lee, 7, 1890, (Atkinson).

On Microsphaera Grossulariae, Lee, 10, 1891, (Atkinson).

Coniothyrium concentricum (Desm.) Sacc.

On Yucca sp. (Peters), Grevillea, 2:82.

On Yucca filamentosa, Lee, 7, 1891, (Newman & Duggar).

Cornularia Persicae (Schw.) Sacc.

On Amygdalus persica, Lee, 5, 1896.

A peculiar form of this species in which the exuded spores remained crowning the stipe like a slender perithe-

cium was, in error, described as *Isariopsis pilosa* Earle in Bull. Torr. Bot. Club, 24:30. Examination of additional material clearly shows the error.

Cytospora grandis Peck.

On Rhus. sp. Lee, 3, 1896.

Cytospora Persicae Schw.

On Amygdalus persica, Lee, 9, 1896.

Darluca Filum (Biv.) Cast.

On Puccinia Pruni-spinosae (on peach), Lee, 8, 1891, (Duggar).

On Uredo (on Andropogon), Lee, 8, 1891, (Newman and Duggar).

On Tea, (Beaumont), Grevillea, 2 : 179.*

Diplodia herbarum (Corda) Lev.

On Lactuca sp., Lee, 5, 1891, (Atkinson).

Diplodia macrospora Earle.

On Zea Mays (old weathered stalks), Lee, 3, 1896.

Described in Bull. Torr. Bot. Club, 24 : 29, as follows: "Perithecia scattered, large, carbonaceous, buried, ostiole erumpent, elevating and rupturing the epidermis; spores very long, dark fuliginous, irregularly clavate, on short, slender hyaline basidia, unequally uniseptate, scarcely constricted, each cell often biguttate, oozing out and blackening the epidermis, 70-80x6-8μ."

Diplodia maura Cooke.

On Pirus communis, Mobile, 1890, (Atkinson).

Diplodia Maydis (Berk.) Sacc.

On Zea Mays (old weathered stalks), Lee, 1, 1896.

Dothiorella macrospora (B. & C.) Sacc.*

On Magnolia glauca (Peters).

Described in part from Alabama material in Grevillea, 2 : 181, under *Sphæropsis*, as follows: "Peritheciis in massam communem congestis; sporis elongatis subfusiformibus."

"Perithecia crowded into a common mass, which is flattened above; spores elongated, subfusiform, with one side less curved, or slightly clavate, enucleate, .001-0016."

Hendersonia Cydoniæ Cke. & Ell.

On Cratægus flava (?), Lee. 8, 1890, (Atkinson).

Hendersonia Donacis Sacc.

On Erianthus sp., Lee, 11, 1891, (Duggar).

Hendersonia effusa B. & C.

On Aristida purpurascens, Lee, 10, 1891, (Atkinson).

Macrophoma Diospyri Earle.

On Diospyros Virginiana (green fruits), Lee, 7, 1896.

Described in Bull. Torr. Bot. Club, 24:30, as follows: "Thickly scattered over large indeterminate areas; perithecia buried, elevating the epidermis in prominent pustules, at length partially erumpent, surrounded by the ruptured epidermis, large, opening by a distinct ostiolum, dark brown, of soft cellular structure, reaching 200μ; spores cylindrical, sometimes slightly curved, ends abruptly pointed, faintly tinged with olive when seen in mass, contents homogeneous, not guttate nor granular, about 20x3μ; basidia thread-like, shorter than the spores, forming an agglutinated nebulous mass."

Phlyctæna vagabunda Desm.*

On Phytolacca, (Beaumont), Grevillea, 2:100.

Phoma campylospora B. & C.

On Panicum sp., Peters Coll. 113.

This seems to be a manuscript name, as it does not appear in Grevillea nor in Sacc. Syll. Fung.

Phoma chartarum B. & C.*

On white paper, (Beaumont).

Described in Grevillea, 2:83, as follows: "Sparsum e subiculo tenero byssoideo oriundum, sporis minimis."

"Perithecia scattered, each springing from some delicate radiating threads, spores very minute, .00012 long, sometimes ejected in the form of a tendril."

Phoma elongata (B. & C.) Sacc.*

On Gladiolus, (Peters).

Described under *Sphæropsis* in Grevillea, 2:181, as follows: "Peritheciis minutis nitidis sparsis ostioli brevi emergentibus; sporis subfusiformibus enucleatis; sporophoris sursum attenuatis."

"Perithecia minute, piercing the cuticle by the distinct ostiolum; sporophores attenuated upwards, spores oblong, subfusiform, .001-.0008 long, without any nucleus, one-fifth or one-sixth as much wide."

Phoma glandicola (Desm.) Lev.

On old acorns, Lee, 4, 1896.

Previously reported from this country only once before, (Proc. Indiana Acad. Sci., 1894, p. 150).

Phoma maculifera Sacc.*

On Diplopappus, (Beaumont).

Described in Grevillea, 2:83, as *P. maculare* B. & C., but as there was a previous *P. macularis* Desm., Saccardo changed the name as above. The original description is as follows: "Maculis orbicularibus bruneis immarginatis peritheciis irregularibus; sporis oblongis subcymbiformibus."

"Forming brown orbicular spots, in the centre of which are seated the irregular perithecia; spores oblong subcymbiform, .0004 long."

Phoma melaleuca B. & C.*

On Aralia spinosa, (Peters).

Described in part from Alabama material in Grevillea, 2:82, as follows: "Subcuticulare nitidum e macula albida oriundum; sporis oblongis."

"Growing on a pallid spot, subcuticular, shining; spores oblong, .0003 long."

Phoma micromegala (B. & C.) Sacc.*

On naked roots of pine, (Beaumont).

Described in Grevillea, 2:180, under *Sphæropsis*, as follows: "Peritheciis hysteriiformibus minutis nitidis; sporis ellipticis hyalinis."

"Perithecia minute, hysteriform, shining; forming little linear patches, the fibers of which are bleached; spores elliptic, with one side less arched, .001 long, hyaline, rather more than half as much wide."

Phoma uvicola B. & C.

On Vitis rotundifolia, Lee, 9, 1891, (Atkinson).

Phyllosticta Amaranti E. & K.

On Amaranthus retroflexus, Lee, 8, 1891, (Duggar).

Phyllosticta Azederachis Thuem.

On Melia Azederach, Lee, 7, 1891, (Duggar).

Phyllosticta Batatæ Thuem.

On Ipomœæ Batatas, Lee, 9, 1891, (Duggar); Macon, 10, 1896, (Carver).

Phyllosticta Catalpæ E. & M.

On Catalpa Catalpa (C. bignonoides), Hale, 5, 1896.

Phyllosticta circumvelata Winter.

On Liriodendron Tulipifera, Lee, 7, 1892, (Richards).

Phyllosticta cruenta (Fr.) Kx. (?)

On Vagnera racemosa (Smilacina), Lee, 7, 1896; Winston, 6, 1896.

This is what has been referred by American writers to this species, but it differs materially from European specimens and from the description in Sacc. Syll. Fung., 3:58, in character of spot, size of perithecia and size, shape and contents of spores. In our specimens the perithecia are about 120μ in diameter, and the spores are 10x7μ.

Phyllosticta Desmodii E. & E.

On Meibomea sp., 7, 1892, ———.

Phyllosticta glauca Cooke.

On Magnolia Virginica (M. glauca), Lee, 11, 1895.

The spores are oblong, about 6-8x2$\frac{1}{2}\mu$.

Phyllosticta Lactucæ Atks.

On Lactuca Canadensis, Lee, 6, 1891, (Newman).

Phyllosticta Bumeliæ Underw. & Earle.*

On leaves of Bumelia, (Peters).

Described in Grevillea, 3:2, under *Sphæropsis*, as follows: "Maculis candidis rufo-marginatis; peritheciis punctiformibus; sporis obovatis brevibus."

"Spots white or pallid, surrounded by a thin umber border; perithecia minute punctiform; spores shortly obovate, .0005 long, nearly as much wide." This is *Phoma maculans* (B. & C.) Sacc., but there is a *Phoma maculans* (Lev.) Sacc., and the fact that this species inhabits spots on leaves clearly places it in *Phyllosticta*.

Phyllosticta minima (B. & C.) Underw. & Earle.

On Acer rubrum, DeKalb, 5, 1896; Lee, 5, 1896; Winston 6, 1896.

This is *Sphæropsis minima* B. & C., Grevillea, 3:2, and *Phoma minima* (B. & C.) Sacc., Syll. Fung., 3:115. It seems, however, to be a good *Phyllosticta*, so we write it as above.

Phyllosticta Phytolaccæ Cooke.

On Phytolacca decandra, Lee, 7, 1892, (Richards).

Phyllosticta pirina Sacc.

On Pirus malus, Lee, 7, 1896.

Phyllosticta Podophylli (Curt.) Winter.

On Podophyllum peltatum, DeKalb, 5, 1896.

Phyllosticta Rhododendri West.

On Azalea nudiflora, Lee, 7, 1892, (Richards).

Phyllosticta serotina Cooke.

On Prunus serotina, Lee, 7, 1891, (Duggar).

Phyllosticta Siliquestri Sacc. & Speg.

On Cercis Canadensis, Lee, 1891, (Duggar & Newman).

Phyllosticta sphæropsoidea E. & E.

On Æsculus Pavia, Lee, 5, 1896; Tuscaloosa, 5, 1896.

This is clearly distinct from *P. Paviæ* Desm., with which it is often confused.

Phyllosticta Vaccinii Earle.

On Vaccinium arboreum, Lee, 4, 1896.

Described in Bull. Torr. Bot. Club, 24:31, as follows: "Epiphyllous on brown, irregular, indeterminate spots, 1cm. or more in diameter; perithecia scattered, erumpent, of soft texture, ostiole large, 8-10μ, size variable, 80-120μ; spores large, usually ovate, with a large (4μ), spherical gutta near the broader end, about 12x6μ."

Phyllosticta viticola Thuem.

On Vitis rotundifolia, Lee, 10, 1895.

Prosthemium palmatum Earle.

On rotten wood, Lee, 3, 1896.

Described in Bull. Torr. Bot. Club, 24:31, as follows: "Perithecia scattered over large whitened areas, elongate-hysterioid, black, carbonaceous, buried, at length partially erumpent, rupturing irregularly, or becoming discoid by the

breaking away of the upper portion; spores cylindric, light fuliginous, 1-3 septate, about 12-15x4μ, united at base into bundles of 3 to 6, not stellate, but palmate or fascicled; basidia obsolete."

Rhabdospora verrucæformis (B. & C.) Sacc.*

On branches of Cephalanthus, (Peters).

Described under *Septoria* in Grevillea, 3 : 11, as follows: "Peritheciis majoribus rugosis; sporis tenuissimis subrectis,"

"Perithecia rather large, rugged; spores very slender, nearly straight."

Septoria Alabamensis Atks.

On Glechoma hederacea (Nepeta glechoma), Lee, 1, 2, 1891, (Atkinson).

Described in Jour. E. Mitch. Sci. Soc., 10 : 78, as follows: "Spots indefinite, occupying irregular portions of the leaf. Perithecia 80-90μ. Spores 20-30x1μ or less, sometimes faintly 1-3 septate, straight or slightly curved or flexuous.'

Septoria albonigra B. & C.*

On living leaves, (Peters).

Described in Grevillea, 3 : 8, as follows: "Maculis albis, fusco-annulatis; peritheciis minimis; sporis filiformibus."

"Spots orbicular, white, marked with one or two concentric brown rings, and generally bordered; perithecia very minute; spores filiform, nearly straight, .0022 long."

Septoria Brunellae E. & H.*

On Prunella vulgaris, Montgomery, 7, 1890, (Atkinson in Jour. Elisha Mitch. Sci. Soc. 10 : 76).

Septoria Cacaliæ E. & K.

On Cacalia tuberosa, Lawrence, 6, 1896.

Septoria cerasina Peck.

On Prunus sp., Lee, 7, 1891, (Newman).

Septoria Cerastii Rob. & Desm.

On Cerastium arvense, Lee, 3, 1891, (Atkinson in Jour. E. Mitch. Sci. Soc. 10 : 76).

On Cerastium viscosum, Lee, 3, 1896.

Further study will probably show that our American species on Cerastium is distinct from this European one to which it has usually been referred.

Septoria Dianthi West.*

On Dianthus barbatus, Lee, (Atkinson in Jour. E. Mitch. Sci. Soc. 10 : 77).

Septoria Erechtites E. & E.

On Erechtites hieracifolia, Lee, 9, 1891, (Duggar).

Septoria graminum Desm.

On Digitaria sanguinalis (Panicum), Lee, 7, 1891, (Duggar).

Septoria Jussiaeae E. & K.

On Jussiaea leptocarpa, Lee, 7, 1891, (Duggar & Newman).

Septoria neglecta Earle.

On Quercus Phellos, Lee, 2, 3, 4, 1896.

Described in Bull. Torr. Bot. Club, 24:31, as follows: "On irregular determinate angular brownish arid spots, from 1mm-2cm. or more, usually with a darker border; perithecia epiphyllous, or amphigenous, prominently erumpent, irregularly scattered, 100-120 μ or more; spores thread like, continuous, faintly guttate, 30-40x1-1½ μ."

Septoria Œnotherae West.

On Œnothera laciniata (Œ. sinuata), Lee, 3, 1896.

On Onagra biennis, Lee, (Atkinson in Jour. E. Mitch. Sci. Soc. 10:77).

Septoria pulchella B. & C.*

On Andromeda, (Peters).

Described in Grevillea, 3:8, as follows: "Maculis rufulis linea nigra circumdatis; peritheciis punctiformibus; sporis lineari-oblongis."

"Spots suborbicular, rather irregular, very pale rufous, surrounded by a narrow black line; perithecia punctiform; spores linear, very slightly curved, .0002 long."

Septoria Rubi West.

On Rubus sp., DeKalb, 5, 1896.

Septoria Rubi alba Peck.

On Rubus trivialis, Mobile, 4, 1891, (Zimmer Bros. in Jour. E. Mitch. Sci. Soc. 10:77).

Septoria sambucina Peck.

On Sambucus Canadensis, Lee, 8, 1891, (Duggar).

Septoria Secalis Prill. & Delacr.

On Secale cereale, Lee, 4, 1896.

Our specimens agree with the description of this European species, except in having slightly larger perithecia. Very common in rye fields on the Station grounds.

Septoria sonchina Thuem.

On Sonchus oleraceus, Lee, 1891, (Benton).

Septoria Specularіae B. & C.

On Legonzia perfoliata (Specularia), Lee, 3, 1890, (Atkinson in Jour. E. Mitch. Sci. Soc. 10:77).

Septoria stigma B. & C.*

On Symplocos, (Peters).

Described in Grevillea, 3:9, as follows: "Peritheciis punctiformibus in folium dealbatum insidentibus; sporis linearibus brevioribus."

"Perithecia punctiform, seated on the whitened leaf; spores linear, .0006 long."

Septoria verbascicola B. & C.

On Verbascum Blattaria, Madison, 5, 1896.

Septoria Violae West.

On Violae primulaefolia, Macon, 7, 1890, (Atkinson).

Septoria virgaurae Desm. (?).

On Solidago serotina, Lee, (Atkinson in Jour. E. Mitch. Sci. Soc. 10:77).

Septoria Xanthii Desm.

On Xanthium sp. Perry, 7, 1891, (Atkinson).

Sphaeronema epigloeum B. & C.

On Tremella sp., Peters Coll. 110.

Sphaeronema spina B. & Rav.*

On dead leaves of ash, (Beaumont).

Described in part from Alabama specimens in Grevillea, 2:177, as follows: "Peritheciis erumpentibus spiniformibus nigris corticalis; sporis minimus globosis."

"Bursting through the bark by its spiniform often inclined ostiolum, covered with a thick bark; spores globose, very minute."

Sphaeropsis Maclurae Cooke.

On Toxylon pomiferum (Maclura aurantiaca), Lee, 3, 1896.

Sporonema Camelliae Earle.

On Camellia Japonica, Lee, 3, 4, 1896, (J. Q. Burton).

Described in Bull. Torr. Bot. Club, 24:32, as follows: "Epiphyllous on large, white, brown-bordered spots or areas, 2-5cm. in diameter; perithecia thickly scattered, buried, elevating the epidermis, orbicular or somewhat elongated, usually rimosely dehiscent, occasionally stellate laciniate, becoming discoid, of firm cellular texture, about 200 μ; spores cylindrical, ends obtusely rounded, sometimes curved, usually biguttate, 12-18x4-5 μ; basidia short and thick, about equalling the spore, usually simple."

Sporonema Ilicis Earle.

On Ilex opaca, Lee, 12, 1895; 1, 2, 3, 1896.

Described in Bull. Torr. Bot. Club, 24:32, as follows: "Epiphyllous on large deadened and whitened areas, usually involving the apical portion of the leaf; perithecia often somewhat concentrically arranged, or thickly scattered, large, membranaceous, buried in the epidermis and coming off with it, usually somewhat elongated, elevating the epidermis and at length cracking it longitudinally or stellately; spores continuous, elliptical, hyaline, on short, simple, hyaline basidia, about 12-15x4-5 μ."

Stagonospora Ischaemi Sacc.

On Andropogon furcatus, Lee, 9, 1891, (Duggar).

Vermicularia affinis Sacc. & Briard.

On Panicum virgatum, Lee, 2, 1888, (Newman).

On Sieglingia seslerioides, Lee, 1, 1889, (Newman).

On Sorghum halapense, Montgomery, 9, 1891, (Atkinson).

On Sorghum, sp. Lee, 7, 1890, (Atkinson).

Vermicularia Dematium (Pers.) Fr.*

On Phytolacca, (Beaumont), Grevillea, 3:6.

Vermicularia Eryngi (Corda) Fckl.

On dead umbelliferous stem, Lee, 4, 1896.

Vermicularia Liliacearum Schw.

On Agave Virginica, Lee, 7, 1896.

Vermicularia sanguinea E. & Hal.

On Sorghum vulgare (chicken corn), Perry, 7, 1890, (Atkinson).

On Sorghum sp. (Jerusalem corn), Lee, 10, 1895.

FAMILY NECTRIOIDACEAE.

Stagonopsis pallida (B. & C.) Sacc.*

On Cornus, (Peters).

Described under *Hendersonia* in Grevillea, 3:6, as follows: "Peritheciis sparsis nudis pallide carneis; sporis arcuatis hyalinis 7-8 septatis."

"Perithecia globose, scattered, pale flesh color, hyaline; spores fusiform, hyaline, with from 7-8 septa, each division containing a single nucleus. Possibly a state of some *Nectria*."

FAMILY LEPTOSTROMACEAE.

Discosia Artocreas (Tode) Fr.

On Aralia spinosa, (Peters), Grevillea, 3:6.

On Fagus, (Beaumont), Peters Coll.

On Ilex, (Beaumont), Peters Coll.

Discosia fagina Lib.*

(Beaumont), Grevillea, 3:7. This is referred to *D. Artocreas* by Saccardo. (Syll. Fung., 3:653).

Discosia minima B. & C.

On Ilex sp. (Beaumont), Grevillea, 3:7.

On Ilex opaca, Lee, 7, 1896.

Described from Beaumont's specimens as follows: "Peritheciis minutissimis innumeris punctiformibus, sporis utrinque appendiculatis."

"Extremely minute, gregarious; spores .0015 long, without septa, but probably young, furnished as in *D. grammita* with a terminal appendix at either end."

Discosia rugulosa B. & C.

On Hicoria, Peters Coll. 1, 1855.

On Hicoria ovata, Lee. 7, 1891, (Newman).

Described in Grevillea, 3:7, as follows: "Peritheciis orbicularibus opacis rugosis."

"This seems to be quite different from *D. Artocreas*, the perithecia being rugulose and opaque and not at all shining, as in that species."

Entomosporium maculatum Lev.

On Amelanchier sp. (cult.), Lee, 7, 1896.

On Cydonia vulgaris, Lee, 8, 1890, (Atkinson); Washington, 7, 1896.

Leptostroma hypophyllum B. & Rav.

On Gleditschia triacanthos, Lee, 11, 1895.

Leptostromella filicina (B. & C.) Sacc.*

On dead ferns, (Peters).

Described in part from Alabama specimens under *Cryptosporium*, in Grevillea, 2:84, as follows: "Nitidum hysteriiforme; sporophoris duplo sporis curvatis filiformibus."

"Shining hysteriform; sporophores half as long as the thread-like curved spores, which are variable in length."

Leptothyrium dryinum Sacc.

On Castanea pumila, Lee, 1890, (Atkinson).

On Nyssa sylvatica (N. multiflora), Lee, 1892, (Richards).

Leptothyrium Lychnidis B. & C.*

On Lychnis Flos-cuculi, (Peters).

Described in Grevillea, 2:83, as follows: "Maculis pallidis; peritheciis punctiformibus; sporis oblongis utrinque irregularibus."

"Spots pallid, perithecia very minute; spores oblong, hollowed out on either side, .0004 long."

Melasmia acerina Lev.

On Acer rubrum, Lee, 9, 1891, (Atkinson).

Melasmia Gleditschiae E. & E.

On Gleditschia triacanthos, Lee, 1889, (Atkinson).

Piggotia Fraxini B. & C.

On Fraxinus sp. Lee, 11, 1895.

FAMILY EXCIPULACEÆ.

Amerosporium œconomicum Ell. & Tracy.
On Dolichos Sinensis, Lee, 11, 1890, (Atkinson).

CLASS ASCOMYCETES.

ORDER GYMNOASCALES.

Exoascus alnitorquus (Tul.) J. Kuhn.
On Alnus serrulata, Lee, 1890; 4, 1891, (Atkinson); 12, 1893, (B. M. Duggar); 4, 1896.

Exoascus australis Atks.
On Carpinus, Lee, 4, 1892, (Atkinson .
Described from Alabama material by Atkinson in Bull. Torr. Bot. Club, 21 : 379.*

Exoascus Farlowii Sadebeck.
On Prunus serotina, Lee, 1892, (Atkinson).

Exoascus mirabilis Atks.
On Prunus angustifolia, Lee, 4, 5, 1890-1892, (Atkinson).
Distributed as *Exoascus pruni* from Alabama material in Seymour & Earle, Econ. Fungi, No. 129.
Described from material collected in Alabama by Atkinson, in Bull. Torr. Bot. Club, 21 : 376.

Exoascus pruni Fuckel.
On Prunus serotina, Lee, 1891, (Atkinson).
On Prunus angustifolia, Lee, 1890, (Atkinson).

Exoascus rhizipes Atks.*
On Prunus triflora, Lee, (Atkinson).

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* This description and others given in this paper lack the compact form usually employed in specific descriptions, hence are not quoted here.

Described from material collected in Alabama by Atkinson in Bull. Torr. Bot. Club, 21 : 377.

Exoascus varius Atks.

On Prunus serotina, Lee, 5, 1891, (Atkinson) ; described from material collected in Alabama by Atkinson in Bull. Torr, Bot. Club, 21 : 378. Distributed from Alabama material in Seymour & Earle, Econ. Fungi, No. 128, as *Exoascus deformans.*

Taphria coerulescens (Mont.) Tul.

On Quercus nigra (Q. aquatica), Lee, 1892, (Atkinson); distributed from Alabama material in Seymour & Earle, Econ. Fungi, No. 180.

On Quercus rubra, (Atkinson).

On Quercus phellos, Lee, 1890, (Atkinson); distributed from Alabama material in Seymour & Earle, Econ. Fungi, No. 189.

On Quercus obtusiloba, Lee, 1890, (Atkinson).

On Quercus Marylandica (Q. nigra), Lee, 1890, (Atkinson).

On Quercus falcata, Lee, 1890, (Atkinson); distributed from Alabama material in Seymour & Earle, Econ. Fungi, No. 185.

On Quercus brevifolia (Q. cinerea), Lee, 1891, (Atkinson).

Taphria Virginica Sadebeck & Seymour.

On Ostrya Virginica, Lee, 5, 1896.

Order Perisporiales.

family erysiphaceae.

Erysiphe cichoracearum DC.

On Ambrosia artemisiaefolia, Lee, 5, 1890, (Atkinson in Jour. E. Mitch. Sci. Soc. 7:65).

On Ambrosia trifida, Perry, 1890, (Atkinson).

On Aster diffusus, Lee, 1891, (Atkinson).

On Aster Tradescanti, Lee, 1891, (Atkinson).

On Helianthus annuus, Lee, 1891, (Duggar).

On Willoughbya scandens (Mikania),Lee, 1891,(Atkinson).

On Phlox sp. Mobile, 1890, (Zimmer).

On Solanum Carolinense, Lee, 10, 1891, (Atkinson); Macon, 10, 1896, (Carver).

On Verbena urticifolia, Lee, 10, 1891, (Duggar).

On Xanthium Canadense, Lee, 10, 1889, (Atkinson); Macon, 8, 1896, (Carver).

The specimen on Verbena was referred by Atkinson in Jour. E. Mitch. Sci. Soc. 10:75, to *E. galeopsidis DC.;* but these forms are rightly retained under *E. cichoracearum* by Burrill (Ell. & Ev. N. A. Pyrenomycetes, 13).

Erysiphe communis (Wallr.) Lev.

On Onagra biennis, Lee, 5, 1890, (Atkinson in Jour. E. Mitch. Sci. Soc. 7:64).

On Pisum sativum, Lee, 5, 1890, (Atkinson).

Erysiphe Liriodendri Schw.

On Liriodendron tulipifera, Lee, 1891, (Duggar).

Microsphaera Alni (DC) Winter.

On Alnus serrulata, Lee, 1891, (Atkinson).

On Ilex mollis, Lee, 1891, (Atkinson).

On Hicoria sp., Lee, 1890, (Atkinson).

On Platanus occidentalis, Lee, 1891, (Atkinson).

On Syringa vulgaris, Lee, 10, 1896; Macon, 8, 1896, (Carver).

On Tecoma radicans, Lee, 1891, (Atkinson).

The form on Tecoma was determined by Atkinson (Jour. E. Mitch. Sci. Soc. 10:75) as *M. semitosta* B. & C. It is true that the base of the appendages is in some cases colored for a short distance, but this is not unusual among the varied forms that are referred to *M. Alni.* The coloring in this case is rather darker than usual; but it is not nearly so dark as in the true *M. semitosta* on Cephalanthus; and the branching of the appendages, and the recurved tips are different from that species.

Microsphaera diffusa C. & P.

On Meibomia sp. Lee, 1889, (Atkinson).

On Lespedeza striata, Lee, 1889, (Atkinson); Macon, 10, 1896, (Carver).

Microsphaera erineophila Peck.

On erineum of Fagus Americana, Lee, 3, 1896.

Microsphaera Euphorbiae B. & C.

On Euphorbia nutans, Lee, 1891, (Duggar).

Microsphaera Grossulariae (Wallr.) Lev.

On Sambucus Canadensis, Lee, 1891, (Atkinson).

Microsphaera quercina (Schw.) Burrill.

On Quercus nigra (Q. aquatica), Lee, 12, 1890, (Atkinson); Macon, 8, 1896, (Carver).

On Quercus Phellos, Lee, 1891, (Atkinson).

On Quercus sp. Lee, 12, 1895; Macon, 8, 1896, (Carver).

The form on Q. nigra is the *M. calocladophora* Atks. which was described in Jour. E. Mitch. Sci. Soc. 7:73, as follows: "Hypophyllous, mycelium thin, diffuse, or in orbicular patches, dense. Perithecia scattered, black, rather stout, 100-140 μ, reticulations rather distinct. Appendages one to two times diameter of perithecium, percurrent, primary branching opposite or nearly so, branches dichotomous, tips incurved, some of the tips unpaired as in *M. quercina*. Asci four to six, ovate or elliptical, pedicellate, 35-40x65-80 μ. Spores six to eight, 20-25 μ, granular."

There is nothing in the foregoing except the peculiar branching of the appendages by which to distinguish it from other of the varied forms on different species of oak that are at present regarded as belonging to *M. quercina*. This character is very easily recognized when present; and, if constant, would sufficiently separate the species. As the result of much study of the forms of *Microsphaera* on oak we cannot concede that this is the case. In none of the specimens examined is this character uniformly present. Hardly a perithecium can be found that does not show one or more appendages with the normal dichotomous branching of *M. quercina*. Again this character is by no means confined to the form on Q. nigra. Many specimens from Illinois, and other parts of the country, especially on Q.

alba, show occasional appendages having this peculiar form of branching. It is this that was referred to by Burrill and Earle, Parasitic Fungi of Illinois, 2:485, while discussing the form on Q. alba, in the sentence "While the branching is broader and more irregular, frequently being exceedingly ornate" *Microsphaera Hedwigii* is mentioned in Grevillea, 4:161, as being found in Alabama on oak by Beaumont, but this was doubtless some of the many forms of *M. quercina.*

Microsphaera Ravenelii Berk.

On Apios Apios (A. tuberosa), Lee, 10, 1896; Macon, 8, 1896, (Carver).

On Gleditschia triacanthos, Lee, 1889, (Atkinson).

Microsphaera semitosta B. & C.

On Cephalanthus occidentalis, Lee, 1891, (Atkinson).

Microsphaera Vaccinii C. & P.

On Vaccinium sp. Lee, 1891, (Duggar).

On Xolisma ligustrina, Lee, 10, 1896.

Phyllactinia suffulta (Rebent,) Sacc.

On Alnus serrulata, Lee, 1891, (Atkinson); Macon, 10, 1896, (Carver).

On Carpinus Caroliniana, Lee, 1891, (Atkinson).

On Cornus florida, Lee, 1891, (Atkinson).

On Cornus sp. Lee, 1891, (Atkinson).

On Crataegus sp. Lee, 1891, (Atkinson).

On Fagus sp. (Beaumont in Grevillea, 4:158).

On Liriodendron tulipifera, Macon, 10, 1896, (Carver).

On Quercus nigra (Q. aquatica), Lee, 1890, (Atkinson); Macon, 8, 1896, (Carver).

On Quercus Marylandica (Q. nigra), Lee, 1890, (Atkinson).

On Quercus Phellos, Lee, 1890, (Atkinson).

On Quercus minor (Q. stellata), Lee, 11, 1895.

On Ulmus alata, Lee, 1889, (Atkinson); Macon, 10, 1896, (Carver).

On Ulmus Americana, Macon, 10, 1896, (Carver).

Podosphaera biuncinata C. & P.

On Hamamelis Virginiana, Lee, 1891, (Duggar).

Podosphaera oxyacanthae (DC) DeBy.

On Crataegus sp., 1891, (Benton).

On Pirus malus, Lee, 4, 1896.

On Prunus Americana, 1891, (Duggar).

On Prunus Cerasus, (Peters in Grevillea, 4:158).

Sphaerotheca Castagnei Lev.

On Bidens frondosa, Lee, 1891, (Duggar).

On Erechthites hieracifolia, Lee, 1891, (Benton & Duggar).

On Lactuca sp., Lee, 10, 1896.

Sphaerotheca lanestris Hark.

On Quercus alba, Lee, 1891, (Atkinson).

Sphaerotheca pannosa (Wallr.) Fr.

On Rosa sp. (cult.), Lee, 1890, (Atkinson).

Uncinula circinata C. & P.

On Acer rubrum, Lee, 1891, (Atkinson).

Uncinula flexuosa Peck.

On Æsculus Pavia, Lee, 1890, (Atkinson).

Uncinula geniculata Ger.

On Morus rubra, Lee, 1891, (Atkinson).

Uncinula macrospora Peck.

On Ulmus Americana, Lee, 1890, (Atkinson).

It is probable that the specimens on elm referred by Berkeley to *U. adunca* (Grevillea, 4:159), and to *U. intermedia* (Grevillea, 4:160), are nothing but *U. macrospora*.

Uncinula necator (Schw.) Burrill.

On cultivated grape, Lee, 1889, (Atkinson in Jour. E. Mitch. Sci. Soc. 7:66).

Uncinula parvula C. & P.

On Celtis occidentalis, Lee, 1889; Montgomery, 1891, (Atkinson); Macon, 8, 1896, (Carver).

Uncinula polychaeta (B. & C.) Mass.

On Celtis occidentalis, (Peters), Rav. Fung. Car. Exsic. 4:68; 1891, (Atkinson).

First described from Alabama specimens under *Erysiphe* in Grevillea, 4:159, as follows: "Maculis orbicularibus; appendicibus brevibus plurimus rectis; ascis elongatis clavatis."

"Spots orbicular, yellow-brown in the centre from the young perithecia; appendages about equal to their diameter, straight; asci elongated, clavate."

FAMILY PERISPORIACEÆ.

Asterina comata B. & Rav.

On Magnolia Virginica (M. glauca), (Peters), Lee, 5, 1896; Mobile, 3, 1896.

Described in Grevillea, 4:10, in part from Alabama specimens as follows: "Sparsa major; mycelio obsoleto; floccis brunneis dense vestita."

"Scattered, without any visible mycelium, large for the genus, about one-third line broad, densely clothed with short brown hairs."

Asterina diplodioides B. & C.*

On Andromeda acuminata, (Peters).

Described in Grevillea, 4:9, as follows: "Maculis orbicularibus, mycelio interrupto; sporidiis oblongis obtusissimis uniseptatis fuscis."

"Forming orbicular interrupted spots; perithecia minute; sporidia .0003 long, shortly oblong, obtuse at either end, brown, resembling the spores of a *Diplodia*."

Asterina pelliculosa Berk.

On Ilex opaca, Lee, 2, 4, 1896.

Asterina spurca B. & C.*

On Hyptis radiata, (Beaumont).

Described in part from Alabama specimens in Grevillea, 4:10, as follows: "Peritheciis sparsis punctiformibus, floccis brevibus duobus vel pluribus junctis articulatis radiantibus ornatis."

"Scattered, dot-like, surrounded by short articulated submoniliform, radiating threads, which are joined together laterally by twos, sometimes forked at the apex."

Capnodium elongatum B. & Desm.*

On Bignonia, (Peters).

Capnodium sp.

On Chrysanthemum sp., Lee, 1889, (Atkinson).

On Nerium Oleander, Lee, 1890, (Atkinson).

(Antennaria) semiovata B. & Br.

On Magnolia Virginica (M. glauca), (Beaumont).

This probably belongs with Capnodium. A number of other specimens of black fungi have been collected that seem to follow insect injuries on various hosts. They probably belong here, but as they are in not condition for determination they are not enumerated.

Meliola amphitricha Fr.

On Osmanthus Americana (Olea), Lee, 10, 1896.

Specimens of *Meliola* on many diverse hosts have been referred to this species by American writers. It is perhaps doubtful if any of our species are entitled to this name, but it is retained provisionally in the present case.

Meliola bidentata Cooke.

On Bignonia capreolata, Lee, 1891, (Duggar); Mobile, 3, 1896.

Meliola manca E. & M.

On Myrica cerifera, Mobile, 3, 1896.

On Rubus villosus, Lee, 1891, (Atkinson).

Meliola Martiniana Gaill.

On Persea palustris, Lee, 4, 1896.

Meliola Mitchellae Cooke.

On Mitchella repens, Lee, 3, 1896.

Meliola nidulans (Schw.) Cooke.

On living twigs, 1891, (Atkinson).

On living twigs of Cornus, Lee, 4, 1896.

Meliola palmicola Winter.*

On Sabal sp. (Beaumont), in Grevillea, 4 : 158, under *M. amphitricha* Fr.

Meliola tenuis B. & C.

On Arundinaria tecta, Lee, 1891, (Atkinson).

Parodiella perisporioides (B. & C.) Speg.

On Desmodium sp., Lee, 1891, (Newman & Duggar).

Perisporium Zeae Desm. (?)

On Zea Mays, (Beaumont), Rav. Fung. Car. exsic. 3 : 65.

This is probably an error (see note by Farlow in Ell. & Ev. N. A. Pyr., 56). In the specimen examined by us the minute black perithecia (?) were sterile.

Scorias spongiosa (Schw.) Fr.

On Alnus serrulata, Lee, 2, 1896.

On Fagus Americana, Lee, 7, 1896.

ORDER HYPOCREALES.

Calonectria Curtisii (Berk.) Sacc. (?)

On Arundinaria sp., Lee, 1, 1896.

We have seen no authentic specimens of this species and the description is insufficient for positive identification.

Calonectria polythalama (Berk.) Sacc.*

On Liquidambar, (Peters, Grevillea, 4 : 46).

Claviceps sp. (sclerotium stage only.)

On Chrysopogon avenaceus, Macon, 8, 1896, (Carver).

On Erianthus sp., Macon, 8, 1896, (Carver).

Cordyceps capitata Fr.*

(Peters, Grevillea, 4:13).

Cordyceps ophioglossoides (Ehrh.) Link.

Peters Coll. 1:54; Winston, 6, 1896.

Dothicloe Aristidia Atks.*

On Aristida purpurascens, Lee, (Duggar).

Described in Bull. Torr. Bot. Club, 21 : 224, as follows: "Stroma dimorphic, sterile portion confluent, forming a thin black layer, in the specimens seen entirely surrounding the culm. Fertile portion much thicker, confluent or interrupted, forming small perpendicular elevations on the sterile portion, projecting apices of the crowded perithecia more or less confluent in an irregular manner, giving a rugulose or convolute appearance to the stroma. Otherwise as in *D. Hypoxylon*."

Dothichloe Hypoxylon (Peck) Atks.* (*Epichloe Hypoxylon* Peck.)

On Andropogon Virginicus, (Atkinson, Bull. Torr. Bot. Club, 21 : 223).

Echinodothis tuberiformis (B. & Rav.) Atks. (*Hypocrea tuberiformis* B. & Rav.)

On Arundinaria, Lee, 1891, (Atkinson).

Gibberella pulicaris (Fr.) Sacc. (?)

On living roots of cotton, Lee, 11, 1889, (Atkinson).

With a *Fusarium*. The specific determination we consider quite doubtful.

Hypocrea apiculata C. & P.

Lee, (Atkinson).

Hypocrea citrina (Pers.) Fr.

On Exidia glandulosa, Lee, 7, 1896.

Hypocrea contorta (Schw.) B. & C.

Peters Coll. 3 : 68.

Hypocrea Petersii B. & C.*

Alabama (Peters.)

Described in Grevillea, 4:13, as follows: "Agariciformis; stipite rugoso; peritheciis peripheriicis; ascis linearibus; sporidiis globosis."

"At first sight this looks like an Agaric infested with some Hypomyces, but the fructification is exactly that of an Hypocrea. Stem irregular, dilated upwards, about an inch high; head orbicular, irregular rufous; perithecia both on the under and upper sides; sporidia globose in linear asci."

Hypocrea polyporoidea B. & C.

On Fagus, Peters Coll. 1:152.

Described in Grevillea, 4:15, as follows: "Peritheciis tomentosis liberis in crustam pallidam insidentibus."

"Fawn-colored; perithecia free, tomentose, with a naked ostiolum seated on a pale crust, here and there elevated, which is thin towards the margin. A very curious species."

In the Peters specimen the asci are very numerous, cylindrical, about 40-50x3μ; spores end to end in a single row, crowded, soon separating, ends of the cells truncate from mutual pressure, becoming rounded when freed from the ascus, orbicular, about 3μ.

Hypocrella atramentosa (B. & C.) Sacc.

On Andropogon, (Beaumont, Grevillea, 4 : 15).

Described in Jour. Linn. Soc. 10 : 377, in part from Alabama material, under *Hypocrea*, as follows: "Effusa, tenuis, elongata, atra, demum rugosa; perithecis globosis ostiolisque immersis (419)."

"On leaves of grass. Hab. Alabama. On Andropogon, No. 4018. Forming a thin stratum on the under side of the leaves. Allied to *H. semiamplexa* B., a very similar species from Surinam on *Cyperaceae*, with filiform sporidia (*Sphaeria cyperacearum* Schwein.! herb.)."

This is considered by Atkinson to be a synonym for *Dothichloe Hypoxylon* (Bull. Torr. Bot. Club, 21 : 223).

Hypomyces aurantius (Pers.) Fckl.

On Cantherellus aurantiacum, (Peters), in Rav. Fung. Car. exsic. 5 : 64.

Hypomyces lactifluorum (Schw.) Tul.

On various species of Lactarius, Lee, 12, 1895; Winston, 6, 1896.

Hypomyces xylophilus Peck.

On rotten wood, Lee, 11, 1896.

Myriogenospora Paspali Atks.

On Paspalum laeve, Lee, (Duggar).

Described in Bull. Torr. Bot. Club, 21 : 225, as follows: "Stroma one to two centimeters long, seated upon one side of the young culm in the cases observed, and partly enclosed on the sides by the equitant leaf blade. Perithecia large, 200-500μ in diameter oval or obovate, projecting above the stroma but little by a small conical apex, producing a slight unevenness on the surface. Asci large, 200-250x15-20μ, tapering each way to slender ends, more strongly so at the base, so that they appear oblanceolate in side view. Spores very numerous, several hundred, narrowly apiculate, 15-25x .5-.8μ, fusoid, straight or slightly curved."

Nectria episphaeria (Tode) Fr.

Lee, 1891, (Atkinson).

On Diatrype sp., Lee, 3, 1896.

On Eutypella sp., Lee, 2, 3, 1896.

Nectria rubicarpa Cooke.
On Gelsemium sempervirens (?), Lee, 2, 1896.
Nectria saccharina B. & C.
Peters Coll. 1:165.
Nectria viticola B. & C.*
On Vitis, (Peters).
Described in Grevillea, 4:45, as follows: "Parva, nitide coccinea, mollis lateraliter collabens e strato albo tenui oriunda; sporidiis uniserialibus ellipticis uniseptatis."
"Scattered, bright crimson, soft, collapsing laterally, seated on a thin white mycellum; sporidia uniseriate, elliptic, uniseptate."
Sphaerostilbe gracilipes Tul.*
On Platanus, (Peters, Grevillea, 4:46).

ORDER SPHAERIALES.

Anthostoma atropunctata (Schw.) Sacc.
On Quercus sp., Lee, 11, 1895.
nthostomella eliminata (B. & C.) Sacc.*
On Smilax, (Peters).
Described in Grevillea, 4:148, under *Sphaeria*, as follows: "Peritheciis epidermide nigrefacta tectis; ostiolo albo; ascis linearibus; sporidiis auguste oblongis uninucleatis."
"Perithecia covered by the jet black cuticle; which is the more conspicuous from the unoccupied parts being white, marked in the centre with white from the ostiolum; asci linear; sporidia uniseriate, oblong, .00057 long, from four to five times longer than broad."
Apiospora Apiospora (Dur. & Mont.)*
On Arundinaria, (Peters in Grevillea, 4:144, under *Sphaeria*.
Botriosphaeria fuliginosa (M. & N.) E. & E.
On Melia Azedarach, Lee, 3, 1895.
On dead bark, Lee, 1, 1895.
Caryospora putaminum (Schw.) DeNot.
On peach pits, Lee, 2, 1896; Mobile, 12, 1895.

Ceratostoma piliferum (Fr.) Fckl.*

On Quercus, (Peters in Grevillea, 4 : 146, under *Sphaeria.*)

Chaetosphaeria pannicola (B. & C.)Sacc.

On Vitis rotundifolia, Lee, 2, 1896.

On Vitis sp. (cult.), Lee, 1, 1896.

Clypeosphaeria sabaligera (B. & C.) Sacc.*

On Sabal sp., (Beaumont).

Described in Grevillea, 4 : 147, under *Sphaeria*, as follows: "Sparsa minuta epidermide nigrefacta tecta, ascis clavatis; sporidiis biseriatis."

"Scattered, minute, covered by the blackened cuticle; sporidia biseriate; sporidia fusiform, curved, triseptate, .001 long."

Daldinia concentrica (Bolt.) Ces. & DeNot.

On Magnolia Virginica (M. glauca), Lee, 11, 1895; Winston, 6, 1896.

Daldinia vernicosa (Schw.) Ces. & DeNot.

On Magnolia Virginica (M. glauca), Lee, 11, 1895.

Diaporthe dichaenoides (B. & C.) Sacc.*

On Quercus, (Beaumont).

Described in Grevillea, 4 : 98, under *Melogramma*, as follows: "Maculis ostiolis conicis rugosis exasperatis; sporidiis oblongis obtusis uniseptatis."

"Looks at first like a *Dichaena;* spots bursting out transversely, but generally orbicular, very rough with conical rugose pulverulent ostiola; asci clavate; sporidia hyaline in one or sometimes two rows, oblong, sometimes narrower below, obtuse, .001 long."

Diatrype disciformis (Hoffm.) Fr.*

(Peters in Grevillea, 4 : 95.)

Diatrype platystoma (Schw.) Berk.

On Ostrya, (Peters in Rav. Fung. Car. exsic. 5 : 55, under *Hypoxylon.*

Diatrype stigma (Hoffm.) DeNot.

On dead limb, Winston, 6, 1896.

Diatrype tremellophora Ell.

On Magnolia Virginica (M. glauca), Lee, 1, 3, 1896.

Diatrype virescens (Schw.) Ell.
(Peters in Grevillea, 4 : 95, under *D. disciformis virescens.*)
On Fagus Americana, Lee, 2, 1896.
Diatrypella Cephalanthi (Schw.) Sacc.*
(Beaumont in Grevillea, 4:96, under *Diatrype*).
Diatrypella discoidea Alni Cooke.
On Alnus serrulata, Lee, 1, 5, 1896.
Diatrypella nigro-annulata (Grev.) E. & E.
On dead twigs, Lee, 6, 1896.
Diatrypella quercina (Pers.) Nits.
(Peters, in Grevillea, 4:95).
On dead twig, Lee, 2, 1896.
Didymosphaeria polysticta (B. & C.) Sacc.*
On Smilax, (Beaumont).
Described in Grevillea, 4:149, under *Sphaeria*, as follows: "Ostiolo excepto cuticula tecta; ascis linearibus; sporidiis oblongis uniseptatis fuscis."
"Perithecia scarcely raising the cuticle, visible chiefly from the black dot-like ostiola; asci linear; sporidia oblong, uniseptate, .0003 long, rather more than twice as long as wide."
Endothia gyrosa (Schw.) Fckl.
On Liquidambar, Lee, 3, 1896.
On Quercus, Lee, 2, 1896.
Eutypa spinosa (Pers.) Tul.
On Quercus, Lee, 2, 4, 1896.
Eutypella cerviculata (Fr.) Sacc.
On Alnus serrulata, Lee, 3, 1896.
Eutypella glandulosa (Cooke) E. & E.
On Melia Azedarach, Lee, 3, 1896.
In our specimens the ostiola are not distinctly sulcate, but are long exserted, with the mouths smoothly umbilicate; perithecia few, often only one or two; asci 20x4 μ; spores 4x1 μ. The general appearance, and the minute asci and spores so much resemble specimens of the species on Ailanthus (Rav. N. A. Fungi exsic. 6 [illegible]lis N. A. F. 2343), that we can hardly consider it distinct.
Eutypella Platani (Schw.) Sacc.

On Platanus, (Peters in Rav. Fung. Car. exsic. 5:62).

Eutypella stellulata (Fr.) Sacc.

On Melia Azedarach, Lee, 3, 1896.

On Smilax sp., Lee, 2, 1896.

Fracchiaea calista (B. & C.) Sacc.

On Carpinus, (Peters in Rav. Fung. Car. exsic. 5:67).

Heptameria mesoedema (B. & C.) Sacc.

On Eupatorium sp., Lee, 1891, (Duggar).

Herpotricha rhodomphala (Berk.) Sacc.

On dead wood, (Beaumont in Peters Coll. 3:44).

Hypoxylon annulatum (Schw.) Mont.

On Acer rubrum, Lee, 2, 1896.

On Magnolia Virginica (M. glauca), Lee, 3, 1896.

On Quercus sp., Lee, 2, 3, 1896.

Hypoxylon atramentosum (Fr.)

On dead wood, Lee, 12, 1895; 1, 2, 1896.

Hypoxylon Beaumontii B. & C.*

Alabama (Beaumont).

Described in Grevillea, 4:93, as follows: "Peritheciis globosis connatis; ostiolo distincto papillaeformi; sporidiis oblongo-ellipticis uniseptatis."

"Perithecia rather small at first, slightly brown, then black, smooth, with a distinct papillaeform ostiolum; asci linear; sporidia uniseriate, oblongo-elliptic, .0004 long, uniseptate."

From this description Saccardo (Syll. Fung. 1:753) puts this in *Valsaria;* but Cooke (Grevillea, 11:134) says "The sporidia are certainly not septate in the original specimens. It is an effused *Hypoxylon.*"

Hypoxylon calostroma (Schw.) B. & C.*

On Ilex verticellata, (Beaumont in Grevillea, 4:51).

Hypoxylon caries (Schw.) Sacc.

On Acer, Lee, 2, 1896.

On dead wood, Lee, 3, 1896.

Hypoxylon coccineum Bull.

On Alnus serrulata, Lee, 3, 1896.

Hypoxylon crocopeplum B. & C.

On bark, Lee, 12, 1895.

Hypoxylon decorticatum (Schw.) Berk.
On bark, Lee, 2, 1896.
Hypoxylon fuscum (Pers.) Fr.
On Alnus serrulata, Lee, 12, 1895.
On Ostrya Virginiana, Lee, 2, 1896.
Hypoxylon Howeianum Peck., Lee, 2, 1896.
Lee, 2, 1896.
Hypoxylon insidens (Schw.) Fr.
On Liriodendron tulipifera, Lee, 2, 1896.
Hypoxylon investiens (Schw.) Berk.
On Liriodendron, (Beaumont in Rav. Fung. Car. exsic. 4:33).
On dead wood, Lee, 3, 4, 1896.
Hypoxylon luridum Nits.
On carpinus, Lee, 1896.
Hypoxylon marginatum (Schw.) Berk.
On Acer rubrum, Lee, 3, 1896.
On Quercus nigra (Q. aquatica), Lee, 3, 1896.
On Quercus, (Beaumont in Grevillea, 4:49).
Hypoxylon perforatum (Schw.) Fr.
On Arundinaria tecta, Lee, 1891, (Atkinson). (?)
On Liquidambar, Lee, 1, 1896.
On Quercus, Lee, 1, 1896.
On Smilax, Lee, 1, 1896.
On Vitis, Lee, 1, 1896.
Hypoxylon Petersii B. & C.
On Quercus alba, Winston, 1882, (Peters in Peters Coll., 1:158).

Described in part from Alabama material in Jour. Linn. Soc. 10:384, as follows: "Stromate pulvinato hemisphaerico duro ex umbrino nigro, intus umbrino; peritheciis stratosis elongatis; superficie papillosa, ostiolis minutis nigris. (329)."

"On dead wood. Hab. Alabama. Stroma 1 inch across, 1-3 thick. Surface, at length, sometimes cracked, so as to show the internal umber tint. Sporidia .0003 inch long."

Hypoxylon rubignosum (Pers.) Fr.
On dead wood, Lee, 2, 3, 1896.

Hypoxylon rutilum Tul.
On oak bark, Winston, 6, 1896.
Hypoxylon serpens Pers.*
(Beaumont in Grevillea, 4:93.)
Hypoxylon subchlorinum E. & Calk.
On Alnus serrulata, Lee, 2, 1896.
On Carpinus Caroliniana, Lee, 2, 1896.
On Viburnum sp., Lee, 1, 1896.
Hypoxylon xanthocreas B. & C.
On Alnus serrulata, Lee, 2, 1896.
Laestadia Bidwellii (Ell.) Sacc. "Black rot."
On Parthenocissus quinquefolia (Ampelopsis), Lee, 1890, (Atkinson).
On Vitis sp. (cult.), Lee, 1891, (Atkinson).
On Vitis rotundifolia, Lee, 1890, (Atkinson).
On Vitis vinifera, Lee, 1891, (Atkinson).
Lasiosphaeria pezizula (B. & C.) Sacc.
On dead wood, Lee, 1, 2, 1896.
Lasiosphaeria Rhacodium (Pers.) DeNot.
On rotten wood, Lee, 2, 1896.
Leptosphaeria Beaumontii (B. & C.) Sacc.*
On grass, (Beaumont).
Described in Grevillea, 4:145, under *Sphaeria*, as follows: "Linearis brevis erumpens, axis elongatis, sporidiis biserialibus linearibus multiseptatis."
"Forming little short black lines bursting through the cuticle; asci elongated, clavate; sporidia linear, sometimes oblique, with about nine septa, and a nucleus in each joint, .002 long."
Leptosphaeria orthogramma (B. & C.) Sacc.
On Erianthus sp., Macon, 4, 1896.
Massaria epileuca B. & C.
On Morus rubra, Lee, 1, 1896.
Melogramma Meliae Curt.
On Melia Azedarach, Lee, 3, 1896.
Metasphaeria infuscans E. & E.

On Andropogon Virginicus, Lee, 10, 1891, (Atkinson in N. A. F. 2754).

Nummularia clypeus, (Schw.) Cke.

On Alnus serrulata, Lee, 11, 12, 1895.

On Magnolia Virginica, (M. glauca) Lee, 12, 1895.

On Quercus sp., Lee, 12, 1895; Macon, 8, 1896, (Carver).

On Vitis sp., Lee, 1, 1896.

Nummularia discreta (Schw.) Tul.*

On Cercis, (Peters, Grevillea, 4:94).

Nummularia punctulata (B. & Rav.) Sacc.

On Alnus serrulata, Lee, 3, 1896.

On Quercus sp., Lee, 3, 1896.

Nummularia repanda (Fr.) Nits.

On Cercis, Peters Coll. 3:66, (under *Sphaeria*).

Ohleria regulosa Fckl.

Lee, 2, 1896.

Ophiobolus acuminatus (Sowb.) Duby.*

(Peters in Grevillea, 4:150, under *Sphaeria*).

Ophiobolus anguillides (Cooke) Sacc.

On Ambrosia artemisiaefolia, Lee, 1892, (Atkinson).

Ophiobolus glomus (B. & C.) Sacc.*

On Ambrosia, (Beaumont).

Described in Grevillea, 4:152, under *Sphaeria*, as follows: "Convexa media perforata; sporidiis linearibus sigmoideis; stylosporis obovatis primum per paria connatis."

"Perithecia convex, perforated; sporidia linear, sigmoid, .001–002 long. Stylospores are produced within flat dark specks, seated on forked threads, and at first joined in pairs so as to make an obovate mass, then separating and still obovate but narrow, .001 long."

Phomatospora argyrostigma (Berk.) Sacc.

On Yucca filamentosa, Lee, 2, 1896.

Physalospora disrupta (B. & C.) Sacc.

On Smilax sp., Lee, 3, 1896.

Physalospora phlyctanoides (B. & C.) Sacc.*

On Dolichos, (Beaumont).

Described in Grevillea, 4:151, under *Sphaeria*, as follows: "Irregularis fusca deplanata; ascis late lanceolatis brevibus; sporidiis biseriatis cymbaeformibus endochromate utrinque retracto."

"Forming little brown irregular specks on a white ground; asci short, broadly lanceolate; sporidia cymbaeform, with the endochrome retracted at either end, .0005–.00057 long."

Pleospora herbarum (Pers.) Rabh.*

(Beaumont, Grevillea, 4:150, under *Sphaeria*).

Plowrightia morbosa (Schw.) Sacc. "Black knot."

On Prunus augustifolia, Lee, 11, 1895.

On Prunus domestica, (Pike roads), 1891, (Atkinson).

On Prunus serotina, Lee, 2, 1896.

On Prunus triflora, Mobile, 1, 1896.

On Prunus umbellata, Lee, 1881, (Newman).

Poronia Œdipus Mont.

On horse dung, (Peters in Rav. Fung. Car. exsic. 3:46).

Rosellinia aquila (Fr.) DeNot.

On Liriodendron, Lee, 1, 4, 1896.

Rosellinia pulveracea (Ehrh.) Fckl.

On Vitis rotundifolia, Lee, 2, 1896.

Rosellinia subiculata (Schw.) Sacc.

On rotten wood, Lee, 2, 1896.

Sphaerella colorata Peck.

On Kalmia latifolia, (Peters in Rav. Fung. Car. exsic. 3:71, under *Depazea kalmicola S*).

Lee, 1891, (Atkinson).

Sphaerella Fragariae Tul.

On Fragaria sp. (cult.), Mobile, 12, 1895.

Sphaerella gossypina Atks.

On Gossypium herbaceum, (Albert Station), 1890, (Cathcart).

Described in Bull. Torr. Bot. Club, 18:300, in part as follows: "Perithecia immersed, ostiolum projecting—66–70x 65–90u. Asci subcylindrical, varying to slightly clavate or lanceolate, 8–10x40–45u.—spores elliptical, or nearly fusoid, and when mature constricted at the septum, one cell being

usually somewhat smaller than the other. They are obliquely uniseriate or partly biseriate, 3–4x15-18 μ."

Sphaeria (Depazea) concentrica B. & C.*

On Asarum Virginicum.

Described in Grevillea, 4:155 as follows: "Maculis annulis concentricis albis bruneisque variegata, peritheciis in annullis pallidis sitis."

"Spots more than an inch in diameter, orbicular, consisting of about seven alternate white and brown rings; perithecia numerous, situated on the fallen rings. Unfortunately I could find no perfect fruit."

Sphaeria palmarum Mont.*

On Sabal, (Beaumont, Grevillea, 4:147).

Trabutia quercina Fr.

On Quercus nigra (Q. aquatica), Lee, 4, 1896.

Ustulina vulgaris Tul.

On old stumps, Lee, 2, 3, 1896.

Valsa Americana B. & C.

Peters Coll. 3:67.

Valsa munda B. & C.*

On branches of Cornus, (Peters).

Described in Grevillea, 4:100, as follows: "Subcuticularis disco parvo albocincto; ascis lanceolatis; sporidiis allantoideis."

"Pustules completely covered by the bark, which is blackened over them, or appears black by transparence, the disc alone, which is bordered with white, being free; asci lanceolate; sporidia sausage-shaped."

Valsaria exasperans (Ger.) E. & E.

On bark, Lee, 2, 1896.

Xylaria corniformis Fr.

On Salix, Lee 2, 1896.

The conidial state, *Isaria flabelliformis, (Thelephora roselal Pk.)* Lee, 5, 1896.

Xylaria fulvella B. & C.

On Salix, Lee, 2, 1896.

Described from Alabama material in Jour. Linn. Soc. 10:380, as follows: "Clavata, rubiginosa, papillata; peri-

theciis semiprominulis, ostiolis nigris; stipite cylindrico pallide fulvo lineato-rugoso (590)."

"On dead wood. Hab. Alabama (No. 4902). Sporidia oblong, .0003 inch long. Closely allied to an Australian species, *X. phosphorea* B. MS., but differs in the absence of the white ring around the ostiolum. The Cuban specimens are immature, so that the characters are drawn up from the Alabama plant."

Xylaria Hypoxylon (L.) Grev.

On Acer rubrum, Lee, 2, 1895.

Xylaria polymorpha (Pers.) Grev.

Conidial stage, Lee, 4, 1896.

Ascomycetous stage, Hale, 5, 1896.

ORDER DOTHIDEALES.

Phyllachora Ambrosiae (B. & C.) Sacc.

On Ambrosia artemisiæfolia, (Beaumont), Lee, 1891, (Duggar).

On Ambrosia trifida, 1891, (Duggar).

Described, under *Dothidea*, in Grevillea, 4:105, as follows: "Convexa nitida; ascis linearibus; sporidiis uniseriatis ellipticis hyalinis."

"Convex, shining; asci linear; shorter than the slender paraphyses; sporidia uniseriate, elliptic, hyaline."

Phyllachora Beaumontii (B. & C.) Cooke.

On Prunus Caroliniana, Macon, (Beaumont, Peters Coll. 1:194).

Described in Grevillea, 13:63, as follows: "Epiphylla. Stromate hemisphærico-convexo, atro (5mm. diam.) opaco ad basim contracto; ascis clavatis; sporidiis inordinatis, ellipticis, continuis, hyalinis, (.008-.01x.004mm.)."

Phyllachora graminis (Pers.) Fckl.

On Andropogon Virginicus, Lee, 1891, (Duggar).

On Eragrostis tenuis, Lee, 1891, (Duggar).

On Muhlenbergia diffusa, Lee, 1891, (Duggar).

On Panicum ciliatifolium, Lee, 1891, (Duggar).

On Panicum dichotomum, Lee, 1891, (Duggar).

On Panicum Porteranum, Lee, 1891, (Atkinson).

On Panicum sp., Lee, 1891, (Duggar); Macon, 8, 1896, (Carver).

On Paspalum læve, Lee, 1891, (Duggar).

On Paspalum setaceum, Lee, 1891, (Newman).

Phyllachora Lespedezae (Schw.) Cooke.

On Lespedeza sp., Lee, 11, 1896.

Phyllachora Ulmi (Duv.) Fckl.

On Ulmus sp., Macon, 8, 1896, (Carver).

Scirrhia Groveana Sacc.

On Typha latifolia, Lee, 3, 1896.

Agrees with the description, except in the somewhat smaller asci and spores. In our specimens the asci are about 40μ long; and all the asci in a cell escape together in a globular fassicle.

ORDER HYSTERIALES.

Angelina rufescens (Schw.) Duby.

On Quercus (Peters), Rav. Fung. Car. exsic. 5:44, under *Ascobolus conglomeratus* Schw.

Aulographum pinorum Desm.

On pine needles, Lee, 1, 1891.

Dichaena faginea (Pers.) Fr.

On Fagus Americana, Lee, 3, 1896.

Dichaena sp.*

On Quercus, (Peters).

Mentioned in Grevillea, 4:158, as being probably a form of *D. quercina.*

Gloniella Curtisii (Duby) Sacc.

On Vitis, dead stems, Lee, 7, 1896.

Gloniopsis praelongum, (Schw).

On Morus, Lee, 4, 1896.

This is *Gloniopsis lineolatum* (Cooke) Sacc., and *Hysterographium praelongum* (Schw.) E. & E.

Gloniopsis smilacis, (Schw).

On Smilax, Lee, 1896.

This is evidently a *Gloniopsis* and not a *Hypoderma,* where it is placed by Rehm and Saccardo.

Glonium chlorinum (B. & C.) Sacc.*

On Quercus nigra (Q. aquatica), Beaumont.

Described in Grevillea, 4 : 12, as follows : "Cito liberatum ellipticum primum chlorino-pruinosum, demum denudatum ; labris sulcatis ; sporidiis biseriatis magnis oblongis hyalinis uniseptatis medio contractis."

"Soon liberated from the cuticle, elevated from the bark, often narrowed at the base, elliptic, at first greenish from a fine powdery coat, which soon wears off ; lips sulcate ; disc greenish ; sporidia in two rows, oblong, uniseptate, constricted in the middle, .003 long ; the endochrome has frequently a little emargination."

Glonium lineare angustissimum DeNot.

On Liquidambar, Lee, 3, 1896.

Glonium macrosporum Tracy & Earle.

On Prunus serotina, Lee, 2, 1896.

On Rubus villosus, Lee, 4, 1896.

On Vitis rotundifolia, Lee, 2, 1896.

Glonium parvulum (Ger.) Sacc.

On Hicoria, Lee, 2, 1896.

On Liriodendron, Lee, 2, 1896.

Glonium stellatum Muhl.

(Beaumont in Rav. Fung. Car. exsic. 3 : 43.)

On rotten log, Lee, 1, 1896.

Glonium velatum E. & E.

On dead wood, Lee, 2, 1896.

Hypoderma ilicinum DeNot.

On Quercus nigra (Q. aquatica), Lee, 7, 1896.

On Quercus sp., dead leaves, Lee, 1, 1896.

Hysterium insidens Schw.

On dead wood, Lee, 2, 1896.

Hysterium macrosporum Peck.

On weathered pine wood, Lee, 3, 4, 1896.

Hysterium Prostii Duby.

On Quercus, Lee, 2, 1896.

Hysterium pulicare Pers.

On Betula, Macon, 4, 1896.

Hysteriographium Mori (Schw.) Rehm.
On Gleditschia, Lee, 2, 1896.
Hysterographium vulvatum (Schw.) Rehm.
On Quercus sp., Lee, 2, 1896.
On Vitis rotundifolia, Lee, 2, 1896.
Lembosia illiciicola Tracy & Earle.
On Illicium Floridanum, Mobile, 3, 1896.
Lophodermium arundinaceum (Schrad) Chev. (?)
On Arundinaria, Lee, 1, 1896.
Lophodermium culmigenum (Fr.) Karst.
On Arundinaria, (dead sheaths,) Lee, 1, 1896.
Lophodermium cyrillicolum Tracy & Earle.
On Cyrilla racemiflora, Lee, 4, 1896.
Lephodermium Petersii (B. & C.) Sacc.*
On Juniperus, (Peters).

Described in Grevillea, 4:13, under *Hysterium*, as follows: "Cuticula conditum ellipticum elongatumve flexuosum sporidiis filiformibus."

"Covered by the cuticle, elliptic, or elongated and flexuous; sporidia filiform. This does not grow on a pallid spot."

Lophodermium Pinastri (Schad.) Chev.
On Pinus echinata (P. mitis), dead needles, Lee, 3, 1896.
Tryblidiella rufula (Spreng.) Sacc.
On Rhus, (Beaumont), Peters Coll. 3:66.
On dead twigs, Lee, 1, 1896.
Tryblidiella rufula microspora (E. & E.)
On Melia Azedarach, Lee, 3, 1896.

ORDER PHACIDIALES.

Coccomyces Juniperi Karst, (?).

On bark of Juniperus, Peters Coll. 1:150, under the herbarium name of *Rhytisma Petersii* B. & C. The specimen is referred as above with some doubt since the spores are considerably longer than in the published description.

Coccomyces triangularis (Schw.) Sacc.
On Quercus, Lee, 4, 1896.

In our specimens the asci are about 100u long, spores filiform, about equalling the ascus, paraphyses thread like, branched, loosely coiled at the tip like a tendril.

Dothiora asterinospora (E. & E.) Sacc.

On Ilex, (Peters), Rav. Fung. Car. exsic. 3:63 under *Tympanis picastra* B. & C.

On living bark of various trees, Lee, 1, 2, 3, 1896.

Phacidium elegantissimum B. & C.*

On leaves of Ilex, (Peters).

Described in Grevillea, 4:8, as follows: "In maculis orbiculares albas nigrocinctas situm punctiforme angulatum."

"Seated on white orbicular black-margined spots, minute, angular. An extremely pretty species, but unfortunately I have found no fruit."

Rhytisma acerinum (Pers.) Fr.

On Acer rubrum, Lee, 11, 1895; 3, 10, 1896.

Rhytisma Curtisii B. & Rav.

On Ilex opaca, Lee, 4, 1896.

The oval spores (16x4u) and gross appearance on the leaf make it very doubtful if this should be retained under *Rhytisma.*

Rhytisma decolorans Fr.

On Xolisma ligustrina (Andromeda), Lee, 1, 1896; Macon, 8, 1896 (Carver).

Rhytisma Solidaginis Schw.

On Solidago Canadensis, Lee, 1891 (Newman).

Rhytisma tostum B. & C. *

On Quercus lancifolia, (Beaumont).

Described in Grevillia, 4:9, as follows: "Tenue in maculam luteam situm, gyrosum hic illic tantum fertile."

"Seated on yellow spots, thin, gyrose, only here and there producing fruit bearing perithecia, which soon shell off. Undoubtedly distinct, but the specimens are imperfect."

Rhytisma Vaccinii (Schw.) Fr.

On Vaccinium arboreum, Lee, 1891, (Atkinson).

Scleroderris concinna (B. & C.) Sacc.*

On Sassafras, (Peters).

Described in Grevillia, 4:5, in part from Alabama material, under *Cenangium*, as follows:—"Cupulis sessilibus subtiliter pulverulentis marginatis; disco plano nigro; sporidiis biserialibus oblongis triseptatis."

"Cups flat, with a strong brownish margin; disc black; sporidia biseriate; sporidia oblong, triseptate, .0006 long."

ORDER PEZIZALES.

Acetabula Acetabulum, (L).

On ground in pine woods, Lee, 4, 1896.

Agyrium brunneolum B. & C.*

On roots of pine, (Beaumont).

Described in Grevillea, 4:6, as follows:—"Convexum brunneolum, ascis oblongis; sporidiis minoribus breviter fusiformibus."

"Much larger than the last (*A. Tuckermanii* B. & R.), with narrower oblong asci, and smaller sporidia. The wood is not bleached."

Agyrium rufum (Pers.) Fr.*

On dry fir wood, (Peters), Grevillea, 4:6.

Ascobolus brunneus Cooke.

On cow dung, Lee, 1, 1896.

Barlaea exasperata (B. & C.) Sacc.*

On burnt earth, (Peters).

Described in Grevillea, 3:152, under *Peziza*, as follows:—"Coccinea; cupula subglobosa extus verruculosa; margine inflexo; sporidiis globosis echinulatis."

"Cup ½ inch across, scarlet, subglobose, clothed externally with minute warts; margin inflexed; sporidia globose echinulate, .0005 in diameter."

Belonidium Aurelia (Pers.) DeNot.

On Liriodendron, (Peters), Rav. Fung. Car. exsic. 5:41, under *Peziza*.

Belonium eustegiaeforme (B. & C.) Sacc.

On Arundinaria sp. Lee, 1, 1896.

Bulgaria inquinans (Pers.) Fr.

On Quercus coccinea, (Peters), Rav. Fung. Car. exsic. 5:43.

Cenangella Ravenelii (Berk,) Sacc.*

On Ilex prinoides, (Peters).

Described in part from Alabama material in Grevillea, 4:3, under *Tympanis*, as follows:—"Sparsa vel fasciculata;

cupulis breviter pedicellatis marginatis, disco cinereo; sporidiis biconicis commissura medioque constrictis."

"Scattered or fascicled, cups strongly marginate, shortly pedicellate, disc cinereous; sporidia biconical, the divisions and commissure constricted, with occasionally a globular body at the commissure, 0013-0015; paraphyses crowned with narrow abovate conidia."

Cenangium Cephalanthi (Schw.) Fr. *

On Cephalanthus occidentalis, (Peters), Grevillea, 4:4.

Cenangium contortum B. & C.

On dead wood, Peters Coll. 1:149.

Described in Grevillea, 21:75, as follows: "Gregarious, black, cups at first orbicular, sessile, then variously contorted when dry, margin slightly elevated, then somewhat connivent (1-2mm. broad), smooth. Asci cylindrical, cotosporous. Sporidia hyaline, allantoid, obtuse, 8x1-½ ú."

Cenangium leptospermum B. & C.*

On Abies, (Peters).

Described in Grevillea, 3:5, as follows: "Fasciculatum minutum nitidum subglobosum disco punctiformi; sporidiis elongato-fusiformibus arcuatis pluri-nucleatis."

"Fasciculate, minute, shining, subglobose, disc small almost punctiform; sporidia slender, fusiform, arched, with many globose nuclei."

Cenangium Magnoliae B & C.*

On Laurus, (Beaumont).

Described in part from Alabama material, in Grevillea, 4:5, as follows: "Caespitosum apertum marginatum nigrum; ascis amplis, sporidiis magnis allantoideis."

"Caespitose; disc open, marginate, black; asci ample, sporidia sausage shape, .0013 long, about half as much wide."

Cenangium turgidum Fr.

On Quercus, (Peters), Rav. Fung. Car. exsic. 4:24.

Cenangium ustale (B. & C.) Sacc.*

On decayed twigs, (Peters).

Described in Grevillea, 3;152, under *Peziza*, as follows:

"Congesta irregularis extus rufa subtiliter tomentosa; hymenio spadiceo; stipite cylindrico brevi."

"Crowded, irregular, externally rufous, minutely tomentose; hymenium bright brown; stem short, cylindrical."

Chlorosplenium versiforme (Pers.) Karst.*

On Quercus, (Peters), Grevillea, 3:160.

Dasyscypha Arundinariae (Berk.) Sacc.

On Arundinaria, Lee, 5, 1896.

Ascoma 0.5mm. spores oblong, 6x1 ú, paraphyses fusiform, rigid, acute.

Dasyscypha calycina (Schum.) Fekl.

On Pinus, Peters Coll. 3:16.

Dasyscypha lacnoderma (Berk.) Rehm.

On Pinus, Lee, 3, 7, 1896.

Erinella sp.

On Magnolia, Peters' Coll. 1:28, under *Peziza albo-violacea* A. & S. Closely sessile; ascoma covered with short, white or flesh colored hairs, upturned margine narrow, disc flat, expanded, ochraceous, about 1mm.; asci narrowly clavate, obtuse, about 80x6 ú; paraphyses thread like equaling the asci; spores thread like, nearly straight in the ascus, multiseptate, faintly yellowish, about 75x1½ ú.

Humaria spissa (Berk) Sacc.*

On the ground, (Peters).

Described in Grevillea, 3:152, as follows: "Cupulo irregulari; margine lobato; hymenio crasso spadiceo; stipite brevissimo candido; sporidiis ellipticis binucleatis."

"Cups ¾ inch across, irregular; margin lobed; hymenium thick, bright brown, rather convex; stem very short, white; sporidia elliptic, binucleate, .00057 long."

Lachnea scutellata (L.) Sacc.

On rotten wood, Peters' Coll. 1:32.

Winston, 6, 1896.

Lachnella extricata (B. & C.) Sacc.*

On some unbellifer, (Peters).

Described in Grevillea, 3:152, as follows: "Erumpens, congesta margine undulato; extus pallide umbrina sericeo-tomentosa, intus albida."

"Bursting through the cuticle; crowded; margin undulated, externally pale umber, hymenium dirty white."

Lanzia rugipes (Peck) Sacc.

Lee, (Atkinson).

Lecanidion atratum (Hedw.) Rabenh.

On Liriodendron, Lee, 2, 1896.

Macropodia macropus (Pers.) Fuckel.

Peters Coll. 3,17, July 1855.

Macropodia pubida (B. & C.) Sacc.*

On the ground, (Peters).

Described in Grevillea, 3:153, under *Peziza*, as follows: "Cupulis congestis hemisphericis, margine inflexo extus stipiteque brevi velutinis; paraphysibus brunneis; sporidiis fusiformibus granulatis."

"Cups ¾ inch across, crowded, hemispherical, with an inflexed margin, velvety externally as well as the short stem; paraphyses brown; sporidis spindle-shaped, granulated, .001-0015 long. Mycelium densely betulose. Closely allied to the last (*Peziza senitosta* B. & C)."

Macropodia Schweinitzii Sacc.

Lee, (Atkinson).

Niptera atro-fusca (B. & C.)

Peters' Coll. 1:13, under *Peziza atro-fusca* B. & C.

This is the *Tapesia atro-fusca* (B. & C.) Sacc. (Syll. Fung. 8:373); but as the spores in our specimen are clearly septate it must be transferred to *Niptera*. We find the following characters. Ascoma covered with crisp fuscous hairs, which are about 40x6 μ; asci slender, cylindrical, spore bearing part 50x5μ; Spores end to end in a single rank, oval, colored, uniseptate, about 8x4μ; paraphyses and asci staining red in potash; paraphyses about 60x2 μ, simple, straight, thread-like.

Ombrophila decolorans (B. & C.) Sacc.*

On Quercus, (Peters).

Described in Grevillea, 4:6, under *Bulgaria*, as follows: "Alba demum cornei-color concava extus cum stipite venosa; ascis elongatis; sporidiis uniseriatis oblongo-cymbaeformibus."

"At first white, then horn-colored, externally venose, together with the short stem; asci long; sporidia in a single row, oblongo-cymbaeform, .0013 long, about 1-5 as much wide."

Orbilia vinosa (A. & S.) Karst.

Peters' Coll. 3:26.

Otidea euplecta Cooke.*

On moist sandy soil, (Peters), Grevillea, 3:151, under *Peziza phlebophora* B. & Br. Var.; with the remark: "The sporidia are .00074 long, whereas in the British plant they are .0004 long. There is apparently no other difference." It is described and figured in Cooke Mycogr. 125, f. 216, as follows: "Sessilis, obliqua, subochracea, intus fuscescens, extus farinosa, basi plicato-costata. Ascis cylindraceis, elongatis. Sporidiis ellipticis, laevibus. Paraphysibus sursum incrassatis."

"Cups ½-1 1-3 in. broad. Sporidia .02x012mm. Quite dffferent from *P. phlebophora*, with which it was at first associated."

Patinella inquinans (Cooke) Sacc.

On dead wood, Lee, 3, 1896.

Pezicula rhabarbarina (Berk.) Tul.*

On Cornus Amonum (C. sericea) (Peters), Grevillea, 4;2, under *Patellaria.*

Peziza aurantia Pers.

On the ground, Peters Coll. 11, 1864; Lee, 12, 1896.

Peziza badia Pers.

On the ground, Lee, 3, 1896.

Peziza chlora Schw.

(Peters) Rav. Fung. Car. exsc. 5:39. Our specimen seems to be an *Erinella*, but it is rather immature. We cannot trace this species in Sacc. Syll. Fung.

Peziza cochleata L.

Peters Coll. 1:26.

Peziza decolorans B. & C.*

On the grounds, (Peters).

Described in Grevillea, 3:150, as follows:— "Cupula

parva obconica; ex albo fuliginea; sporidia ellipticis binucleatis."

"Cups small, obconical, then dingy; sporidia elliptic, binucleate, .00057.

Peziza Petersii Berk.*

On burnt soil (Peters).

Described in Grevillea, 3:150, as follows:— "Gregaria crispata extus pallida; hymenio spadiceo; sporidiis ellipticis angustis binucleatis."

"An inch or more across, rather shallow, gregarious, crisped, externally pallid; hymenium bright brown; sporidia narrow, elliptic, binucleate, .00038 long."

Pezizella soleniformis (B. & C.) Sacc.

On dead wood. Peters Coll. 3:17.

Described in Grevillea. 3:160, under *Peziza*, as follows:— "Minuta candida primum hemispherica, margine tumido, dein cylindrica, demum ore expanso flexuoso."

"Minute, white, at first hemispherical, with a swollen margine, then cylindrical; mouth at length expanded; flexuous. A curious little species."

Phialea cyathoidea (Bull.) Gill.*

(Peters), Grevillea, 3:160, under *Peziza*.

Phialea fructigena (Bull.) Gill.

On Hicoria (shells), Lee, (Atkinson).

Pseudohelotium sacchariferum (Berk.) Sacc. *

On Liquidambar, (Peters).

Described in Grevillea, 3:157, under *Peziza* as follows:— "Mollis gregaria pallide aurantiaca irregularis extus saccharina; margine tumidula; disco concavo."

"Soft gregarious, pale orange, irregular, externally saccharine; margin swollen; disc concave."

Pyrenopeziza atrata (Pers.) Fckl.*

On Solidago, (Peters, Beaumont), Grevillea, 3:159.

Sarcoscypha occidentalis (Schw.) Sacc.*

On the ground, (Peters) Grevillea, 3:152, under *Peziza*.

Sphaerospora confusa Cooke.

On burnt ground in damp woods, Lee, 7, 1886.

Tapesia candido-fuiva (Schw.) Saac.

On dead wood, Lee, 1896. Spores cylindric, somewhat curved, 12x3μ

Urnula craterium (Schw.) Fr.

On the ground, Lee, 3, 1896.

ORDER HELVELLALES.

FAMILY RHIZINACEAE.

Psilopezia flavada. B. & C. *

On Quercus alba, (Peters).

Described in Grevillea, 4:1, as follows:—"Congesta flavida irregularis flexuosa; margine demum elevato; sporidiis oblongis."

"About one fourth inch across, dirty yellow, somewhat confluent, flexuous; asci linear; sporidia oblong, 0006 long, about half as wide."

Rhizina Inflata. (Schaeff.) Karst.

On the ground, Lee, 7, 1896.

FAMILY GEOGLOSSACEAE.

Geoglossum Peckianum Cke.

Winston, 1862 (Peters); Peters coll. as *G. Glutinosum.*

Leptoglossum Alabamense. Underw.

Alabama (Herb. A. P. I.) Described from Alabama material in Bull. Torr. Bot. Club, 24 : 82, as follows:—

"Black throughout, gregarious, 2-3 cm high. Ascoma about 1 cm. long, flattened, in the dry condition about 2 mm. wide and 0. 5. mm. thick, blunt or rounded, horny, yellowish within; stem roughened, somewhat enlarged at base; spores hyaline, straight or slightly more or less curved, biseriate in the asci, becoming 4 septate, 18-20 x 4 μ; paraphyses abundant, thickened and darker colored at the tip.

On the ground, Auburn, Alabama. July."

Mitrula Phalloides. (Bull.) Chev.

"Alabama" (Beaumont).

In swampy places, Lee, 5, 1896.

Morchella Esculenta. (L.) Pers.

On the ground in low places, Lee, 3, 1896. A slender form with light brownish spores. This species and its congeners are known as "morels" are the most delicious of the edible species.

CLASS BASIDIOMYCETES.

ORDER USTILAGINALES.

Cerebella Andropogonis Ces.

On Chrysopogon avenaceus, Macon, 8, 1896, (Carver).

On Erianthus contortus, Macon, 8, 1896, (Carver).

Corebella Paspali Cke. & Mass.

On Paspalum platycaule, Lee, 1891, (Atkinson) ; Macon, 10, 1896, (Carver).

Cintractia axicola (Berk) Cornu.

On Cyperus, (Beaumont), Grevillea, 3:59.

On Fimbristylis autumnalis, Lee, 9, 1896.

Entyloma compositarum Farl.

On Gnaphalium sp. (?) Lee, 4, 1896.

Entyloma Saniculae Peck.

On Sanicula sp. Lee, 1892, (Atkinson).

Graphiola congesta Berk & Rav.

On Sabal Adansoni, Lee, 7, 1896.

Sorosporium Syntherismae (Schw.) Farl

On Andropogon macrourus, Lee, 1891, (Atkinson).

On Andropogon scoparius, Lee, 1891, (Atkinson).

On Andropogon Virginicus, Lee, 1889, (Atkinson, in Economic Fungi :74).

On Andropogon sp. Macon, 8, 1896, (Carver).

Ustilago Avenae (Pers.) Jensen.

On Avena sativa, Lee, 5, 1896.

Ustilago Euchlaenae Arcang.

On Euchlaena luxurians, Lee, 10, 1895.

Ustilago Rabenhorstiana Kuhn.

On Panicum sanguinalis, Lee, 1085.

Ustilago Sorghi (Link) Pass.

On Sorghum sp. Lee, 11, 189[illegible].

Ustilago sparsa Underw.

In scattered ovaries of Dactyloctenium Aegyptium, Lee, 11, 1895; 10, 1896. Described from this material in Bull. Torr. Bot. Club, 24:86, as follows:

"Parasite infesting occasional ovaries and transforming them into somewhat spherical olivaceous pustules covered by the changed and roughened seed coat, 1–3 mm. in diameter, the remainder of the inflorescence unchanged; spores regularly oval, distinctly echinulate, about 7–9 μ in length."

"Related to *U. neglecta* Niessl. and *U. spermophora* B. & C., but distinguished from them by its larger pustules and smaller spores. It has nothing in common with *U. Dactyloctaenii* P. Henn. Die Pflanzenwelt Ost-Afrika, 5:48 which occurs on the same host, has dark violet horn-shaped sori and smooth spores, 10–14 μ."

"In scattered ovaries of *Dactyloctenium Aegyptium*, Auburn, Alabama, November, 1885, and October, 1896. Underwood & Earle."

Ustilago Tritici (Pers). Jensen.

On Triticum vulgare, Lee, 1891, (Atkinson).

Ustilago utriculosa (Nees.) Tul.

On Polygonum hydropiper, Prague, 6, 1890, (Atkinson).

On Polygonum Pennsylvanicum, Lee, 1891, (Atkinson).

Ustilago Zeae (Berkm.) Magn.

On Zea Mays, Lee, 1891, (Duggar).

ORDER UREDINALES.

Aecidium Asterum Schw.

On Aster sp. DeKalb, 5, 1896.

On Solidago Canadensis, Lee, 1892 (Duggar).

On Solidago sp. Lee, 1891 (Newman & Duggar); Dallas, 5, 1896; DeKalb, 5, 1896.

Aecidium compositarum Mart.

On Eupatorium purpureum, DeKalb, 5, 1896.

On Eupatorium verbenaefolium, DeKalb, 5, 1896.

On Helianthus sp., Madison, 5, 1896.

On Silphium sp. Lee, 5, 1896.

Aecidium Epilobii D. C.

On Oenothera laciniata (Œ. sinuata), Lee, 1891 (Atkinson).

Aecidium Euphorbiae Gmel.

On Euphorbia nutans, Lee, 7, 1896.

Aecidium Gerardiae Pk.

On Dasystoma flava, Madison, 5, 1896.

Aecidium Gnaphaliatum Schw.

On Gnaphalium purpureum, Lee, 7, 1896.

Aecidium hibisciatum Schw. *

On Hibiscus Moscheutos, (Peters).

Aecidium hydnoideum B. & C.

On Dirca palustris, (Peters); Distributed in Ravenel, Fung. Car. exsic. 4:94; Winston, 6, 1896.

Aecidium Hypericorum B. & C. *

On Hypericum sp. (Peters). Probably not distinct from Æ. hyperici frondosi Schw.

Aecidium Impatientis Schw.

On Impatiens aurea (pallida), Lee, 4, 1896; DeKalb, 5, 1896.

Aecidium leucostictum B. & C.

On Lespedeza, various species. DeKalb, 5,1896; Madison, 5, 1896.

Aecidium Lycopi Gerard.

On Lycopus Virginicus, Lee, 5, 1892, (B. M. Duggar).

Aecidium Mariae-Wilsoni Pk.

On Viola obliqua, Lee, 4, 1896; Peters' Coll. No. 196 reported as *Ae. Petersii* B. & C.

Aecidium Oldenlandianum Ell. & Tracy.

On Houstonia patens, Lee, 2, 1891 (Atkinson). Very distinct from *Ae. houstoniatum* Schw. and appears to agree with the above, though fresh material gathered in March, 1896, seems to show more conspicuous spotting of the leaves than is called for in the type.

Aecidium Orobi B. C. *

On Meibomia (Desmodium). (Peters). The only collec-

tion of an *Aecidium* on this host in this country which renders the determination of either the fungus or the host the more doubtful.

Aecidium Penstemonis Schw.

Penstemon pubescens, Lee, 5, 1896.

Aecidium Petersii B. & C.

On Viola, sp. (Peters).

On Viola pedata, Lee, 4, 1896.

This very distinct species was described from Alabama in Grevillea, 3:61. 1874, as follows:

"Pseudoperidiis gregariis cylindricis emacula flava oriundis."

"Pseudogregarious, cylindrical, seated on a yellow spot. Distinct from the last (*Ac. violae* D. C.)" The long cylindric bright yellow peridia opening by a narrow mouth with erect or incurved teeth clearly separates this species from our other *Aecidia* on Viola.

Aecidium Plantaginis Ces.

On Plantago Virginica, Lee, 3, 1896. Only once found.

Aecidium Proserpinacae B. & C.*

On Proserpinaca sp. (Beaumont).

Described in Grevillea, 3:60. 1874 from Alabama specimens as follows:

"Hypophyllum; pseudoperidiis sparsis margine radiatis; maculis nullis."

"Scattered over the surface of the leaves; margin of pseudoperidia radiated, spots none."

Aecidium Pteleae B. & C.*

On Ptelea sp. (Peters).

Described from Alabama specimens in Grevillea, 3:60. 1874, as follows:

"Maculis pallidis hypophyllis extrorsum bullatis; pseudoperidiis congestis brevibus radiatis."

"Spots pallid, in a hollow on the under side of the leaves; pseudoperidia crowded, short radiatek."

Aecidium Punctatum P.

On Anemone decapetale, Lee, 4, 1896.

Aecidium Sambuci Schw.

On Sambucus Canadensis, (Peters) ; Lee, 3, 1894 (Quaintance).

Aecidium Saniculae Carm.

On Sanicula sp. Lee, 3, 4, 1896.

Aecidium Verbesinae Schw.

On Verbesina occidentalis, DeKalb, 6, 1896. Although Schweinitz himself in his later writings combined this species with A. asteris. These specimens, if the same, seem very distinct in the character of the spores and peridium. The Aecidia on the Compositae need a careful revision.

Caeoma Agrimoniae Schw.

On Agrimonia parviflora, Lee, 1891 (Duggar).

On Agrimonia Mollis (?), Lee, 5, 1896.

Caeoma nitens Schw.

On Rubus trivialis, Mobile, 1891 (Zimmer).

On Rubus villosus, Lee, 1891 (Atkinson).

On Rubus sp., Lee, 4, 1896.

Chrysomyxa albida Kuhn.

On Rubus villosus, Lee, 1891, (Atkinson).

On Rubus sp., Macon, 1891, (Atkinson).

Coleosporium Amsoniae (Cke.)

(Trichobasis amsoniae Cke. in Ravenel, Fungi Americani, exsiccati, no. 489.)

On Amsonia tabernaemontana, Alabama, 1864, (Peters) Peters' Coll.; Lee, 7, 1896.

A very distinct species of *Coleosporium!*

Coleosporium Ipomoeae (Schw.) Burr.

On Convolvulus sepium, Lee, 1891, (Atkinson).

On Ipomoea pandurata, Lee, 7, 1896.

On Ipomoea purpurea, Lee, 1891, (Duggar & Newman).

On Ipomoea sp., Lee, 1890, (Atkinson).

A very abundant species.

Coleosporium Sonchi-arvensis (P.) Lev.

On Aster dumosus, Lee, 1891, (Atkinson).

On Aster puniceus, Lee, 1891, (Atkinson);.

On Aster Tradescanti, Lee, 1891, (Atkinson).

On Aster undulatus, Lee, 1891, (Duggar).

On Elephantopus Carolinianus, Lee, 1890, (Atkinson, Duggar).

On Elephantopus tomentosus, Lee, 1891, (Bennett, Newman).

On Elephantopus sp., Macon, 1890, (Atkinson).

On Helianthus sp., Lee, 1891, (Duggar, Atkinson).

On Liatris graminifolia, Lee, 1891, (Duggar).

On Solidago altissima, Lee, 1891, (Atkinson).

On Solidago caesia, Lee, 1891, (Atkinson).

On Solidago Canadensis, Lee, 1891, (Newman).

On Solidago sp., DeKalb, 5, 1896.

Coleosporium Vernoniae B. & C.

On Vernonia sp., (Beaumont).

On Vernonia sp., Lee, 10, 1895.

Originally described from Alabama specimens in Grevillea, 3:57. 1874, as follows:

"Maculis pallidis; soris parvis sparsis melleis; sporis exobovatis subfusiformibus triseptatis."

"Spots pallid; sori small, scattered, honey-colored, at first obovate, then subfusiform, triseptate, resembling those of *Bactridium*."

This species is referred to the preceding by most authors.

Gymnosporangium clavipes Cke. & Pk.

On Juniperus Virginiana, Lee, 1891, (Atkinson); 1892. (Duggar). Very common.

Gymnosporangium globosum Farl.

On Juniperus Virginiana, Lee, 3, 1896. Rare in Eastern Alabama.

Gymnosporangium macropus Link.

On Juniperus Virginiana, Lee, 1890, (Atkinson). Everywhere abundant, and in its alternating stage forming the "rust" on apples.

Gymnosporangium nidus-avis Thax.

On Juniperus Virginiana, Lee, 3, 1896. Rare.

Gymnosporangium sp.

On Juniperus Virginiana, Lee, 3, 1896. Frequent.

Melampsora farinosa (P.) Schroet.

On Salix fragilis, Lee, 1891, (Atkinson).

On Salix nigra, Lee, 1891, (Duggar).

On Salix sp., Lee, 1891, (Duggar).

Melampsora populina (Jacq.) Lev.

On Populus monilifera, Macon, 8 : 1896 (G. W. Carver).

On Populus grandidentata, Lee, 1889 (Atkinson).

On Salix sp, Macon, 8, 1896 (G. W. Carver).

Melampsora Scolopendri (Fckl.) Farl. (*Gloeosporium Phegopteridis.*)

On Woodwardia areolata, Macon, 8, 1896 (G. W. Carver).

Peridermium cerebrum Pk.

On Pinus echinata (P. mitis), Lee, 1896.

On Pinus Taeda Lee, 4, 1896.

On Pinus Virginiana, Winston, 6, 1896.

Peridermium orientale Cke.

On Pinus palustris Lee, 4, 1896.

On Pinus Taeda Lee, 4, 1896.

On Pinus sp. Macon, 4, 1896.

On Pinus sp. Dekalb, 5, 1896.

Phragmidium Fragariastri (DC.) Schroet.

On Duchesnea Indica (Fragaria) Lee, 2, 4, 1896; Tuscaloosa, 5, 1896. Uredospores only.

Phragmidium Rubi-Idaei (Pers.) Wint. (?)

On Rubus cuneifolius, Lee, 7, 1996. Aecidium (Caeoma) only ; the specimens are referred with some doubt to this species ; the spore masses occur in large pustules underneath the bark of the young stems forming when they burst bright golden patches ; spores about 20-25μ oval or nearly spherical and almost smooth, in which they differ from European aecidial forms.

Puccinia Andropogi Schw.

On Andropogon argyrius, Lee, 1891 (Atkinson).

On Andropogon furcatus, Lee, 1891 (Duggar).

On Andropogon scoparius, Lee, 1891 (Duggar).

On Andropogon Virginicus, Lee, 12, 1895 ; 3, 1896.

On Andropogon sp. Lee, 1891, (Duggar).

Puccinia angustata Pk.

On Scirpus cyperinus eriophorum, Lee, 1890 (Atkinson), 1891 (Duggar).

Puccinia argentata (Schultz) Wint.

On Impatiens biflora (I. fulva), Lee, 1891 (Atkinson.)

Puccinia Asteris Duby.

On Aster sp. Lee, 1891 (Duggar); De Kalb, 5, 1896.

Puccinia Caricis (Schum.) Rebent.

On Carex lurida, Lee, 1891 (Atkinson.)

On Carex sp., Lee, 1891, (Duggar.)

Puccinia clavispora Ell. & Barth.

On Chrysopogon nutans, Lee, 12, 1895; 3, 1896; Macon, 8, 1896 (G. W. Carver.)

Puccinia Convolvuli Cast.

On Convolvulus sp., De Kalb, 5, 1896. (Aecidial stage only).

Puccinia emaculata Schw.

On Panicum maximum, Lee, 1891 (Duggar, Newman.)

On Panicum virgatum, Lee, 3, 1896.

On Sieglingia seslerioides, Lee, 1891 (Duggar.)

Puccinia Fuirenae Ckc.

On Fuirena squarrosa, Lee, 7, 1896.

On Fuirena sp. Lee, 1891 (Duggar.)

Puccinia graminis P.

On Hordeum vulgare, Lee, 7, 1896.

On Secale cereale, Lee, 1890 (Atkinson).

On Sieglingia seslerioides, Lee, 10, 1895.

On Triticum vulgare, Lee, 5, 1896.

On Vilfa aspera, Lee, 1889 (Newman.) Ellis, N. A. Fungi, no. 2417.

Puccinia heterospora B. & C.

On Sida spinosa, Montgomery, 1891 (Atkinson); Lee, 10, 1895.

Puccinia Hieracii (Schum.) Mart.

On Cnicus, sp., Lee, 1891 (Atkinson.)

On Sitilias Caroliniana, Lee, 1890 (Atkinson), 1891 (Newman).

Puccinia Hydrocotyles (Link) Plowr.

On Hydrocotyle umbellata, Lee, 1891 (Duggar.)

Puccinia investita Schw.

On Gnaphalium purpureum, Lee, 1890 (Atkinson.)

Puccinia lateritia B. & C.

On Spermacoces glabra, Rav. Fung. Car. exsic. 3:93. (1855). Peters. This name is not given in Saccardo nor in Notices of North Amer. Fungi in Grevillea. It seems to be the same as *Puc. Spermacoces* B. & C. which was not published until 1874.

Puccinia Maydis Carradori.

On Zea mays, Lee, 1891 (Newman.)

Puccinia Menthae P.

On Kœllia (Pycnanthemum) Lee, 1891 (Atkinson); Montgomery, 1881 (Atkinson).

Puccinia Phragmitis (Schum) Korn.

On Arundinaria sp. Lee, 2, 1896.

Puccinia Podophylli Schw.

On Podophyllum peltatum, Lee, 4, 1896; Hale, 5, 1896: Madison, 5, 1896; DeKalb, 5, 1896.

Puccinia Polygoni-amphibii P.

On Polygonum Pennsylvanicum, Lee, 1890 (Atkinson); 1891 (Duggar).

On Polygonum sp., Lee, 1889 (Atkinson).

Puccinia polysora Underw.

On Tripsacum dactyloides, Lee, 8, 10, 1891 (B. M. Duggar). Mobile 10, 1896 (S. M. Tracy.) Described from this material in Bull. Torr. Bot. Club, 24: 86, as follows:—

II., III. Amphigenous; sori very small, short, very numerous but irregularly scattered, remaining long enclosed in the tough epidermis of the host, at length rupturing by a narrow slit; uredospores large, broadly oval, 35x30 μ scarcely echinulate, the epispore of medium thickness, pale rusty brown; teleutospores variable, usually short, irregularly oblong, often somewhat constricted at the septum, averaging 25 x 40μ, the cells often irregularly angled, the upper usually

broader than long, blunt or rounded above; apex not thickened; pedicel usually short."

"On *Tripsacum dactyloides*, Auburn, Alabama, August and October, 1891, B. M. Duggar."

Puccinia Pruni-spinosae P.

On Prunus Americana, Lee, 1891 (Duggar).

On Prunus serotina, Lee, 1891 (Duggar).

On Amygdalus persica Macon, 10, 1896 (G. W. Carver).

On Prunus sp. Lee, 1890 (Atkinson).

Puccinia purpurea Cke.

On Sorghum halapense Macon, 10:1896, G. W. Carver.

Puccinia rubigo-vera (D. C.) Wint.

On Avena sativa, Lee, 1890 (Atkinson).

On Secale cereale, Lee, 5, 1896.

Puccinia Saniculae Grev.

On Sanicula sp. Lee, 1891 (Benton).; Hale, 5, 1896; Tuscaloosa, 1896.

Puccinia Silphii Schw.

On Silphium Asteriscus, Lee, 4, 7, 1896.

On Silphium laevigatum, Lee, 1891 (Atkinson).

Puccinia Smilacis Schw.

On Smilax sp. 10, 12, 1895; Macon, 10, 1896 (G. W. Carver)

Puccinia Sorghi Schw.

On Sorghum cernuum, Lee, 1888 (Newman).

Puccinia Spegazzinii De Toni.

On Micania scandens, Lee, 1891 (Atkinson).

Puccinia Spermacoces B; & C.*

On Spermacoces glabra, (Peters).

Originally described from Alabama specimens in Grevillea, 3:53. 1874, as follows:—

"Hypophylla, maculis flavis parvis; soris rubiginosis; sporis brevibus laevibus utrinque obtusis pedicello brevioribus."

"Spots yellow, small, orbicular; sori rust-colored; spores short obtuse at either end, even, very slightly constricted, shorter than the hyaline stem." (See note under P. lateritia.)

Puccinia stromatica B. & C.*

On stems of Clematis sp. (Peters).

Described from specimens collected in Alabama, in Grevillea, 3:53, 1874, as follows:—

"Soris affusis rubiginosis; sporis laevibus brevibus utrinque obtusis "pedicello longo flexuoso."

"Sori effused, rust-colored; spores short, even, obtuse at either end, seated on a long flexuous pedicel, which is attenuated downwards."

Puccinia Tanaceti D. C.

On Helianthus angustifolius, Lee, 1891 (Atkinson).

On Helianthus annuus, Lee, 1891 (Atkinson).

On Helianthus tuberosus, Lee, 1891 (Atkinson.); Macon, 8, 1896 (G. W. Carver).

On Helianthus sp:, Lee, 1890 (Atkinson).

Puccinia Violae (Schm.) D. C.

On Viola blanda, Winston, 6, 1896, (Uredo stage only).

On Viola sp. Lee, 1891 (Benton).

Puccinia Xanthi Schw.

On Xanthium Canadense, Perry, 1891 (Newman); Macon, 8, 1896 (G. W. Carver).

On Xanthium strumarium, Lee, 10, 11, 1895.

On Xanthium sp. Lee, 1890 (Atkinson).

On Ambrosia trifida, Lee, 1891 (Atkinson).

Ravenelia cassiaecola Atk.

On Cassia nictitans, Lee, 1890 (Atkinson): 1891 (Atkinson): 1893 (Duggar).

Described from material collected at Auburn, Alabama, in Bot. Gaz. 17: 314. 1891, as follows:—

"Caulicolous or hypophyllous. Sori on leaves 1 mm. or less, rotund or oblong: on stems oblong, irregular, confluent, sometimes covering a space 1-10 cm. in length, frequently ambient, rupturing irregularly or longitudinally. Pseudoperidium composed of loosely cohering, irregularly angular, small cells, yellowish brown. Uredospores in mass appearing dirty yellowish white: singly, hyaline or dull yellow to fulvous, oval or rotund, minutely asperulate, 9-13 by 12-16μ Teleutospores in mass appearing black: singly, fulvous to dark brown: 30-100μ, convex at free ends, depressed where

joined to pedicel, small ones rotund, composed of from 5-30 cuneate cells, their free ends frequently bearing a single hyaline, short spine : cells 18-23 by 20-30ú : cystoid cells 5-15 rotund, hyaline or colored, rigid, 14-18ú ; pedicel fulvous, stout, 50-80ú long.

Ravenelia glandulaeformis B. & C.

On Cracca hispidula, Lee, 1891 (Duggar.)

On Cracca spicata, Lee, 1891 (Duggar).

On Cracca Virginiana, Lee, 1891 (Atkinson): 1893 (Duggar): Macon, 8, 1896 (G. W. Carver).

Roestelia aurantiaca Pk.

On Crataegus sp. Lee 1891 (Atkinson,) Benton, (Duggar); 1892 (ibid).

On Cydonia vulgaris, Lee, 1891 (Atkinson, Newman).

Roestelia flaviformis Atk.

On Crataegus spathulata, Lee, 10, 1895.

Roestelia pirata (Schw.) Thax.

On Pirus augustifolia, Lee, 3, 1896.

On Pirus coronaria, Lee, 7, 1896.

On Crataegus spathulata, Lee, 10, 1895.

On Pirus coronaria x malus, Lee, 8, 1890 (Atkinson). Seymour and Earle. Econ. Fungi, no. 228.

On Pirus malus (fruit). Lee, 1891 (Atkinson) ; (leaves) 5, 7, 1896, Regarded as the alternate stage of *Gymnosporangium macropus.*

Thecopsora Vaccinorum (Lk.) Karst.

On Xolisma ligustrina (Andromeda) Lee, 10, 1896.

Uredo Azaleae Schw.

On Azalea nudiflora, Lee, 1891 (Benton).

Uredo Fici Cast.

On Ficus carica, Lee, 1890 (Atkinson).

Uredo miniata P.

On Rosa sp. (lucida?), Lee, 5, 1896.

There appears to be so much uncertainty concerning the relations of this common fungus that it is perhaps best to leave it under the original name until something definite can be determined.

Uredo Quercus Brond.

On Quercus alba, Lee, 1891 (Atkinson).

On Quercus nigra (Q. aquatica), Lee, 1891 (Duggar).

On Quercus minor (Q. stellata) 1891 (Atkinson).

On Qnercus sp., Lee, 1891 (Atkinson).

Uromyces Andropogonis Tracy.

On Andropogon Virginicus, Lee, 1891 (Duggar); Macon, 8, 1896 (G. W. Carver).

On Andropogon sp. Lee, 10, 1895.

Uromyces appendiculatus (P.) Link.

On Phaseolus vulgaris,. Mobile, 1890 (Atkinson); Lee, 1891 (Atkinson)

On Phaseolus sp. Peters coll,—under *Uredo leguminosorum*, collected by Beaumont.

Uromyces Eragrostidis Tracy.

On Agrostis tenuis, Lee, 1891 (Duggar).

Uromyces Euphorbiae B. & C.

On Euphorbia nutans (E. Preslii), Lee, 1891 (Duggar).

Uromyces Hedysari-paniculati (Schw.) Farl.

On Meibomia rotundifolia, Macon, 8, 1896 (G. W. Carver)

On Meibomia paniculata, Lee, 1891 (Atkinson).

On Meibomia (Desmodium) sp., Peters' Coll., 1858 (under *Uredo appendiculata*), Lee, 1890 (Atkinson); Perry; 1891 (Atkinson); Macon, 8, 1896 (G. W. Carver)

Uromyces Hyperici (Schw.) Curt.

On Hypericum mutilum, (Prague Junction). 1890 (Atkinson). Lee, 1891 (Duggar); 10, 1896.

On Hypericum Virginicum, Lee, 11, 1895.

Uromyces Junci Desm.

On Juncus sp., Lee, 1891 (Atkinson).

Uromyces Lespedezae (Schw.) Pk.

On Lespedeza hirta, Lee, 1891 (Atkinson).

On Lespedeza procumbens, Lee, 1891 (Newman, Duggar).

On Lespedeza repens, Lee, [Atkinson].

On Lespedeza Stuvei, Lee, 1890 [Atkinson].

On Lespedeza Virginica, Lee, 1880 (Atkinson).

On Lespedeza sp., Macon 8, 1896 [G. W. Carver.)

Uromyces Medicaginis-falcatae (D C.) Wint.

(*U. striatus* Schroet).

On Trifolium Caroliniamm, Lee, 1890 [Atkinson]; also the aecidial form, Lee, 3, 1896.

(*Uromyces pluriannulatus* B. &. C. described originally from Alabama proved to be a *Synchitrium* q. v).

Uromyces Polygoni (P.) Fckl.

On Polygonum setaceum, Lee, 1891 (Atkinson.)

Uromyces Rhynchosporae Ellis.

On Rhynchospora glomerata, Lee, (Atkinson); 1891 (Duggar).

On Rhynchospora sp., Macon, 8, 1896 (G. W. Carver).

Uromyces Spermacoces (Schw.) Curt.

On Diodia teres, Macon, 1891 Atkinson; 10, 1886, (G. W. Carver); Lee, 1893 (Duggar).

Uromyces Terebinthi (D. C.) Wint.

On Rhus toxicodendron, (Beaumont); Perry, 1891 (Atkinson); Lee, 1891 (Atkinson).

Pileolaria brevipes B. & R. Grevillea, 3: 58, 1874, was foxnded on specimens of this plant collected in Alabama by Beaumont.

Uromyces Trifolii (A. & S.) Wint.

On Trifolium pratense, Lee, 1891 (Newman, Duggar) Madison, 5, 1896.

On Trifolium sp., Lee, 1890 (Atkinson).

Uropyxis Amorphae (Curt.) Schroet.

On Amorpha fruticosa, Macon, 1890 (Atkinson); Lee, 10, 1895.

Order Tremellales.

family auriculariaceae.

Hirneola Auricula-Judæ (L.) Berk.

On Hicoria, Lee, 3; 1896.

Peters' Coll. 8; 1864.

Hirneola scutelliformis B. & C.*

Described in Grevillea, 2:19, as follows:

"Minuta orbicularis, subtus candida; hymenio fusco. On branches of Asimina. Alabama, Peters. No. 6343."

"About 1-12 inch across, looking like a flat *Peziza*; thin, orbicular, white beneath, hymenium brown. Sometimes laterally confluent, and forming a continuous mass."

FAMILY TREMELLACEAE.

Exidia glandulosa (Bull.) Fr.

On Alnus sp., Lee, 2; 1896.

On Liquidambar, Lee, 3; 1896.

On Quercus sp., Lee, 3; 1896.

Exidia truncata Fr. (?).

On Vitis rotundifolia, Lee, 1; 1892, (Atkinson).

Naematelia encephala Fr. *

On Oak, Peters, Grevillea 2:20.

Naematelia nucleata (Schw.) Fr.

On Tilia Americana, Peters, in Rav. Fungi Car. Exsc. 4:82.

Tremella dependens B. & C. *

On Liriodendron, described in Gredillea, 2:19, as follows:

"Sacciformis subclavata, viridi-flava dependens. On Liriodendron. Alabama, Peters. No. 6455."

"Sack like, elongated, subclavate, subtranslucent, thin, watery, mucilaginous, dissolving when the thin outer skin is broken; watery, greenish-yellow, 1-8 inch long. Hanging down from the under side of rotting tulip logs after rains. July, Sep. Allied to *T. vesicaria.*"

Tremella gigantea B. & C. *

Described in Grevillea 2:19 as follows:

"Maxima, pallide ferruginea, foliacea, firma. Alabama, Peters. No. 3806."

"Very near *T. ferruginea*, but paler and firmer."

Tremella mesenterica Retz.

On Alnus sp. Lee, 12; 1895, 2: 1896.

Tremella ———.

On rotten wood of Hicoria, Peters' Coll. No. 96.

This is erroneously labled *T. foliacea* Pers. It is large,

cæspitose thin, foliaceus, somewhat venose; basidia orbicular deeply four parted, dark fuscous about 12μ; spores oval 12x8μ.

Tremellodon gelatinosum (Scop.) Pers.

On Pinus sp., Lee, 3; 1896. Alabama (Peters). Peters' Coll. No. 62 under the name *Hydnum gelatinosum.*

Ulocolla foliacea (Pers.) Bref. ?

On Quercus sp., Lee, 3; 1896.

On Vitis rotundifolia, Lee, 2; 1896.

On Alnus sp. Lee, 2; 1896.

FAMILY PILACRACEAE.

Pilacre taginea (Fr.) B. & Br.

Peters' Coll. 1:195, under *Onegyna faginea F.*

Pilacre Petersii B. & C.

On Ilex opaca (Peters.) Distributed in Ravenel, Fung. Car. exsic. 3:39.

On Carpinus Alabama, 1865 (Peters.) Peters' Coll.

FAMILY DACRYOMYCETACEAE. †

Arrhytidia flava B. & C.

On Pinus sp, (rotten wood), Lee, 2; 1896.

Arrhytidia fulva B. & C.

On Pinus sp. (rotten wood), Peters' Coll., Lee, 1; 1896.

Dacryomyces chrysocomus (Bull.) Tul.

On Pinus sp. (rotten wood), Lee, 1 and 2; 1896.

Dacryomyces deliquescens (Bull.) Dub.

On Pinus sp. (rotten wood), Lee, 3; 1896.

Dacryomyces stillatus Nees.

On Pinus sp. (rotten wood), Lee, 2, 1896.

Guepinia elegans B. & C.

Alabama, Peters, distributed in Rav. Fungi Car. exsic. 5:23.

Guepinia petaliformis B. & C. *

Described in Grevillea 2:5, as follows:

"Pileo flabelliformi margine crispato tuberculoso, hyme-

† It is possible that this group should rank as an order.

nio supra nudo, infra venoso. No. 6052, Alabama, Peters."

"On dead wood about an inch high; stem compressed; pileus flabelliform, with the margin crisped and tuberculate; hymenium naked above, pubescent and venose below,"

Guepinia Spathularia (Schw.) Fr.

On Pinus, Lee, 12, 1896.

On various woods, Lee, 11, 12, 1895; 7, 1896.

ORDER HYMENIALES.

FAMILY TOMENTELLACEAE.

Coniophora umbrina (A. & S.) Fr. (*Telephora umbrina* A. & S.)

"Alabama (Peters)." Peters coll. no. 70.

Corticium Armeniacum Sacc. * (*C. molle* B. & C. not of Fr.)

On Vitis. (Peters, Beaumont).

Corticium caeruleum (Schrad.) Fr. (*Telephora Indigo* Schw.] Lee, 11, 1895; 1, 1896.

Corticium calceum (Pers.) Fr.

On Pinus, Lee, 1, 1896.

Corticium cervicolor B. & C.

(Peters). Described from Alabama specimens in Grevillea, 1; 179 as follows:—"Subiculo delicato byssaceo; hymenioque cervinis."

"On smooth wood. Fawn colored. Subiculum very delicate byssoid, spreading over the wood, but scarcely formtng a distinct margin; hymenium of the same color, scarcely pulverulent."

Corticium chlorinum B. & C.

On Abies. (Peters). Peters coll., no., 82: also under the name, *prasinum* collected 9, 1864. The plant is quite as likely to be a species of *Zygodesmus*.

Described from Alabama material in Grevillea, 1: 179, as follows:— "Forming a thin, brittle, olive-green membrane, which is at first pulverulent, but afterwards rough, with minute papillae; resembling such Thelephorae as *T. laxa*, &c."

Corticium chrysocreas B. & C.*

On Pinus. (Peters).

Described in Grevillea, 1:178 partly from Alabama specimens as follows:— "Subiculo parco flavo; hymenio ex albido fulvo papillato."

"Subiculum bright yellow thin; hymenium immarginate pallid, or yellow tinged with tawny."

Corticum cremoricolor B. & C. *

On Ilex (Peters).

Described in Grevillea 1:180 from Alabama specimens as follows:— "Mycelio albo innato; hymenio immarginato rimoso areolato, hic illic papillato."

"Mycelium white innate; hymenium cream-colored when fresh, soon cracked into largish areolae, here and there papillose."

Corticum crocicreas B. & C.*

On Vitis. (Peters.)

Described in Grevillea, 8:178 from Alabama specimens as follows:— "Subiculo amplo, tomentoso, laeteritio; hymenio tenui flavo."

"Subiculum spreading widely, bright saffron yellow; hymenium thin, more or less yellow. A curious species."

Corticium deglubens B. & C. *

On Juniperus. (Peters.)

Described in Grevillea, 1:166 from Alabama specimens as follows:—"Tenue papyraceum secernibile subtus candidum; hymenio laevissimo ochraceo."

"At first resupinate with a very narrow white byssoid margin, soon detached, white beneath like kid leather; hymenium honey-colored, very even and continuous."

Cortcium diminuens B. & C.

On Ostrya Virginica. (Peters.) Ravenel, Fung. Car. exsic. 3:31. Described from Alabama material in Grevillea, 2:3 as follows:— "Album stratosum, hymenio cretaceo diminuente."

"Consisting of several layers, each separated by a dark line; hymenium white, diminishing in width each time of growth, so as to leave a narrow zoned border."

Corticium dryinum B. & C.*

On Quercus. (Peters.)

Described in Grevillea, 1:179 from Alabama material as follows:— "Subiculo vix distincto; hymenio crassiusculo rhabarbarino-rufo."

"Running over very rough wood, on which it forms an irregular stratum of a deep rufous tint, with a rhubarb-colored velvety aspect."

Corticium ephebium (Peters). Peters coll., no., 80

Described in Grevillea, 1:178 from Alabama material as follows:— "Subiculo tomentoso pallido; margine secernibili, velutino; hymenio ex ochroleuco rufulo setuloso."

"Spreading widely. Subiculum tomentose; margin becoming free, velvety pale, umber; hymenium setulose as in *C. velutinum*."

Corticum evolvens Fr. *

On Liquidambar. (Peters.)

Corticium filamentosum B. & C.*

(Peters.)

Described from Alabama specimens in Grevillea, 1:178 as follows:— "Subiculo molli tomentoso fibrilloso pallido; hymenio pulverulento ochraceo, vel subolivaceo."

"Subiculum consisting of soft tomentose threads, over which the ochraceous or olivaceous pulverulent hymenium forms athin stratum."

Corticium lactescens Berk.

On Alnus serrulata, Lee, 1891, (Duggar.)

Corticium leve (Pers.) Pers. *

On Liquidambar. (Peters).

Corticium Martianum B. & C.

On Betula (Peters). Distributed in Ravenel, Fung. Car. exsic. 5:30 from material collected by Peters.

Corticium miniatum Berk.

On Liquidambar. (Peters.) Peters coll. no. 85. This is not the C. *miniatum* Cooke; Grevillea, 9:2, and perhaps is not described. Berkeley reports it under this name in Grevillea, 1:178. It appears to be a well marked species.

(*Corticium molle*) B. & C. See above under (*C. Armeniacum* Sacc).

Corticium akesii B. & C.

On Ostrya Virginica (Peters;) Lee, 1, 2, 1896. Distributed in Ravenel, Fung. Car. Exsic. 3 : 32 from Alabama material collected by Peters.

Corticium ochroleucum erimosum B. & C.*

On Sassafras. (Peters) Characterized in Grevillea, 1 : 166 by the words, "Hymenio continuo."

Corticium Petersii B. & C.

On the ground (Peters); Winston, 6, 1896. Distributed in Ravenel, Fung. Car. exsic. 5 : 28 from Alabama material collected by Peters. Described in Grevillea, 1 : 177 from material collected in Alabama as follows:—

"Subiculo tenui tomentoso, pallido hic illic in fibrillas compacto; hymenio alutaceo hic illic lateritio."

"Subiculum, thin, pallid, tomentose, here and there forming creeping fibres; hymenium pale, tan-colored, in parts tinged with brick-red."

Corticium polyporoideum B. & C.

Alabama 9, 1863, (Peters.) Peters coll. no. 84.

Described in Grevillea, 1 : 177 from material sent from Alabama as follows:—

"Subiculo tomentoso candido marginem angustum formante; hymenio pulverulento, pallide alutaceo."

"Effused irregular; subiculum white, well developed, tomentose, projecting beyond the pale tan-colored pulverulent hymenium and forming a narrow border. Allied to *C. Dregeanum* Mont. & B."

Corticum prasinum B. & C.

On the ground under Liquidambar. (Peters) Peters coll. 9, 1864; Distributed in Ravenel, Fung. Car. exsic. 5 : 29 from Alabama material collected by Peters.

Described in Grevillea, 1; 179 from Alabama specimens as follows:—"Subiculo parco arachnoideo; hymenio continuo tenui fragili prasino; margine albo."

"Subiculum delicate spidery; hymenium thin, brittle, continuous, with a white margin when young."

Corticium radiosum (Fr.) Fr.

Lee, 1891. (Duggar.)

Corticium scutellare B. & C.

Alabama (Peters) ; Lee, 1, 2, 1896.

Described in Grevillea, 2: 4 in part from Alabama material, as follows :—

"Resupinatum effusum, immarginatum, ex albido subalutaceum ; hymenio in areolas minutas fisso."

"Widely effused, thin, inseparable, immarginate; hymenium from dirty white to tan-colored or tawny."

Corticium siparium B. &. C.*

On Liquidambar. (Peters).

Described in Grevillea, 1: 177 from Alabama specimens, follows:—

"Subiculo spongioso tomentoso pallido; hymenio ochraceo demum fuscescente."

"Subiculum consisting of spongy pallid down; edge turned slightly up ; hymenium at first ochraceous, gradually acquiring a brownish tint."

Corticium viticolum Schw.

On Vitis aestivalis. Distributed in Ravenel, Fung. Car. exsic. 3 : 34 from Alabama material collected by Peters.

Exobasidium Andromedae Pk.

On Xolisma ligustrina (Andromeda) Lee, 5, 1896.

Exobasidium Azaleae Pk.

On calyces of Azalea nudiflora, Lee, 1892 (Benton); 4, 1896.

Exobasidium discoideum Ellis.

On leaves of Azalea nudiflora, Lee, 4, 5, 1896; Winston, 6, 1896.

Exobasidium Vaccinii (Fuck.) Wor.

On leaves of Vaccinium, Lee, 4, 1896.

On flowers of Gaylussacia frondosa, Lee, 5, 1896. Perhaps a distinct species as the character of the deformity produced and the gross characters are very different from the form on Vaccinium. Culture methods are revealing something of the relations of these curious forms.

Hypochnus anthochrous (Pers.) Fr.*
"Alabama (Peters.")

FAMILY CLAVARIACEAE

Clavaria aurea Schaeff.
Lee, 10, 1896.
Clavaria botrytes Pers.
Lee, 10, 1896.
Clavaria falcata Pers.*
"Alabama (Peters)."
Clavaria gracilis Pers.
Distributed in Ravenel, Fung. Car. exsic. 5: 34 from material collected in Alabama by Peters.
Clavaria Petersii B. & C.
Distributed in Ravenel, Fung. Car. exsic. 5:33 from material collected in Alabama by Peters.
Described in Grevillea, 2; 7 from specimens collected in Alabama by Peters, as follows:—
"E communi basi ramosa; ramis strictis subfastigiatis apice apiculato divisis rufis."
"About two inches high, branched from the very base; branches very straight, somewhat fastigiate, rufous, tips apiculate."
Clavaria pistillaris L.
On the ground, Lee, 11, 1896.
Sparassis crispa (Wulf.) Fr.
Lawrence, (Peters). Peters coll. no. 91; Lee, 12, 1896.
Sparassis Herbstii Pk.
On the ground, Lee, 7, 1896.

FAMILY THELEPHORACEAE

Craterellus Cantharellus (Schw.) Fr. (*C. lateritius* Berk.)
On the ground, Winston, 6, 1896; Lee, 7, 1896. Some specimens show the characteristic brick-red color ascribed to *C. lateritius* but the greater number are yellow. A specimen in the Peters collection marked "*C. unicolor* Rav." collected 1864 is apparently the same species.

C. lateritius was described from Alabama material collected by Peters, in Grevillea, 1:147, as follows:

"Pileo profunde umbilicato lobato stipite deorsum angustato hymenioque radiato venoso lateritiis."

"On the ground; 2 inches wide; brick-red; pileus deeply umbilicate, cyathiform, margin lobed; stem 1½ inches high, dilated above; veins narrow, radiating. This is *Thelephora craterellus* Schwein."

Craterellus cornucopioides (L.) Pers.

On the ground, Lee, 7, 1896.

Cyphella fulva B. & Rav.

On Alnus. Lee, 1, 2, 1896.

Cyphella furcata B. & C. *

On Alnus. (Beaumont.)

Described in Grevillea, 2: 5 from Alabama material as follows:—

"Stipite cylindrico hic illic furcato, cupulisque cyathiformibus ferrugineis tomentosis."

"Like the last (*C. fulva*) growing in little groups, but consisting of fewer individuals; stem cylindrical, often forked, terminated by cyathiform cups, tomentose and ferruginous externally. A very curious species."

Hymenochaete agglutinans Ellis.

Encircling twigs, often living ones, Lee, 2, 1896.

Hymenochaete corrugata (Fr.) Lev. (*Corticium corrugatum* Fr.)

Lee, 1, 2, 1896; distributed in Ravenel, Fung, Car, exsic. 5:26 from Alabama material collected by Peters.

Hymenochaete epichlora (B. & C.) Cke. (*Corticium epichlorum* B. & C.)

On Vaccinium (Peters.)

On Symplocos; Distributed in Ravenel, Fung. Car. exsic. 5:24 from Alabama material collected by Peters.

Described as *Corticium epichlorum* in Grevillea, 1:178 from specimens collected in Alabama by Peters, as follows:—

"Subiculo tenui viridi-luteo marginem angustum formante, hymenio olivaceo umbrino demum rimoso."

"Subiculum thin, yellow-green, forming a slight margin; hymenium olive-umber, at length cracked."

Hymenochaete purpurea Cke. & Morg.

Lee, 11, 1895. According to Morgan this species will go in the genus *Peniophora.*

Hymenochaete setosa B. & C.*

On Quercus. (Peters.)

Described from material collected in Alabama, in Grevillea, 1:165, as follows:—

"Laete ferruginea, continua, resupinata setis eximiis exasperata."

"Widely spread, or [sic] a bright ferruginous; hymenium rough with fascicles of setae."

Stereum albobadium (Schw.) Fr.

On various twigs and branches, Lee, 1891 (Atkinson); 12, 1895 1, 2, 1896. Common.

Stereum Bicolor (Pers.) Fr.

On stumps, Lee, 10, 1895; 2, 3, 1896; Winston, 6, 1896.

Stereum candidum (Schw.) Fr.

On Quercus, Lee, 12, 1895. Forming small patches on the bark of large trees.

Stereum Curtisii Berk.*

"Alabama (Peters)." This species is sometimes referred to *Hymenochaete.*

Stereum fasciatum (Schw.) Fr.

On old logs, Lee, 11, 1895; 3, 12, 1896. In habit like *S. versicolor*, of which it was formerly regarded a variety.

Stereum frustulosum (Schw.) Fr.

On Quercus, Lee, 11, 12, 1895, 1895, 3, 7, 1896. Very common.

Stereum gausapatum (Fr.) Fr.*

"Alabama (Peters)."

Stereum Levilleanum B. & C.

Lee, 11, 1895.

Stereum nivosum (Rav.)

On Juniperus, Lee, 11, 1895; 3, 1896. Very common.

Stereum pergameneum B. & C.

Distributed in Ravenel, Fung. Car. exsic. 3:25 from Alabama material collected by Peters.

Described from Alabama in Grevillea, 1 : 161 as follows:—

"Pileo cyathiformi rufo vix zonato subtiliter lineato; margine tenui dentato laceratove; stipite cylindrico hymenioque albidis."

"On decayed wood. Pileus 1½ inches across, cup-shaped, bright rufous, not shining, minutely lineate, very obscurely zoned; margin thin, often toothed or laciniate stem ½-1½ inch high, 1 line thick, whitish, very minutely tomentose; hymenium nearly of the same subochraceous tint."

Stereum radians Fr.

On twigs, Lee, 11, 12, 1895; 1, 1896.

Stereum Ravenelii B. & C. *

On the earth in swamps. "Alabama (Peters, Beaumont.)"

Described in part from material collected in Alabama by Peters and Beaumont, Grevillea, 1 : 162, as follows:—

"Gregarium ecommuni mycelio oriundum; pileo cyathiformi, fusco; margine pallidiore plicato stipite gracili tomentoso hymenioque pallidis."

"Pileus very variable in size, from a line to an inch across, cup-shaped, sometimes split on one side, brownish, with a slight admixture of red, paler toward the plicate margin; stem ½–1½ inch high, ½ a line thick, gregarious, springing from a common mycelium, finely tomentose, pallid, as well as the hymenium, closely allied to *S. nitidulum* B."

Stereum sericeum (Schw.) Morg.

On twigs, Mobile, 12, 1895; Lee, 12, 1895, 1, 1896. Not common.

Stereum subpileatum B. & C.

Lee, 11, 1895; 4, 1896; Winston, 6, 1896.

Stereum versicolor (Swz.) Fr.

Lee, 11, 1895; Mobile, 12, 1895; Winston 6, 1896. Everywhere common.

Thelephora filamentosa B. & C. *

"Alabama [Peters]."

Described from Alabama material in Grevillea, 1:148 as follows:— "Pileis filiformibus pallidis e mycelio lato communi oriundis."

"Growing on decayed matted herbaceous fragments, on which it forms a mycelium, which is in part smooth, in part filamentous ; pilei thread-shaped. A very curious species, but the specimens scarcely show whether the pilei are really filiform or deeply split."

Thelephora botryoides (Schw.)* (*T. olivacea*, var. *Botryoides*, Schw.; *T. Granosa*, B. & C.)

"Alabama [Peters]."

Thelephora griseo-zonata Cke.

On the ground, Lee, 12, 1895; 10, 1896.

Thelephora lobata Bertol.

Described from Alabama material in Mem. Accad. Sci., Bologna 7:360, as follows :

"Semiorbicularis; stipite beevissimo lateraliter affixa, margine lobata, ora nigrescente, supra sinereo-tomentosa, quadrizonata, zonis senescentipes nigro-limbatis; hymenio laevi, extus lutescente. *Tab. 19, fig. e. f. g.*"

"Habui ex Alabama a Doct. Gates."

"Nata super ramum arboris, quem determinare non potui, cum careat foliis, et floribus. Sterps parva, coreacea licet tenuis, horizontalis, ramo lateraliter affixa stipite brevissimo, margine lobata, ora marginali demum nigra, junior supra convexa, cinereo-tomentosa, concolor, quadrizonata, postea complanata, tomento fere subcano, zonis senio linea nigra limbatis, subtus hymenio laevi, glabro, ad interiora cinereo, ad exteriora lutescente."

"Pertinet ad sectionem tertiam *Auriculariarum Fries, El. Fung., vol. 1, p. 174.* Appropinquat *Telephoram stiraciſluam Schwein. in Fries l. c. p.* 177, sed descriptio ejus manca non sinit, ut de identitate judicem, neque at exemplaribus siccis dignoscere possum, si nostra junior sit ut illa lutescens; insuper in *Telephora stiraciflua* non adnotantur zonæ nigro-limbatæ."

A species not noted by Saccardo nor, so far as we know, by any other writer on American mycology.

Thelephora pedicellata Schw.

On living stems of shurbs, [Crataegus, etc.], Lee, 11 1895; 2, 1896.

On Cornus (Peters.)

Thelephora Schweinitzii Pk. *(T. pallida* Schw, not of Pers*)*

On the ground (Peters.) Peters coll.; Lee, 10, 1895; Winston, 6, 1896.

Thelephora sebacea Pers.

Incrusting living leaves of Viola. 1893 (Peters.) In Peters coll. as *Thelephora Micheneri* B. & C.

Incrusting various leaves and stems, Lee, 7, 1896.

Thelephora terrestris Ehrh.

Lee, 7, 1896.

FAMILY HYDNACEAE.

Caldesiella ferruginosa (Fr.) Sacc. *(Hydnum ferruginosum* Fr.*)*

"Alabama (Beaumont); Lee, 5, 1896.

Hydnum adustum Schw.

Lee, 1891 (Atkinson); Winston, 6, 1896.

Hydnum atroviride Morg.

Lee (Atkinson.) Described [with an illustration] in Jour. Cincinnati Soc. Nat. Hist, 18:38. Pl. 1. f. 5. as follows: — "Dark green in color throughout. Pileus fleshy-coriaceous, thin, convex then expanded, orbicular or somewhat irregular. Stipe more or less difform, short or elongated, central or excentric. Aculei slender, acute. Spores dark green, rough and irregular, 6-9 mic. in diameter."

"Growing on old wood, Auburn, Alabama, Prof. George F. Atkinson. Pileus 1-2 cm. in diameter, the stipe 1-2cm. in length. Easily recognized by the dark green color in every part even of the spores."

Hydnum chrysocomum Underw.

Under decayed wood, Lee, 11, 1895.

Hydnum cirratum Pers. *

On Quercus, (Beaumont.)

Hydnum compactum Pers.

On the ground, Mobile, 12, 1895.

Hydnum erinaceus Bull.

On Quercus, 1863 (Peters) coll. no. 60.

On old log, Lee, 11, 1896, (Miss J. Skehan.)

Hydnum fascicularia B. & C.*

Described in Grevillea, 1:99. from material in part collected in Alabama, as follows:

"Totum resupinatum ceraceum pallidum; aculeis fasciculatis brevibus obtusis quandoque apice ciliatis."

"Widely, effused, very thin, waxy, inseparable from the matrix, pallid, but varying in tint; prickles fasciculate, short, obtuse, sometimes ciliated at the top as in *Kneiffia*."

Hydnum ferrugineum Fr.

Lee, 1891 (Atkinson); 11, 1896.

Hydnum flabelliforme Berk.

On standing trunks, Lee, 1, 1896.

Hydnum fragilissimum B. & C.

Distributed in Ravenel, Fung. Car. exsic. 5: 21, from Alabama material collected by Peters.

Hydnum himantia Schw.

"Alabama (Peters). Peters coll. no. 56.

Hydnum imbricatum L.

Alabama (Peters.) Peters coll. no. 55 as *H. subsquamosum.*

In pine woods, Lee, 12, 1895; 3, 1896 (E. F. Lee); 7, 1896 (J. Q. Burton); 12, 1896; rather common.

Hydnum læticolor B. & C.*

Ou Quercus, (Beaumont.) Described in part from Alabama specimens in Grevillea, 1:99, as follows:— "Læte effusum, margine demum separabili subbyssoideo; aculeis laete ochraceis compressis subvelutinus apice dentato laceratis."

"Effused for several inches, at length more or less separable at the margin, where it is slightly byssoid or tomentose; hymenium reddish-ochre; prickles compressed, somewhat velvety, toothed and lacerated at the apex. A fine species."

Hydnum membranaceum Bull.

Distributed in Ravenel, Fung. Car. exsic. 5:20, from Alabama material collected by Peters.

Hydnum mucidum Pers.*

On logs, Lee, 10, 12, 1895; 1, 2, 1886.

Hydnum ochraceum Pers.

On logs, Lee, 10, 12, 1895; 1, 2, 1896.

Hydnum parasitans B. & C.*

On Ulmus Americana, (Peters)

Described from specimens collected in Alabama, in Grevillea, 1:100 as follows:

"Parasiticum, aculeis brevibus compressis obtusis."

"Parasitic on the teeth of some *Hydnum*; subiculum obsolete; prickles short, compressed, obtuse."

Hydnum pulcherrimum Lee, 10, 12, 1895; Hale, 4, 1896; Winston, 6, 1896.

Hydnum repandum L.

On the ground (Peters.) Peters coll. no. 61; Lee, 1, 11, 12, 1896.

Hydnum septentrionale Fr. *

On Tilia, (Peters.)

Hydnum setulosum B. & C.

On Liquidambar (Peters.) Peters coll. No. 59.

Described from Alabama specimens in Grevillea, 1:100, as follows:— "Subiculo candido lacteo membranaceo; aculeis flexuosis subulatis acutis subtiliter setulosis."

"Subiculum membranaceous, white, forming a broad border to the hymenium, which is quite confined to the centre; prickles waved, subulate, minutely setulose under a lens. A very distinct species."

Hydnum spathulatum (Schw.) Fr.

On decaying wood, Lee, 11, 1895: 1, 1896.

Hydnum spongiosipes Pk.

Alabama (Peters.) Peters coll. no. 57 as "*H. ferrugineum*?"

Hydnum subsquamosum Batsch.

On the ground, 1864 (Peters) Peters coll. no. 55.

Hydnum zonatum Batsch.

Lee, 7, 1896.

Irpex coriaceus B. & Rav.

On Quercus (Peters). Lee, 11, 1895. Distributed in Ravenel, Fung. Car. exsic. 3:21 from material collected in Alabama.

Irpex fuscescens Schw.

On Quercus, Lee, 11, 1895; 1, 2, 1896. Not uncommon.

Irpex Schweinitzii B. & C.*

Alabama (Beaumont).

Described from specimens sent from Alabama in Grevillea, 1:102, as follows:

"Resupinatus, subiculo membranaceo, separabili, margine sterili, brevi, byssoideo; dentibus carneo-griseis compressis."

"Scarcely exceeding ½ an inch in breadth; suborbicular; subiculum, thin, membranaceous, byssoid, separable from the matrix; teeth confined to the centre, compressed, pinkish-grey, subporiform."

Kneiffiella candidissima (B. & C.) Underw.

On Juniperus Virginiana, (Peters). Distributed in Ravenel, Fung. Car. exsic. 5:32, from material collected in Alabama by Peters.

Kneiffiella aspera (Pers.) Underw. (*Kneiffia setigera* Fr.)

On Juniperus Virginiana (Peters). Distributed in Ravenel, Fung. Car. exsic. 5:31, from material collected by Peters in Alabama.

Odontia fimbriata B. & C.

Alabama (Peters) Peters coll., no. 67.

Odontia lateritia B. & C.

On Quercus (Peters). Distributed in Ravenel, Fung. Car. exsic. 5:22, from material collected in Alabama.

Described in Grevillea, 1:147, from specimens collected in Alabama, as follows:

"Effusa immarginata lateritia, matricem tingens."

"Widely effused, without any distinct margin; brick-red, staining the wood with the tint; spines short, tomentose."

Phlebia radiata Fr.

On Liriodendron, 1863, (Peters). Peters' coll., no. 66.

Phlebia zonata B. & C.

On Tilia, 7, 1855, Alabama, (Peters). Peters' coll.; a badly preserved specimen.

Radulum orbiculare Fr.

On dead wood, Lee, 12, 1895.

Radulum spinulosum B. & C.*

"Alabama (Peters)."

Described from material sent from Alabama, in Grevillea, 1:146, as follows:

"Effusum, isabellinum, margine elevato tomentoso, dentibus minutis sparsis spinulosum."

"Effused, opaque, of a pallid pinkish-grey; margin slightly raised, tomentose; hymenia sprinkled with short spinules."

FAMILY POLYPORACEAE.

Daedalea ambigua Berk.

On Quercus, Lee, 4, 1896.

Daedalea confragosa (Bolt.) Pers.

On Salix, Lee, 12, 1895; 2, 3, 11, 1896; 10, 1896, (C. F. Baker).

Daedalea glaberrima B. & C.

Lee, 12, 1895. Sufficiently distinct from *D. ambigua.*

Daedalea unicolor (Bull.) Fr.

Alabama, (Beaumont). Peters' coll., 44, as *Daedalea cinerea.*

Favolus alveolarius (D. C.) Fairm.

On Fagus, Lawrence, 1863, (Peters) Peters' coll., no. 48; Lee, 3, 1896. This includes the forms that have been variously named *F. Europaeus, etc.*

Gloeoporus conchoides Mont.

Lee, 11, 12, 1895; 1, 7, 1896; Mobile, 12, 1895; Hale, 5, 1896, common. When rather young and moist the entire hymenium will readily separate in a waxy or gelatinous-waxy membrane entirely different from anything seen in

species of *Polyporus*. Its generic character must hold. A specimen is in the Peters coll. (1854) under the name of *Polyporus nigropurpurascens*.

Lenzites Berkelei Lev.*

"Alabama, (Beaumont)."

Lenzites betulina (L.) Fr.

Lee, 10, 12, 1895; 11, 1896.

Lenzites corrugata Kl.

Lee, 1, 1896.

Lenzites Crataegi Berk.*

"Alabama (Peters).*

Lenzites Klotzschii Berk.

On Liquidambar, Lee, 10, 11, 12, 1895; 1, 1896; very common.

Lenzites repanda Fr.*

"Alabama (Peters)."

Lenzites rhabarbarina B. & C.

On Pinus, Lee, 10, 1895; 1, 1866.

Lenzites sepiaria Fr.

On Pinus, Lee, 1, 1896; Hale, 5, 1896.

Merulius bellus B. & C.

On Abies, 1858, (Peters). Peters coll., No. 52. A small specimen but agreeing well with the brief description.

Described in Grevillea, 1:69, from material sent from Alabama, as follows:

"Effusus subbyssoideus irregularis; hymenio alutaceo poris ab initio distinctis brevibus."

"Effused, more or less byssoid; hymenium tan-colored, distinctly porous as soon as the hymenium is formed. This is quite different from the last, [*M. ceracellus*] though difficult of definition; the walls of the pores are not rigid as in *M. ceracellus*."

Merulius corium Fr.

Alabama, 1855 (Peters); Peters coll.; Lee, 1, 2, 3, 7, 12, 1896; common.

Merulius haedinus B. & C.

On Tilia, (Peters) distributed in Ravenel, Fung. Car. exsic. 4:8, from material collected in Alabama.

Described from specimens sent from Alabama, in Grevillea, 1:69, as follows:

"Pileo dimidiato candido glaberrimo, hymenio reguloso."

"Pileus an inch or more across, long, white, except at the margin, where it has a pale umber tint, quite smooth, slightly wrinkled; margin lobed, probably from the lateral confluence of one or more individuals; hymenium deep flesh-colored, wrinkled."

Merulius porinoides Fr. *

On Quercus, (Peters.)

Merulius serpens Tode.

On Pinus Lee, 1, 1896.

Merulius tremellosus Schrad.

Lee, 12, 1895; 1, 11, 12, 1896.

Polyporus acanthoides (Bull.) Fr.

Lawrence (Peters.) Peters coll. No. 35.

Polyporus adustus (Willd.) Fr.

On Hicoria, Lee 12, 1896.

On various trunks, Lee, 11, 12, 1895; 3, 1896.

Polyporus abietinus (Dicks.) Fr.

On Pinus, Lee, 11, 12, 1895; 1, 1896. Common.

Polyporus aneirinus Sommerf.

On Juglans, 2, 1855 (Peters.) Peters coll.; a badly eaten specimen.

Polyporus applanatus (Pers.) Wallr.

Alabama (Atkinson). Apparently this usually common species is not common in this state; only a single specimen seen.

Polyporus arcularius (Batsch.) Fr.

On various fallen branches, Lee, 3, 5, 7, 1896; Tuscaloosa, 5, 1896; Madison. 5, 1996. A second form of this species (or possibly a distinct species) was collected in Auburn in February, and March 1896, with darker brown pileus and smaller pores with light cinereous mouths. It should be studied carefully in the field.

Polyporus barbatulus Fr.

Lee, 11, 1895.

Polyporus barbæformis B. & C.

On Vitis (Peters); Lee, 12, 1895; 1, 1896.

Described from material sent from Alabama, in Grevillea, 1:53 as follows:—

"Totus resupinatus margine tenui, albo; hymenio fulvo; poris parvis, elongatis, dissepimentis tenuibus."

"Wholly resupinate with a thin white margin; hymenium tawny; pores 1-48 inch wide, but variable in size."

Polyporus Beaumontii B. & C.*

"Alabama (Beaumont)."

Described in Grevillea, 15:26 from material sent from Alabama under the name of *Poria Beaumontii* as follows:—

"Effusa, adnata, crassiuscula, ochraceo-pallida, margine angusto, subtomentoso, poris majusculis, subaequalibus, rotundo-angulatis; dissepimentis acie acutis integris. *Polyporus Beaumontii* B. & C. in Herb. Berk. No. 2919."

Polyporus biformis Klotz.*

"Alabama (Beaumont)."

Polyporus carneus Nees.

On Juniperus (Peters.) Distributed in Ravenel, Fung. Car. exsic. 5:14. Also collected by Atkinson.

Polyporus cervinus Schw.*

"Entirely resupinate without any distinct margin; of a golden yellow, inclining to olive; pores elongated, oblique, 1-36 inch wide; spores ferruginous."

Polyporus chrysoloma Fr.

On pine chips, Lee, 1, 1896. We cannot separate this material from the species figured under the above name in Fries, Icones, *pl. 189; f. 3;* it agrees well with the description, except that the stratum of pores frequently becomes thicker than the description calls for. The yellow mycelial strands (fading to whitish in the dried specimens) and the strikingly dædalioid pores will readily distinguish it.

Polyporus cinnabarinus (Jacq.) Fr.

On Prunus, Lee, 1885; 11, 1896; Winston, 6, 1896.

Polyporus connatus Fr. ?

On Gleditschia triacanthos, Lee, 2, 1896. Referred with

some hesitation to this species are several specimens growing on the upper limbs of a dying tree, quite unlike the habit of ordinary *P. connatus*. The characters of the pileus and pores are not like typical forms of this species. It is desirable to have additional and younger material.

Polyporus corticola Fr.

On bark, Lee, 12, 1895.

Polyporus Curtisii Berk.

On Quercus, etc. Lee, (Atkinson); 10, 11, 12 (1895); 6, 7, 1896. Very common and usually perennial. Very distinct from the annual *P. lucidus* with which it has sometimes been united.

Polyporus dealbatus B. & C.

Alabama 7, 9, 1864 (Peters, Beaumont). Peters coll. No. 40. Distributed from Alabama material in Ravenel, Fung. Car. exsic. 3:10.

Polyporus delicatus B. & C. *

Alabama (Peters).

Described from Alabama specimens in Grevillea, 1:37 as follows:

"Pileo orbiculari, ochraceo, tomentoso; margine tenui, acuto; stipite brevi, radicante; poris angulatis, dissepimentis tenuibus, usque ad basin decurrentibus."

"Pileus 3-4 inch across, orbicular, ochraceous, tomentose; margin thin, acute; stem 1-4 inch high, 2 lines thick; rooting; pores angular, dissepiments thin, decurrent to the very base, 1-50 inch across."

Polyporus dibaphus B. & C. *

On Ilex opaca, (Peters).

Described from Alabama specimens in Grevillea, 1:36, as follows:

"Pileo orbiculo, atropurpureo, subtiliter tomentoso, glabrescente, lineis pallidis hic illic radiato; stipite gracili, subconcolore, deorsum pruinato; poris decurrentibus, ochroleucis, angulatis, parvis."

"Pileus 1 in. across; orbicular, dark purple, finely tomentose, becoming smooth, with here and there pallid radiat-

ing lines; stem slender, nearly of the same color, pruinate downwards; pores decurrent, pale ochre, angular, small."

Polyporus Earlei Underw.

On the ground, Lee, 11, 1896. Described from material collected in Alabama in Bull. Torr. Bot. Club, 24:84, as follows:

"Mesopous; terrestrial; stem 4-5 cm. long, 1-1.5 cm. or more thick, colored like the pileus; pileus 7-12 cm. each way, cinereous, slightly darker towards the centre; margin very thin, much incurved in drying; context soft-fleshy, grayish, drying to a thin layer; pores 1-2 mm. deep, somewhat whitish-stuffed when young, cinereous gray, paler when young and, towards the margin, small (less than 0.5 mm.), the dissepiments rather firm, entire."

"Pine woods, Auburn, Alabama, Nov. 1896. Prof. F. S. Earle."

"The plant is cinereous throughout and retains this color when dry."

Polyporus elegans (Bull.) Fr.

On fallen branches, Lee, 2, 1896; Hale 5, 1896.

Polyporus endocrocinus Berk.

Hale, 5, 1896; Lee, 10, 1896 (C. F. Baker).

Polyporus ferruginosus (Schrad.) Fr.

On fallen limbs, Lee, 12, 1895; 1, 1896.

Polyporus flavo-squamosus Underw.

On the ground, Lee, 11, 1896.

Described from Alabama material in Bull. Torr. Bot. Club, as follows:

"Pleuropous; terrestrial; stem 7-8 cm. thick, slightly flattened, irregular roughened, colored like the pileus; pileus 1.5 cm. each way, yellowish, with a slight tinge of greenish; covered with rather small floccose imbricate scales, which form a very thin fragile crust, channeled behind where the edges nearly meet; margin rather acute, more or less incurved in drying; context white or slightly yellowish, fleshy, firm, becoming almost woody when dry; pores 5 mm. deep, rather large (about 1 mm.), irregular, angular, with thin dis-

sepiments, slightly decurrent, white, changing to greenish when wounded, yellowish when dry; spores oval or ovoid, 9x6μ, with a single large highly refractive gutta."

"Growing in clayey soil, Auburn, Alabama, 23 Nov., 1896. Mrs. F. S. Earle."

Polyporus flavovirens B. & Rav.

On clay banks in woods, Lee, 7, 1896.

Polyporus gilvus Schw.

On trunks and fallen logs, Lee, 11, 12, 1895; 3, 12, 1896; Mobile, 3, 1896; Hale, 5, 1896; Winston, 6, 1896. Common.

Polyporus hemileucus B. & C.

On Liriodendron, Lee, 12, 1895; 3, 1896; Mobile, 12, 1895.

Polyporus hirsutus (Wulf.) Fr.

On trunks and branches, Lee, 12, 1895; 3, 4, 1896; Mobile, 12, 1895; 3, 1896; Hale, 5, 1896; Winston, 6, 1896. Very common.

Polyporus ilicincola B. & C.

On Ilex opaca, (Peters). Distributed by Ravenel, Fung. Car. exsic. 5:17, from Alabama.

Described from Alabama material in Grevillea, 1:52, as follows:

"Pileo flabelliformi, pallido, glabrato nitido radiato reguloso; poris pallidis sinuatis."

"Pileus 3-4 inch wide and long, flabelliform, but frequently laterally confluent, pallid, at length quite smooth, marked with little radiating lines; pores 1-72 wide, sinuated. Hymenium much like that of *P. abietinus*."

Polyporus isidioides Berk. ?

On trunks and branches, Lee, 12, 1895; 1, 3, 1896; Hale, 5, 1896; Winston, 6, 1896. With some hesitation and following common usage we refer this common form to this New Zealand species of which we have seen no authentic specimens. The species, whatever its name, is distinct from *P. gilvus* to which some have united it.

Polyporus irregularis Underw.

Under a pine log, Lee, 2, 1896. Described from Alabama material in Bull. Torr. Bot. Club, 24:85, as follows:

"Pileus irregular, more or less branching, brownish, paler towards the margin, uneven, subtomentose, with a thin imperfect crust, the under layer of which is darker colored, forming a delicate brown line in section; 4-6 cm. long, 3-4 cm. wide, the margin usually thin; context white, floccose-felty, pores white, 5 mm. or more deep, irregular, more or less angular, small (0.25 mm.), the dissepiments rather thin, firm, even."

"Growing irregularly underneath a pine log, Auburn, Alabama, Feb., 1896."

"The older portions are ferruginous brown above, and the free margins, when developed, are thin and distinctly paler brown for a space of about 1 cm. The extreme margin is sterile, and the pores which are normally even, become irregular and oblique as the margin tends to become erect."

Polyporus lucidus (Leys.) Fr.

On Tsuga, Winston, 6, 1896.

Polyporus Meliae Underw.

On branches of Melia Azedarach, Lee, 10, 1895. Described from material collected in Alabama, in Bull. Torr. Bot. Club, 24: 85, as follows:

"Pileus convex, dirty white, subtomentose, anoderm, 5-8 cm. in diameter, occasionally coalescing; margin obtuse, sometimes extending nearly or quite around the pores; cortex floccose-corky, whitish; pores cream white, becoming darker with age, more or less rimose, 5-6 mm. deep, minute (about 0.2 mm.), the dissepiments firm, slightly uneven, usually with obtuse edges; spores narrowly oblong, 6x3 hyaline."

"On branch of *Melia Azedarach*, Auburn, Alabama, Oct., 1895."

"In very old specimens the layer of pores becomes cracked in all directions and very much discolored."

Polyporus obliquus (Pers.) Fr.

Lee, 12, 1895; 1, 2, 1896.

Polyporus obtusus Berk.

On Quercus rubra, Lee, 11, 1895. Once found.

Polyporus occidentalis (Fr.) Klotzsch.*

"Alabama (Beaumont)."

Polyporus parvulus Klotzsch.

Lee, 7, 1896.

Polyporus pergamenus Fr.

On various deciduous trunks, Lee, 10, 12, 1895; 1, 2, 12, 1896; Mobile, 12, 1895; Winston, 6, 1896. Very common.

Polyporus perennis (L.) Fr.

Lee, 7, 1896. Young specimens scarcely separably from this species.

Polyporus picipes Fr.

Alabama (Atkinson).

Polyporus plebeius Berk.

On Prunus serotina, Lee, 4, 5, 1895.

On Magnolia?, Mobile, 12, 1895. Following reference of similar specimens by others we refer some of this species which is not uncommon in the southern part of the State to this New Zealand species. It appears very doubtful that two regions so widely separated should have any species in common that are not cosmopolitan in their character.

Polyporus poripes Fr.

Lee, 11, 1895.

Polyporus pulchellus Schw.

Alabama, 1855. (Peters). Peters coll. Apparently this species.

Polyporus purpureus Fr.

On rotten wood, Lee, 2, 1896.

Polyporus reniformis Morg.

Lee, 3, 1896; Winston, 6, 1896.

Polyporus retipes Underw.

In pine woods, Lee, 12, 1896. Described from material collected in Alabama, in Bull. Torr. Bot. Club, 24:85, as follows:

"Terrestrial; stem excentric, 4-6 cm. long, 2 cm. or more thick, yellowish-white towards the base; pileus 6-15 cm. each way, brown, appressed tomentose, finely areolate-rimose so as to appear finely mottled; context fleshy, rather thick

(2 cm. or more), becoming quite thin in drying, whitish; margin acute; pores decurrent half the length of the stem, shallow, whitish, large (1.5 mm. or more), mostly hexagonal, the dissepiments thin and finely lacerated."

"The young pores are very shallow and the stem appears reticulate-veined nearly to the base. As the pores become older they deepen and those nearest the base of the stem become more or less obscured."

"In pine woods, Auburn, Alabama, December, 1896. Mrs. F. S. Earle."

Polyporus resinosus (Schrad.) Fr.

On a fallen trunk, Lee, 3, 1896. Once found, the specimens the growth of the preceding autumn, which is its proper season.

Polyporus rhipidium Berk.

On a very much decayed log, Etowah, 5, 1896. Has the exact habit of *Panus stypticus* from which its pileus could scarcely be distinguished. Found only once.

Polyporus rimosus Berk.

On Robinia pseudacacia, Madison, 5, 1896; DeKalb, 5, 1896. Also collected somewhere in the State by Professor Atkinson, but exact locality unknown.

Polyporus sanguineus (L.) Mey.

On fallen trunks, Lee, 11, 12, 1895; 1, 1896; Tuscaloosa, 5, 1896; Winston, 6, 1896. Very common and conspicuous. Abnormal forms which were described by Fries as *Hydnum cinnabarinum* were found in Lee, 5, 1896; and Winston, 6, 1896.

Polyporus Schweinitzii Fr.

On the ground, Lee, 10, 1896 (J. Q. Burton); 11, 12, 1896.

Polyporus scutellatus Schw.

On branches of Alnus, Lee, 1, 1896. Very distinct from *Trametes Ohiensis* Berk. with which some have united it.

Polyporus spissus Schw.

On branches, Lee, 1, 1896.

Polyporus splendens Pk.

Alabama, 8, 1864. (Peters). Peters coll. no. 37, as *P. perennis*. Lee, 7, 1896. A single specimen.

Polyporus sulphureus (Bull.) Fr.

Winston, 6, 1896. Also collected in the State by Professor Atkinson.

Polyporus supinus (Sw.) Fr.

On Prunus angustifolia, Lee, 11, 1895; 3, 1896. Not uncommon.

Poylporus vaporarius Fr.

On various dead branches, Lee, 11, 12, 1895; 1, 1896. Very common.

Polyporus velutinus Fr.

Lee, 10, 12, 1895; 1, 6, 7, 1896; Winston, 6, 1896.

Polyporus versicolor (L.) Fr.

On various deciduous trees, Lee, 10, 11, 12, 1895; 3, 1896; Winston, 6, 12, 1896.

Polyporus vesiculosus B. & C.

On Pinus, (Peters). Peters coll. no. 39.

Described from material collected in Alabama, in Grevillea 1:65 as follows:

"Late effusus alutaceus; poris pezizaeformibus veluti e vesiculis ruptis enatis."

"Widely spreading, pale tan-colored; pores 1-100 inch wide, looking like minute burst bladders."

Polyporus virgineus Schw.

Alabama (Peters). Distrfbuted from Alabama material in Ravenel, Fung. Car. exsic. 3:11.

Polyporus viticola Schw.

On Vitis, (Peters). Peters coll. no. 38.

Polyporus vulgaris Fr.

On Abies, (Peters). Peters coll. no. 36 as *P. communis*.

Polyporus xanthus Fr. *

"Alabama (Peters)."

Porothelium fimbriatum (Pers.) Fr.

On Betula, Winston, 1861. (Peters). Peters coll. no. 52 bis.

Solenia anomala (Pers.) Fr.

On Alnus, Lee, 1, 5, 1896.

Solenia villosa Fr.

On Quercus (Peters). Distributed from Alabama material in Ravenel, Fung. Carol. exsic. 5:42.

Trametes lactea Fr.

Alabama (Peters). Peters' coll., no. 41.

Trametes Petersii B. & C.*

"Alabama (Peters)."

Described from specimens sent from Alabama in Grevillea, 1:66, as follows:

"Pileo applanato subtiliter tomentoso pallide fulvo marginem versus subsulcato-zonato, poris minimis punctiformibus, dissepimentis ab initio rigidis."

"Pileus flattened, but slightly convex, minutely tomentose; of a very pale tawny, somewhat sulcate or zoned at the margin, which is barren; pores quite punctiform, with rigid obtuse dissepiments about 1-150 inch wide."

Trametes rigida B. & Mont.

"Alabama (Beaumont); Lee, 11, 1895.

Trametes sepium Berk.

"Alabama (Peters, Beaumont);" Lee 11, 1895; 1, 7, 1896.

FAMILY BOLETACEÆ.

Boletinus decipiens (B. & C.) Pk.

Lee, 10, 12, 1896 (C. F. Baker).

Boletus auriporus Pk.

Lee, 7, 1896.

Boletus brevipes Pk.

Lee, 11, 1895; 10, 11, 1896 (C. F. Baker). Common.

Boletus chromapes Frost.

Lee, 5, 1896.

Boletus edulis Bull.

Lee, 7, 1896.

Boletus felleus Bull.

Lee, 7, 10, 1896.

Boletus ferrugineus Frost, var.?

Lee, 7, 1896. Differs from the brief description of this species in the pileus becoming at length concave, the longer stem and the reticulations lined with darker brown.

Boletus fistulosus Pk.

Lee, 7, 1896. Described in Bull. Torr. Bot. Club, 24:144; from Alabama specimens as follows:

"Pileus convex, viscid, glabrous, yellow, the margin at first incurved or involute, flesh yellow; tubes plane or subventricose, medium size, round with thin walls, adnate or sometimes depressed around the stem, yellow; stem rather slender, subequal, viscid, glabrous, hollow, yellow, with a white mycelioid tomentum at the base; spores elliptical, .0005 in. long, .00025 broad. Pileus about 1 in. broad; stem 2-4 in. long, about 3 lines thick."

"Grassy woods. Auburn, Alabama. July. Underwood."

"A small but pretty species of a yellow color throughout. It is remarkable for its hollow stem, which is suggestive of the specific name. It is referable to the tribe Viscipelles."

Boletus fraternus Pk.

On the streets of Auburn, Lee, 7, 1896. Described from Alabama material in Bull. Torr. Bot. Club, 24:145, as follows:

"Pileus convex, becoming plane or depressed, slightly tomentose, deep red when young, becoming dull red with age, flesh yellow, slowly changing to greenish-blue where wounded; tubes rather long, becoming ventricose, slightly depressed about the stem, their walls sometimes slightly decurrent, the mouths large, angular or irregular, sometimes combined, bright yellow, quickly changing to blue where wounded; stem short, cespitose, often irregular, solid, subtomentose, slightly velvety at the base, pale reddish yellow, paler above and below, yellow within, quickly changing to dark green where wounded; spores .0005 in. long, .00025 broad. Pileus 1-1.5 in. broad; stem 1-1.5 in. long, 3-6 lines thick."

"The species is apparently allied to *R. rubens*, but is very distinct by its small size, cespitose habit, color of the flesh of the stem and by the peculiar hues assumed where wounded. When the pileus cracks the chinks become yellow as in *B. subtomentosus*. This species belongs to the tribe Subtomentosi."

Boletus frustulosus Pk.

Along the highway on clay banks, Hale, 5, 1896. Described in part from Alabama material in Bull. Torr. Bot. Club, 24:146, as follows:

"Pileus thick, convex or nearly plane, subglabrous, rimosely areolate, white or whitish, flesh whitish; tubes equal to or a little longer than the thickness of the flesh of the pileus, depressed about the stem, whitish, becoming pale brown; stem equal, solid, whitish, reticulated above; spores .0006-.0007 in. long, .0002-.00025 broad. Pileus 3-5 in. broad, stem 1-2 in. long, 6-10 lines thick."

"The deeply cracked surface of the pileus is the most notable feature of this species. This sometimes is seen even in quite young plants. The areolae are quite unequal in size. The deep chinks with sloping sides cause them to appear like frustra of polygonal pyramids. In some specimens the reticulations of the stem extend nearly or quite to its base, and make the place of the species ambiguous between the Calopodes and Edules."

Boletus granulatus L.

In pine woods, Lee, 10, 1896.

Boletus griseus Frost.

Lee, 7, 1896.

Boletus hirtellus Pk.

In pine woods, Lee, 10, 1896.

Boletus Morgani Pk.

Lee, 10, 1896 (C. F. Baker).

Boletus ornatipes Pk.

Lee, 7, 1896.

Bolletus pallidus Frost.

Lee, 10, 1896.

Boletus parvus Pk.

Lee, 7, 1896. Described from material collected in Alabama, in Bull. Torr. Bot. Club, 24:145, as follows:

"Pileus convex, becoming plane, often slightly unbonate subtomentose, reddish, flesh yellowish white, slowly changing to pinkish where wounded; tubes nearly plane, adnate,

their mouths rather large, angular, at first bright red, becoming reddish-brown; stem equal or slightly thickened below, red; spores oblong, .0005 in. long, .00016 broad. Pileus 1-2 in. broad; stem 1-2 in. long, 2-3 lines thick."

"This is one of the smallest species of the tribe. It is referable to the tribe Luridi."

Boletus Ravenelii B. & C.

Lee, 7, 1896.

Boletus retipes B. & C.

Lee, 7, 1896.

Boletus subluteus Pk.

Lee, 10, 11, 1896.

Boletus tabacinus Pk.

Along roadsides, Lee, 5, 1896.

Described from Alabama specimens in Bull. Torr. Bot. Club, 23:418 as follows:

"Pileus fleshy, convex, nearly plane, subglabrous, often rimose-areolate, tawny-brown, flesh at maturity soft and similarly colored; tubes concave or nearly plane, depressed around the stem, their mouths small, angular, colored like the pileus; stem subequal, solid, reticulated, concolorous; spores oblong or subfusiform, .0005 to .00055 in. long, about .0002 broad; pileus 2.5 to 5 in. broad; stem 1.5 to 3 in. long, 6 to 10 lines thick."

"The species is referable to the section Calopodes, but the tubes are more or less depressed about the stem. It is well marked by its color which is some shade of brown or tawny-brown throughout, inclining at one time toward wood-brown, isabelline-brown or broccoli-brown, at another toward sepia-brown. The flesh in the dried specimens appears a little darker than the surface of the pileus. It is almost tomentose in texture."

Boletus Underwoodii Pk.

Lee, 7, 1896. Described from material collected in Alabama, in Bull. Torr. Bot. Club, 24:145, as follows:

"Pileus rather thin, convex, becoming nearly plane, slightly velvety, bright brownish-red, becoming paler with

age, flesh yellow, changing to greenish-blue where wounded: tubes adnate or slightly decurrent, greenish-yellow, becoming bluish where wounded, their mouths very small, round, cinnabar-red, becoming brownish-orange; stem equal or slightly tapering upward, somewhat irregular, solid, yellow without and within; spores .0004-.0005 in. long, .0002 broad. Pileus 2-3 in. broad; stem 3-4 in long, 4-6 lines thick."

"The species is remarkable for its adnate or subdecurrent tubes in which it departs from the character of the tribe to which it belongs according to the colors of the tubes."

Fistulina pallida B. & Rav.*

"At base of a stump of Quercus alba." (Peters.)

Described in part from material collected in Alabama, in Grevillea, 1:71 as follows:

"Pileo reniformi pallido-rubente, stipite laterali, tubis decurrentibus."

"Pileus 1-2 inches across, about one inch long, uniform, pallid red, pulverulent; margin inflexed; stem lateral, 1½ inch high, ⅓ thick, striate when dry; tubes more or less decurrent."

Fistulina radicata Schw.

At the roots of a decaying chestnut stump, Alabama, 9, 1864 (Peters). Peters coll. no. 24.

Fistulina spathulata B. & C.*

"Base of an oak" (Quercus) (Peters).

Described in Grevillea 1:71, from material collected in Alabama as follows:

"Pileo tenui, spathulato in stipitem gracilem basi attenuatum tubulis decurrente."

"Pileus ¾ inch across, thin, pulverulent, spathulate, attenuated behind into the lateral stem; stem 2 inches or more high, 1½ lines thick above, much attenuated downwards. Apparently a very distinct species."

Strobilomyces strobilaceus B. & C.

Lawrence, (Peters). Peters coll. no. 33; Lee, 7, 1896.

Agaricus campestris L.

Lee, 11, 1895; 2, 3, 7, 1896. The common edible field mushroom.

Agaricus placomyces Pk.

Lee, 7, 1896.

Amanita abrupta Pk.

Lee, 7, 1896.

Described from Alabama specimens in Bull. Torr. Bot. Club, 24:138, as follows:

"Pileus thin, broadly convex or nearly plane, verrucose with small angular or pyramidal erect somewhat evanescent warts, white, slightly striate on the margin, flesh white; lamellae moderately close, reaching the stem and sometimes terminating in slightly decurrent lines upon it, white; stem slender, glabrous, solid, bulbous, white, the bulb abrupt, subglobose, often coated below by the white persistent mycelium, the annulus membranous, persistent; spores broadly elliptical or subglobose, .0003-.0004 in, long, .00025-.0003 broad. Pileus 2-4 in. broad; stem 2.5-4 in. long, 3-4 lines thick."

"The chief distinguishing mark of this species is its abrupt nearly globose bulbous base of the stem. This is somewhat flattened above and is sometimes longitudinally split on the sides. The small warts of the pileus are easily separable, and in mature specimens they have often wholly or partly disappeared. The remains of the volva are not present on the bulb in mature dried specimens, which indicates that the species should be placed in the same group with *A. rubescens*, *A. spissa*, etc. The latter species has the bulb of the stem similar to that of our plant, but the color of the pileus and other characters easily separate it."

Amanita caesarea Scop.

Tuscaloosa, 5, 1896; Lee, 7, 10, 1896. Abundant. Edible. *Cf.* Bulletin no. 73.

Amanita candida Pk.

Lee, 10, 1896.

Described from Alabama specimens in Bull. Torr. Bot. Club, 24:137, as follows:

"Pileus thin, broadly convex or nearly plane, verrucose with numerous small erect angular or pyramidal easily separable warts, often becoming smooth with age, white, even on the margin, flesh white; lamellae rather narrow, close, reaching to the stem, white; stem solid, bulbous, floccose-squamose, white, the annulus attached to the top of the stem, becoming pendent and often disappearing with age, floccose-squamose on the lower surface, striate on the upper, the bulb rather large, ovate, squamose, not margined, tapering above into the stem and rounded or merely abruptly pointed below; spores elliptical, .0004 to .0005 in. long, .0003 in. broad. Pileus 3 to 6 in. broad; stem 2.5 to 5 in. long, 5 to 8 lines thick, the bulb 1 to 1.5 in. thick in the dried specimens."

"This is a fine large species related to *A. solitaria*, but differing from it in the character of its bulb and of its annulus. The bulb is not marginate nor imbricately squamose. Its scales are small and numerous. Nor is it clearly radicating, though sometimes it has a slight abrupt point or mycelioid-agglomerated mass of soil at its base. The veil or annulus is large and well developed, but it is apt to fall away and disappear with age. Its attachment at the very top of the stem brings it closely in contact with the lamellae of the young plant and the striations of its upper surface appear to be due to the pressure of the edges of these upon it. It separates readily from the margin of the pileus and is not lacerated. In the mature plant the warts have generally disappeared from the pileus and sometimes its margin is curved upward."

Amanita chlorinosa (Pk.).

Lee, 11, 1896.

Amanita Frostiana Pk.

Lee, 7, 1896. Resembles the fly-agaric closely, but smaller.

Amanita muscaria L.

Lee, 10, 1896 (Burton); 11, 12, 1896 (C. F. Baker). The "fly-agaric;" poisonous. *Cf.* Bulletin no. 73.

Amanita phalloides Fr.

Lee, 12, 1895; 7, 10, 1896; Mobile, 12, 1895. Reputed poisonous. A form collected in Lee, 7, 1896, closely resembles this species, but differs in its evanescent volva and veil, and is possibly a distinct species.

Amanita rubescens Fr.

Lee, 7, 1896.

Amanita solitaria Bull.

Lee, 7, 1896.

Amanita spreta Pk.

Lee, 7, 11, 1896.

Amanita strobiliformis Vitt.

Lee, 10, 1896.

Amanita virosa Fr.

Lee, 7, 1896.

Amanitopsis strangulata (Fr.) Roze.

Lee, 11, 1896.

Amanitopsis vaginatus (Bull.) Roze.

Alabama, 9, 10, 1864 (Peters). Peters coll. Lee, 7, 1896.

Amanitopsis volvata (Pk.) Sacc.

Lee, 7, 1896.

Armillaria apdendiculata Pk.

Lee, 10, 1896 (C. F. Baker).

Described from Alabama specimens in Bull. Torr. Bot. Club, 24:140, as follows:

"Pileus broadly convex, glabrous, whitish, often tinged with ferruginous or brownish-ferruginous on the disk, flesh white or whitish; lamellae close, rounded behind, whitish; stem equal or slightly tapering upward, solid, bulbous, whitish, the veil either membranous or webby, white, commonly adhering in fragments to the margin of the pileus; spores subelliptical, .0003 in. long, .0002 broad. Pileus 2-4 in. broad; stem 1.5–3.5 in. long; 5–10 lines thick."

"The general appearance of this species is suggestive of *Tricholoma album*, but the presence of a veil separates it

from that fungus and places it in the genus *Armillaria*. The veil, however, is often slightly lacerated or webby and adherent to the margin of the pileus."

Armillaria mellea Vahl.

About stumps, etc., Alabama, 10, 11, 1864 (Peters). Peters coll. Lee, 11, 12, 1895; 7, 10, 11, 12, 189 .

Cantharellus Cantharellus (L.) (*C. cibarius* Fr.)

Winston, 6, 1896; Lee, 7, 1896. Edible. Commonly known as the Chantarelle.

Cantharellus cinnabarinus Schw.

Lee, 7, 1896.

Cantharellus floccosus Schw.

Winston, 6, 1896.

Cantharellus infundibuliformis (Scop.) Fr.

Winston, 6, 1896.

Cantharellus Petersii B. & C.

Described from Alabama specimens in Ann. Mag. Nat. Hist. (III), 4:294 as follows:

"Pusillus; pileo depresso subzonato stipiteque gracili dealbatis; plicis distantibus decurrentibus; interstitiis venosis. Amongst moss at the base of trees, Alabama, Hon. J. M. Peters."

"Pileus 1 inch across, depressed, white, opake, with one or two concentric furrows; stem 1 inch high, 1 line thick, white like the pileus; folds moderately broad, distant, decurrent; interstices wrinkled."

"Resembling somewhat the white variety of C. aurantiacus, but a smaller plant with broader folds."

Alabama, Peters. Distributed in Ravenel, Fung. Car. exsic. 5:12, from material collected in Alabama by Peters.

Claudopus nidulans (Pers.) Pk.

Lee, 12, 1895; 11, 12, 1896. Two forms: one with a fine velvety pileus and the other strigose.

Clitocybe ectypoides Pk.

Lee, 11, 1896.

Clitocybe inversa Scop.

Lee, 7, 1896.

Clitocybe laccata Scop.

Mobile, 12, 1895; Lee, 12, 1895; 1, 3, 10, 12, 1896.

Clitocybe ochropurpurea Berk.

Alabama, 9, 10, 1864 (Peters). Peters coll. as *Agaricus tyrianthus*; Lee, 11, 12, 1896.

Clitopilus abortivus B. & C.

Lee, 10, 1896.

Collybia albipilata Pk.

On dead cones of Pinus, Lee, 12, 1896.

Collybia dryophila Bull.

Alabama, 8, 9, 1864 (Peters) Peters coll.; Lee 1, 1896.

Collybia luxurians Pk.

Under brush heap, Lee, 7, 1896. Described in Bull. Torr. Bot. Club. 24:141 as follows:

"Pileus thin, convex or subcampanulate, often irregular from its mode of growth, obtuse or umbonate, glabrous, moist, brown; lamellae narrow, close, whitish; stems cespitose, equal, flexuous, hollow, brown, thinly clothed above with a minute grayish pulverulent villosity which is often more dense and tomentose toward the base; spores elliptical, .00025–.0003 in. long, .00016 broad. Pileus 2–4 in. broad; stem 3–4 in. long, 2–3 lines thick."

"This is a large cespitose and luxuriant appearing species, but as the specimens were not accompanied by notes of the characters of the fresh plant it can only be imperfectly described. The pileus was said to be very moist when fresh and it was probably hygrophanous. In the dried state it is a dull, reddish brown, closely approaching Mars' brown. Its margin is more or less wavy, lobed and striate. The species is apparently related to *C. confluens*, but it is a much larger plant with a darker colored pileus. Its place is probably among the Confertipedes."

Collybia platyphylla Fr.

Lee, 7, 1896.

Collybia radicata Relh.

Alabama, 9, 1864 (Peters), Peters coll. Tuscaloosa, 5, 1896; Lee, 7, 1896.

Collybia stipitaria Fr.

Alabama, 9, 1864 (Peters) Peters coll.

Collybia zonata Pk.

Alabama, 9, 1864 (Peters) Peters coll. mixed with the preceding species.

Coprinus atramentarius (Bull.) Fr.

Lee, 3, 1896. Edible. Commonly known as an ink-cap from the black deliquescent gills.

Coprinus comatus Fr.

Lee 4, 1896. Edible. Known as the shaggy or maned ink-cap.

Coprinus plicatilis (Curt.) Fr.

Alabama (Peters), Peters coll. no. 13 as *C. picaceus.*

Cortinarius delibutus Fr.

Lee, 10, 1896.

Cortinarius iodes B. & C.

Lee, 10, 11, 1896.

Cortinarius porphyropus Fr.

Lee 11, 1896.

Cortinarius purpurascens Fr.

Lee, 11, 1896.

Crepidotus applanatus Pers.

On Hicoria, Alabama (Peters), Peters coll. no. 8, under the name of *Panus flabelliformis.*

Crepidotus applicatus Pk.

Lee, 5, 1896.

Crepidotus fulvo-tomentosus Pk.

Lee, 5, 1896.

Deconica coprophila Bull.

On horse dung, Lee, 10, 1896.

Flamula flavida Pers.

Alabama, 10, 1864 (Peters), Peters coll.; Lee, 12, 1896.

Flammula sapinea Fr.

Mobile, 6, 1896; Lee, 10, 1896.

Flammula Underwoodii Pk.

On trunks of Pinus, Lee, 11, 1895.

Described from specimens collected in Alabama in Bull. Torr. Bot. Club, 23:415, as follows:

"Pileus convex or nearly plane, often irregular from its crowded mode of growth, squamulose or furfuraceous, yellowish-brown; lamellae rather broad, close, adnate or slightly decurrent, yellow; stem tapering downward, radicating, longitudinally streaked with brownish hues, yellow at the top; spores elliptical, ochraceous, .00024 to .0003 in. long, .00016 to .0002 broad; plant cespitose; pileus 1 to 4 in. broad; stem 2 to 4 in. long, 3 to 6 lines thick."

"Pine trunks. Alabama, November. Underwood."

"The species is apparently related to *Flammula sapineus*, from which its densely cespitose habit and brownish streaked stem will easily separate it."

Galera tenera Schaeff.

Alabama, 10, 1864 (Peters). Peters coll.

Gomphidius rhodoxanthus Schw.

Lee, 7, 10, 12, 1896.

Heliomyces decolorans B. & C.

Alabama (Peters); distributed in Ravenel, Fungi Car. exsic. 5:7, from material collected in Alabama.

Described from Alabama material in Ann. Mag. Nat. Hist. (III), 4:295 as follows:

"Albus, exsiccatione rufus; pileo glabro rugoso sulcato; stipite rigido nitido; lamelles latis decurrentibus. On dead wood, Alabama, Hon. J. M. Peters."

"Pileus 1 inch or more across, white at first as well as the gills, but changing in drying to a deep tawny brown, smooth, wrinkled, sulcate; stem 2 inches high, shining, more permanent in color, but sometimes becoming rufous; gills broad, distant, decurrent; interstices wrinkled."

"The change of color is exactly that which takes place in *Hygrophorus eburneus*."

Hygrophorus conicus (Scop.) Fr.

Alabama, 10, 1864 (Peters). Peters coll. no. 12.

Hypholoma modestum Pk.?

Lee, 7, 1896. Specimens probably referable to this species.

Hypholoma perplexum Pk.

Lee, 11, 1896.

Hypholoma sublateritium Schaeff.
Lee, 12, 1895.
Inocybe vatricosa Fr.
On pine chips. Lee, 1, 1896.
Lactarius chelidonium Pk.
Lee, 7, 10, 11, 1896.
Lactarius deceptivus Pk.
Lee, 7, 1896.
Lactarius Indigo (Schw.) Fr.
Lee, 7, 11, 1896.
Lactarius insulsus Fr.
Lee, 7, 10, 1896.
Lactarius piperatus (Scop.) Fr.
Hale, 5, 1896; Winston, 6, 1896; Lee, 7, 10, 11, 1896.
Lactarius scrobiculatus (Scop.) Fr.
Lee, 10, 11, 1896.
Lactarius subdulcis (Bull.) Fr.
Lee, 7, 1896.
Lactarius theiogalus (Bull.) Fr.
Lee, 10, 11, 1896.
Lactarius vellereus Fr.
Lee, 10, 11, 12, 1896.
Lactarius volemus Fr.
Winston, 6, 1896; Lee, 7, 1896.
Lentinus Lecontei Fr.
Lee, 1891 (Atkinson). Scarcely distinguishable from *L. strigosus.*
Lentinus lepideus Fr.
On pine wood, 5, 6, 7, 10, 12, 1896.
Lentinus Ravenelii B. & C.*
"Alabama (Beaumont)."
Lentinus strigosus Fr.
Lee, 2, 4, 1896; Tuscaloosa, 5, 1896; Winston, 6, 1896. Rather common.
Lentinus tigrinus (Bull.) Fr.
Alabama, 1895 (Peters). Peters coll.; Lee, 4, 1896.
Lentinus Underwoodii Pk.
On Quercus, Macon, 7, 1896.

Described from material collected in Alabama, in the Bull. Torr. Bot. Club, 23:414, as follows:

"Pileus fleshy, tough, convex or nearly plane, the glabrous surface cracking into areola-like scales which are indistinct or wanting toward the margin, whitish or slightiy tinged with buff or pale ochraceous, flesh white; lamellae moderately close, decurrent, slightly connected or anastomosing at the base, somewhat notched on the edge, whitish, becoming discolored in drying; stem stout, hard, solid, eccentric, squamose, colored like the pileus; spores oblong, .0005–.0006 in. long, .0002–.00025 broad; plant cespitose; pileus 3-6 in. broad; stem 1.5-3 in. long, about 1 in. thick."

"Wood of oak. Tuskegee, Alabama. July. Prof. L. M. Underwood."

"This differs from *L. magnus* in its cespitose habit, eccentric stem. longer spores, less distinctly areolate-squamose pileus and in its habitat. The lamellae are connected at the base very much like those of *Pleurotus ostreatus*."

Lentinus ventricosus Pk.

On the ground, Lee, 12, 1895; 11, 1896.

Described from Alabama specimens in Bull. Torr. Bot. Club, 23:414, as follows:

"Pileus fleshy, nearly plane above, gl abrous, shining, white the thin margin involute, flesh whitish; lamellae narrow, close, decurrent, serrate on the edge, whitish; stem short, thick, ventricose, smooth, solid, abruptly narrowed or pointed at the base, annulate, white, tinged within with isabelline; spores .0004 to .0005 in. long, .0002 to .00024 broad; pileus 4 to 6 in. broad; stem 1.5 to 2 in. long, nearly as broad in the thickest part."

"Auburn, Alabama. December. Underwood."

"A species well marked by its white glabrous pileus and its short ventricose annulate stem."

Lepiota acutesquamosa Weinm.

Alabama, 10, 1864 (Peters). Peters coll.

Lepiota mammaeformis Underw.

At the base of Broussinetia, Lee, 7, 1896.

Described from Alabama material in Bull. Torr. Bot. Club, 24:82, as follows:

"Pileus thin, white, with a dull brownish strongly umbonate disc, 5-8 cm. in diameter, mealy squamulose, the margin strongly sulcate-striate, somewhat incurved; gills rather narrow, moderately close; stem 12-18 cm. long, flexuous, hollow, tapering upward from an elongate thickened base, over 1 cm. at its greatest thickness, the narrow distant annulus often finally deciduous."

Growing cespitosely from near the base of a decaying *Broussinetia* on the streets of Auburn, Alabama, July 1896. The gills turn darker in drying and the umbo becomes strikingly prominent."

Lepiota Morgani Pk.

Lee, 7, 1896. A remarkably handsome species, with greenish spores; said to be edible.

Lepiota procera Scop.

Lee, 11, 1896. Edible.

Mycena epipterygia Scop.

Lee, 12, 1896.

Marasmius Rotula (Scop.) Fr.

Alabama, 9, 10, 1864 (Peters). Peters' Coll.; Lee, 5, 1896.

Marasmius viticola B. & C.

On Vitis, Alabama (Peters). Peters' Coll. under the names of *Merulius* and *M. fœtidus.*

Naucoria semiorbicularis Bull.

Lee, 6, 7, 1896; Mobile, 6, 1896.

Nyctalis asterophora Fr.

Parasitic on *Lactarius*, Alabama, 1863, (Peters). Peters' Coll.

Described from Alabama specimens in Ann. Mag. Nat. Hist. (III), 4; 295 as follows:—

"Pileo depresso subcoriaceo tenni* sulcato striato rufo; slipite brevi insititio fusco pruinoso, furfuraceo; lamellis pallidis distantibus; interstitiis lævibus. On dead vine branches, Alabama, Hon. J. M. Peters."

"Pileus ¾ of an inch broad, dry, subcoriaceous, depressed,

sulcate-striate, pale rufous; stem 1 inch high, dark brown, pulverulent; gills distant, pale, slightly adnate, moderately broad, ventricose; interstices even."

"The stems are sometimes confluent."

Omphalia pubescentipes Pk.

Lee, 12, 1896. Described from Alabama material in Bull. Torr. Bot. Club, 24: 141, as follows:

"Pileus thin, convex, umbilicate, glabrous, reddish-tawny, sometimes paler on the margin; lamellae moderately close, decurrent, whitish; stem slender, pubescent, tawny with a tawny mycelioid tomentum at the base; spores elliptical, .00025 in. long, .00016 broad. Pileus 2–4 lines broad; stem about 1 in. long, .5 line thick."

The downy or pubescent stem is the distinguishing character of this species.

Panaeolus sphinctrinus Fr.

On dung, Lee, 3, 1896.

Panus levis B. & C.

Lee, 10, 1896, (Burton).

Panus stypticus (Bull.) Fr.

Lee, 11, 12, 1895.

Panus dealbatus Fr.

On Fraxinus, Alabama (Peters). Distributed in Ravenel, Fungi Car. exsic. 5:9, from material collected by Peters in Alabama. The plant does not seem to be mentioned by Saccardo.

Pholiota sabulosa Pk.

In sandy soil, Lee, 12, 1895. Described in Bull. Torr. Bot. Club, 23: 414, from Alabama material, as follows:

"Pileus convex or nearly plane, glabrous, pale, yellowish-brown; lamellae andate, subdistant, yellowish-brown; stem short, equal or slightly tapering downwards, hollow, colored like or a little paler than the pileus, paler above the slight subevanescent annulus; spores subelliptical, brownish ferruginous, .0003 to .00004 in long, .0002 to .00024 broad; pileus 9 to 12 lines broad; stem about 1 in. long, 1 to 2 lines thick."

"Sandy soil. Alabama, December. Underwood."

"In the dried specimens the pileus is pale-tawny and the lamellae are brownish ferruginous."

Pleurotus applicatus Batsch.

On bark, Lee, 11, 1895.

On Vitis, Lee, 11, 1896.

Pleurotis niger Fr.

Alabama, 8, 1855, (Peters). Peters' Coll. under the name of *Agaricus ater*.

Pleurotus sapidus Kalchb.

On various dead trunks, Mobile, 12, 1895; Lee, 1, 11, 1896. Rather common. Edible.

Pluteus cervinus Schaeff.

Lee, 1891 (Atkinson), 2, 5, 1896.

Pluteus Curtisii Berk.

Alabama, 9, 10, 1864 (Peters). Peters' Coll.; possibly only a form of the last.

Psilocybe foenisecii Pers.

Lee, 7, 1896.

Psilocybe subericaea Fr.

In low ground, Lee, 1, 1896.

Russula adusta (Pers.) Fr.

Lee, 11, 1896.

Russula albella Pk.

Lee, 10, 11, 1896.

Russula brevipes Pk.

Lee, 12, 1895; 10, 1896.

Russula chamaeleontina Fr.

Lee, 11, 1896.

Russula emetica Fr.

Lee, 11, 12, 1896.

Russula foetens (Pers.) Fr.

Lee, 10, 1896.

Russula lepida Fr.

Lee, 10, 1896.

Russula pusilla Pk.

Lee, 12, 1895.

Russula virescens (Schaeff.) Fr.
Lee, 7, 1896. Edible.
Schizophyllum commune Fr.
On standing trunks and branches, Mobile, 12, 1895; Lee, 2, 6, 1896; Winston, 6, 1896.
Stropharia bilamellata Pk.
Lee, 7, 1896.
Tricholoma cuneifolium Fr. (?)
In sandy soil.
Lee, 1, 1896. Referred with some doubt to this species.
Tricholoma equestre L.
Lee, 11, 1896.
Tricholoma leucocephalum Fr. (?)
Lee, 10, 1896.
Tricholoma Russula Schaeff.
Lee, 11, 12, 1896.
Tricholoma terreum Schaeff.
Lee, 1, 1896.
Tricholoma tricolor Pk.
Lee, 11, 1896.
Xerotus viticola B. & C.
Alabama (Peters). Peters' Coll. as *Xerotus nigrita.*

ORDER GASTRALES.

FAMILY PHALLACEAE.

Clathrus columnatus Bosc.
Lee, 11, 1896 (C. F. Baker).
Dictyophora duplicata (Bosc.) E. Fischer.
Winston, 6, 1896.
Mutinus caninus (Huds.) Fr.
Lee, 11, 1896 (C. F. Baker.)
Phallus Ravenelii B. & C. var. ?
Lee, 5, 1896. A single specimen which possibly belongs here, but which differs quite materially from the ordinary forms of *P. Ravenelii* in size and in the mode of attachment at the base, as well as in tapering upward from an enlarged base instead of downward almost to a point.

Phallus rubicundus Bosc.

Alabama, (Peters). Peters coll. Specimen lacking a pileus; the slender stem (12 cm. long, 1.5 cm. thick in the dry specimen) possesses the characteristic red color of the species. Hale, 5, 1896. Only a fragmental specimen which may be referred here. Fully developed specimens of this and all other members of the family in various stages of growth are a great desideratum. The specimens should be preserved in alcohol.

FAMILY LYCOPERDACEAE.

Astraeus hygrometricus (Pers.) Morg.

Lee, 12, 1895; Mobile, 11, 1895; Winston, 6, 1896. Very common in sandy soil.

Bovista minor Morg.

Lee, 12, 1895. A single specimen.

Bovistella Ohiensis (E. & M.) Morg.

Lee, 12, 1895; 4, 7, 10, 11, 12, 1896; Winston, 6, 1896. The most common puff ball of Eastern Alabama.

Calostoma cinnabarinum (Desv.) Mass.

Alabama (Atkinson).

Calostoma Ravenelii (Berk.) Mass.

Lee, 3, 1896. A very distinct species.

Calvatia craniiformis (Schw.) Fr.

Lee, 7, 11, 1896.

Calvatia cyathiformis (Bosc.) Morg.

Lee, 10, 1895; 1, 7, 9, 1896.

Calvatia fragilis (Vitt.) Morg.

Lee, 7, 1896.

Catastoma circumscissum (B. & C.) Morg.

Mobile, 12, 1895. A single specimen.

Catastoma pedicellatum Morg.

Lee, 7, 9, 1896.

Geaster fimbriatus Fr.

Winston, 6, 1896.

Geaster limbatus Fr.

"Alabama (Peters);" Lee, 3, 1896; Winston, 6, 1896.

Geaster minimus Schw.
Lee, 2, 1896.
Geaster saccatus Fr.
Alabama (Peters.) Peters coll.
Lycoperdon asterospermum Dur. & Mont.
Lee, 7, 1896.
Lycoperdon cepaeforme Bull.
Lee, 7, 1896. Also collected in Alabama by Atkinson, *fide* Morgan.
Lycoperdon eximium Morg.
Lee, 7, 1896.
Lycoperdon gemmatum Batsch.
Lee, 7, 1896.
Lycoperdon Peckii Morg.*
Alabama (Atkinson), *fide* Morgan.
Lycoperdon pedicellatum Pk.
Tuscaloosa, 5, 1886; also collected in Alabama by Atkinson, *fide* Morgan.
Lycoperdon pusillum Batsch.
Lee, 7, 1896.
Lycoperdon pyriforme Schaeff.
Lee, 12, 1895; 2, 6, 10, 11, 1896.
Lycoperdon separans Pk.
Lee, 3, 6, 7, 1896.
Lycoperdon Turneri E. & E.
Lee, 7, 1896.
Tylostoma fimbriatum Fr.
Lee, 10, 1896; Macon, 12, 1896 (G. W. Carver).

FAMILY NIDULARIACEAE.

Crucibulum vulgare
Lee, 12, 1895; 7, 1896.
Sphaerobolus epigaeus B. & C.*
"On red earth, Alabama (Peters)."
Described from material collected in Alabama, in Grevillea, 2:34, as follows:
"Major globosus furfuraceus e myceli filiforme oriundus."

"Springing from a white thread-like mycelium, which incorporates itself with the soil and its accompanying moss. Globose, externally furfuraceous, splitting very irregularly."

Sphaerobolus stellatus Tode.

Alabama (Peters.) Peters coll.

FAMILY HYMENOGASTRACEAE.

Octaviania compacta Tul.

Mr. Morgan refers here with some doubt, a specimen collected, Lee, 7, 1896.

Polysaccum crassipes D. C.

Lee, 10, 1895 (an old specimen); 7, 1896. Not uncommon and a well marked addition to our flora. Some of the specimens were five or six inches in length including the root-like base, and from three to four inches in diameter.

Polysaccum pisocarpium Fr.

Lee, 7, 1896. Not uncommon.

Rhizopogon rubescens Tul.

Winston (P. P. Payne). Peters coll. no. 68; Lee, 12, 1895; 3, 12, 1896.

Scleroderma flavidum E. & E.

Mobile, 12, 1895; Lee, 3, 9, 12, 1896. Verry common.

Scleroderma Geaster Fr.

Lee, 12, 1895; 7, 1896.

Scleroderma verrucosum (Bull.) Pers.

Lee, 7, 1896.

Scleroderma vulgare Hornem.

Alabama (Atkinson).

SUMMARY.

	Genera.	*Species.*
MYXOMYCETES.		
Plasmodiophorales	1	2
Myxogastrales	20	33
PHYCOMYCETES.		
Chytridiales	1	3
Mucorales	2	2
Entomophthorales	1	1
Peronosporales	3	16
Fungi Imperfecti.		
Hyphales.		
Mucedinaceæ	11	18
Dematiaceæ	16	123
Stilbaceæ	2	2
Tuberculariaceæ	7	15
Melanconiales	8	19
Sphaeropsidales.		
Sphærioideaceæ	23	83
Nectrioidaceæ	1	1
Leptostromaceæ	7	12
Excipulaceæ	1	1
ASCOMYCETES.		
Gymnoascales	2	9
Perisporiales.		
Erysiphaceæ	6	25
Perisporiaceæ	6	18
Hypocreales	12	22
Sphæriales	42	85
Dothideales	2	6
Hysteriales	12	28
Phacidiales	5	11
Pezizales	32	47
Helvellales.		
Rhizinaceæ	2	2
Geoglossaceæ	3	3
Helvellaceæ	1	1

BASIDIOMYCETES.		
Ustilaginales	6	15
Uredniales	15	103
Tremellales.		
Auriculariaceæ	1	2
Tremellaceæ	5	10
Pilacraceæ	1	2
Dacryomycetaceæ	3	8
Hymeniales.		
Tomentellaceæ	4	33
Clavariaceæ	2	8
Thelephoraceæ	5	31
Hydnaceæ	7	37
Polyporaceæ	9	90
Boletaceæ	4	26
Agaricaceæ	39	116
Gastrales.		
Phallaceæ	4	5
Lycoperdaceæ	9	25
Nidulariaceæ	2	3
Hymenogastraceæ	4	8
	349	1110

44 familes—349 genera—1110 species.

ADDENDA.

To the list of works treating of Alabama Fungi, given on pages 123–127 should be added the following:—

BERKELEY, M. J. and CURTIS, M. A. Centuries of North American Fungi. Ann. Mag. Nat. Hist. (III), 4: 284-296. 0 1859.

Includes descriptions of three Alabama species collected by Peters.

BERTOLONI, ANTONI. Miscellanea Botonica XVII. Mem. Accad. Sci. Bologna, 7 : 341-362. 1856.

Describes and figures *Thelephora lobata* collected in Alabama by Dr. Gates.

APPENDIX.

Suggestions to Collectors of Fleshy Fungi.

The collection and preparation of fleshy fungi for scientific purposes is so different from the collection of other plants, and the value of the collection depends so much on the character of the field notes that it is thought desirable to make a few suggestions with the view to secure more certain and complete information regarding these ephemeral plants, concerning whose life history and distribution in America so little is definitely known.

The more conspicuous forms of the fleshy fungi, group themselves botanically into some four orders, one of which contains forms that are quite diverse among themselves. Two of these orders are readily recognized by those who are able to examine the spores, since these are contained in membranous sacs imbedded in a more or less cup-shaped disc or honey-combed receptacle. The species of these two orders that are in any way conspicuous are not very numerous. They consist of the cup-fungi *(Pezizales)* and the morels and gyromitras *(Helvellales)*. A third order contains the forms that are everywhere common, and when mature are familiarly known as puff-balls, smoke-balls or snuff-boxes, according to the portion of the country you happen to be in; these are the *Gastrales*, or as they have usually been called by a longer name the Gasteromycetes. The fourth order of fleshy fungi contains forms of which the common mushroom or toad-stool is the ordinary type, though forms of various types are known, some club-like (coral fungi) or variously provided with gills, teeth or pores. The families of this order (*Hymeniales*)* that are likely to be noted as conspicuous fleshy forms may be distinguished as follows :

* Hitherto commonly known by the longer term Hymenomycetes.

Fungi with a cap (pileus) and central stem, or bracket like, with the spore-bearing surface normally underneath.

Spores borne on radiating gills. AGARICACEAE.

Spores borne on the interior of pores.

Pores separating more or less readily from the pileus. BOLETACEAE.

Pores not readily separating from the pileus. POLYPORACEAE.

Spores borne on teeth projecting downward in growth. HYDNACEAE.

Fungi club-shaped or forming masses of erect branches rising from a common base; spores borne on the upper portions. CLAVARIACEAE.

Nearly all of these families contain members that are more commonly woody or corky rather than fleshy, the *Polyporaceae* notably so. Some few forms of the *Clavariaceae* might perhaps be confused with the *Helvellales*, but the latter can always be distinguished microscopically by bearing the spores in sacs. The special suggestions for each of these families are much the same, but we will first give them more in detail for the more common family of *Agaricaceae*, and then add a few special supplementary suggestions for the other families.

In collecting any fleshy fungi, care should be taken to obtain all of its fleshy structure, because some very important characters are derived from the basal parts. *They should never be gathered for scientific purposes by breaking them off above the ground.* The entire basal portion should be removed with a knife or small trowel.

Of course the date of collecting and locality will be added to the specimen by any intelligent collector, but it is always desirable to add the local environment of the specimen by stating in what soil it grows—sand, clay, or leaf-mold—and whether the plant grows in open pastures, marsh, grassy woods or deep forest; sometimes the character of the timber, especially pine land, is to be noted; also whether it grows singly or in clusters. But above all these matters of environment, certain data concerning the physical properties of the fresh plant are absolutely essential to a correct understanding of the species. Dried specimens of fleshy

fungi without notes are often worse than useless, for they suggest many times highly interesting and often undescribed species without sufficient data to enable one to characterize them properly; species of fleshy fungi had better be left undescribed than be named exclusively from the character of the dried plant.

The summary of characters to be noted in the AGARICACEAE can be tabulated as follows:

1. TASTE.—Bitter, acrid, peppery, mealy, nutty? (One need feel no fear in tasting any of the fleshy fungi, for they are cleanly, and the only inconvenience ever experienced is the peppery taste of certain species of *Lactarius* and *Russula*, which is temporarily about as unpleasant as tasting a particle of red pepper, but otherwise harmless).

2. SURFACE OF PILEUS.—Dry, hygrophanous (moist), or viscid?

Smooth, granular, scaly, shining, striate, umbonate?

Color and diameter?

3. GILLS.—Color when young, and when mature?

Close or distant?

Narrow or wide?

4. SPORES.—(Best collected by removing the pileus and placing it gills downward on paper or glass under a tumbler or bell jar. If a microscope is at hand to examine the spores they can be best collected on a slide).

Color, shape and size? The last two, of course, only possible to those who have a microscope.

4. STEM.—Fleshy throughout, or with a cartilaginous rind?

Hollow, solid or stuffed?

Size, including length and thickness?

Shape; cylindric, tapering, radicate or bulbous?

5. VOLVA and VEIL, if present; character and position?

To these notes a simple sketch of the fully expanded plant, preferably in colors, will be a very valuable addition.

A good supply of dried specimens should accompany the notes; the more the better.

The specimens should be dried as quickly as possible after being collected as they are the favorite food of certain insect larvae, and if left over night will often be found to have changed into disgusting heaps of corruption by morning. Drying is best accomplished in an open receptacle like a wire basket in a current of hot air. Suspension over a hot stove is commonly practiced, and they may even be dried in bright sunshine, but in some cases the colors fade worse when exposed to strong sunlight.

In order to further facilitate the field study and identification of the agarics, we add the following synopsis of the American genera. It will be found that certain aberrent species will not be determined readily by its use, though it will probably be useful and reasonably certain in the majority of cases.

SYNOPSIS OF THE AGARICACEÆ.

1.—Plant fleshy, soon putrescent. 2
Plant tough, leathery or woody, reviving or persistent. 13

2.—Juice milky, white or colored. LACTARIUS.
Juice watery. 3

3.—Stem central or nearly so. 4
Stem lateral, eccentric or wanting. 12

4.—Spores white. 5
Spores rosy or salmon colored. 16
Spores yellowish brown or rusty brown. 19
Spores dark brown or purplish brown. 24
Spores black. 27

5.—With a volva* and annulus. AMANITA.
With a volva but no annulus. AMANITOPSIS.
Volva wanting; annulus present. 6
Both volva and annulus wanting. 7

6.—Gills separate from the stem; annulus often movable; pileus usually scaly, sometimes densely so. LEPIOTA.
Gills united with the stem; pileus usually smooth (scaly often in *A. mellea*, a common species). ARMILLARIA.

7.—Gills thin, their edges acute. 8
Gills in the form of shallow folds, their edges obtuse. 11

* The volva will appear either as a cup at the base of the stem, or as separable floccose scales on the pileus.

8.—Gills decurrent on the stem; stem fleshy. CLITOCYBE.
—stem with a cartilaginous rind. OMPHALIA.
Gills adnate, not decurrent; stem with a cartilaginous rind. COLLYBIA.
—stem fleshy; pileus often bright colored. 9
Gills sinuate; stem fleshy. TRICHOLOMA.
—stem with a cartilaginous rind. 10

9.—Plant rigid, the gills usually brittle. RUSSULA.
Plant with waxy gills. HYGROPHORUS.

10.—Pileus membranous, more or less striate. MYCENA.
Pileus very thin, without pellicle. HIATULA.

11.—Gills decurrent; plant terrestrial. CANTHARELLUS.
Gills adnate; plant parasitic on other Agarics. NYCTALIS.

12.—Spores white (violet tinted in one species). PLEUROTUS.*
Spores rosy or salmon-colored. CLAUDOPUS.
Spores yellowish brown. CREPIDOTUS.

13.—Gills normally toothed on their edges; stem central, eccentric or lateral. LENTINUS.*
Gills entire; stem central. 14
—stem lateral or wanting. 15

14.—Gills simple; pileus firm and dry. MARASMIUS.
—pileus somewhat gelatinous. HELIOMYCES.
Gills branched. XEROTUS.

15.—Gills simple; plant leathery. PANUS.*
Gills deeply splitting, villous. SCHIZOPHYLLUM.
Gills channeled or crisped, smooth. TROGIA.
Gills anastomosing at least at the base; plant corky. LENZITES.

16.—Volva present; annulus wanting. VOLVARIA.
Volva wanting; annulus present. ANNULARIA.
With neither volva nor annulus. 17

17.—Gills separate from the stem. PLUTEUS.
Gills adnate or sinuate; stem fleshy ENTOLOMA.
—stem with a cartilaginous rind. 18
Gills decurrent on the stem; stem fleshy. CLITOPILUS.
—stem with cartilaginous rind. ECCILIA.

18.—Pileus torn into scales. LEPTONIA.
Pileus papillose, subcampanulate. NOLANEA.

* Some species of *Lentinus* with entire gills can scarcely be distinguished from *Panus;* some of the more fleshy forms of the latter are quite close to some forms of *Pleurotus.*

19.—Annulus continuous. PHOLIOTA.
Annulus arachnoid, filamentous or evanescent, often not apparent in older specimens. 20
Annulus wanting. 21

20.—Gills adnate; plants terrestrial. CORTINARIUS.
Gills decurrent; plants mostly epipyhytal. FLAMMULA.
Gills almost separate from the stem. BOLBITIUS.

21.—Gills decurrent; stem fleshy; gills easily separating. PAXILLUS.
—stem with a cartilaginous rind. TUBARIA.
Gills not decurrent; stem fleshy. 22
—stem with a cartilaginous rind. 23

22.—Pileus fibrillose or silky. INOCYBE.
Pileus smooth and viscid. HEBELOMA.

23.—Margin of pileus incurved when young. NAUCORIA.
Margin of pileus always straight; pileus viscid; gills free. PLUTEOLUS
—pileus not viscid; gills attached. GALERA.

24.—Veil remaining on the stem as an annulus. 25
Veil remaining attached to the margin of the pileus, often not apparent in very old specimens. HYPHOLOMA.
Veil inconspicuous or wanting; gills free. PILOSACE.
—gills decurrent. DECONICA.
—gills adnate or sinuate. 26

25.—Gills separate from the stem. AGARICUS.
Gills united with the stem. STROPHARIA.

26.—Margin of pileus incurved when young. PSILOCYBE.
Margin of pileus always straight. PSATHYRA.

27.—Stem dilated above into a disc which bears the radiating gills. MONTAGNITES.
Pileus of the normal form. 28

28.—Pileus leathery or horny. ANTHRACOPHYLLUM.
Pileus fleshy, membranous or deliquescent. 29

29.—Gills deliquescent, melting to an inky fluid. COPRINUS.
Gills not deliquescent; annulus present. ANELLARIA.
—annulus wanting. 30

30.—Gills decurrent; spores fusiform. GOMPHIDIUS.
Gills not decurrent; spores globose-ovoid. 31

31.—Pileus striate; stem with a cartilaginous rind. PSATHYRELLA.
Pileus not striate; stem fleshy. PANAEOLUS.

Since there is no available manual for the identification of American species, it may be advantageous to add references to the most complete synopses of members of the family as they have seen issued in scattered publications. Notes as to the extent of the genera and edible characters are also added in some cases. For convenience of reference the genera are arranged alphabetically.

AGARICUS.—Includes among some 12 American species, *Agaricus campestris*, and several others that are edible. Over 70 species known from all parts of the globe.* Peck. Reg. Rep. 36:41-49 (synopses and descriptions of seven species.

AMANITA.—Includes among its 20 American species some of the most poisonous as well as some of the best edible species. Easily recognized by its white spores, volva (which appears either as a cup at the base of the stem or as separable floccose scales on the pileus), and veil, the last character distinguishing it from the next genus. (45).* Morgan, Jour. Mycol. 3:25-33 (description of 28 species).† Peck. Reg. Rep. 33:38-49 (descriptions of 14 species).

AMANITOPSIS.—One edible species, *A. vaginata*, occurs in this country together with others. The genus was formerly included with *Amanita* and the citations of synopses are to be sought under that genus.

ANELLARIA.—One species only known from the United States. (3).

ANNULARIA.—No species yet found with us. (6).

ANTHRACOPHYLLUM.—A single tropical species occurs in South Carolina.

ARMILLARIA.—*A. mellea* is our common edible species, and five others are reported from this country. (6). Peck. Reg. Rep. 43:40-45.

*I have included in parentheses under each genus the approximate number of species described from the entire world. This will indicate something of the extent of the group which contains all told some 5,000 described species. Over 200 new species of *Agaricaceae* were described during the year 1895.

†Including 9 species of *Amanitopsis*.

BOLBITIUS.—4 American species mostly small and inconspicuous. (25).

CANTHARELLUS.—Among our 22 species, *C. cibarius*, otherwise known as the chantarelle, is edible. (76). Peck. Bull. N. Y. State Mus. Nat. Hist. 2:34-43 (description of 10 species).

CLAUDOPUS.—Five American species. (10). Peck. Reg. Rep. 39:67-69.

CLITOCYBE—Several of our 40 species said to be edible. (234). Peck, Reg. Rep. 48:172-177 (describes 4 edible species); Morgan, Journ. Cinn. Soc. Nat. Hist. 5:66-70 (describes 13 species).

CLITOPILUS.—At least two of our 14 species are reported as edible. (30). Peck, Reg. Rep. 42:39-46.

COLLYBIA—33 American species. (213). Some species are regarded as poisonous. Peck, Reg. Rep. 23:78-80 (describes 7 species); Morgan, Jour. Cinn. Nat. Hist. 6:70-73 (describes 12 species).

CORPINUS—Known as "ink caps," of which several of our 32 species are edible; *C. comatus* and *C. atramentarius* are the largest and best known. (170). Peck, Reg. Rep. 48:143-147 (describes three edible species); Morgan, Journ. Cinn. Soc. Nat. Hist. 6:173-177 (describes 13 species).

CORTINARIUS.—A large genus of handsome species poorly known in America, tho nearly 60 species have been reported as occurring here. (350). Many species occur late in the season. *In collecting, two points are absolutely necessary to note:* (1) Is the pileus dry, hygrophanous or viscid? and (2) The color of the *young* gills. It is only in the young condition that the cobwebby veil is clearly seen. Peck, Reg. Rep. 23:105-112 (descriptions of 21 species).

CREPIDOTUS.—About 15 species with us. (65). Peck, Reg. Rep. 39:69-73 (descriptions of 11 species).

DECONICA.—Only a single species reported from the United States. (9).

ECCILIA.—Three species in the United States. (18).

ENTOLOMA—12 species reported from America. (80).

FLAMMULA.—11 species reported from America. (75). Quite easily recognized by their ochraceous spores and their habit of growing on old wood.

GALERA.—12 species reported from America, (49). Peck, Reg. Rep. 46:61-69.

GOMPHIDIUS.—Three of the seven known species occur in the United States.

HELELOMA.—18 species reported from this country. (65) Peck. Reg. Rep. 23:95, 96 (describes 6 species).

HELIOMYCES.—A single American species reported from Alabama. (10).

HIATULA.—A single species of this delicate tropical genus reported from North Carolina. (16).

HYGROPHORUS.—At least two species of the 28 reported from America are edible. (160). Peck, Reg. Rep. 23:112-114 (describes 7 species).

HYPHOLOMA.—15 species reported from America. (60). Some are reputed poisonous and some edible. Morgan, Journ. Cinn. Soc. Nat. Hist. 6:113-115 (describes 7 species).

INOCYBE.—Eight species American. (120). Morgan, Journ. Cinn. Soc. Nat. Hist. 6:104-106.

LACTARIUS.—Readily distinguished by the flow of milk from the gills and stem when wounded. In collecting it is very essential that the taste of the fresh specimen be noted. Nearly 50 species are reported from America. (110). Contains many edible and some suspicious species. Peck. Reg. Rep. 38:111-133 (descriptions of 40 species).

LENTINUS.—27 species American. (204). Some of the species are likely to be confused with *Panus*, and others perhaps would be taken for some of the species of fleshy genera. Morgan, Journ. Cinn. Soc. Nat. Hist. 6:194-196 (describes 10 species).

LENZITES.—17 American species of this genus are recorded. (69). Some of the species form a transition to *Daedalea* among the *Polyporaceae*, and it is probable that some of them belong with that family.

LEPIOTA.—At least three of the 28 American species are

edible. (200). Peck, Reg. Rep. 35:160-164 (describes 18 species).

LEPTONIA.—6 American species reported. (45).

MARASMIUS.—*M. oreades*, often called the "fairy ring champignon" is a common edible species; many of our 59 species are very small, some of them minute. (350). Peck, Reg. Rep. 23:124-126 (describes 8 species); Morgan, Journ. Cinn. Soc. Nat. Hist. 6:189-194 (describes 17 species).

MONTAGNITES.—A single species is reported from Texas. (3).

MYCENA.—52 species occur with us. (251). Some are reputed edible. Peck, Reg. Rep. 23:80-84 (describes 12 species).

NAUCORIA.—19 species are reported from the United States. (136). Peck, Reg. Rep. 23:91-93 (describes 7 species).

NOLANEA.—7 American species. (58).

NYCTALIS.—We have a single species of this curious parasite growing on large species of *Lactarius*. (10).

OMPHALIA.—About 26 American species. (160). Peck, Reg. Rep. 45: 32-42. (Describes 21 species).

PANAEOLUS.—5 or more species occur in the United States. (30). Peck, Reg. Rep. 23: 100-102.

PANUS.—14 American species (78). Forster, Jour. Mycol. 4: 21-26.

PAXILLUS.—Of our ten species *P. involutus*, is regarded as edible. (31). Peck, Bull. N. Y. State Mus. Nat. Hist. 2: 29-33 (describes 5 species).

PHOLIOTA.—About 20 species are reported from this country. (100). Some species of this genus are edible. Morgan, Journ. Cinn. Soc. Nat Hist. 6: 101-104 (describes 11 species).

PILOSACE.—A single species reported from America. (6).

PLEUROTUS.—Easily recognized as fleshy species with white spores and with lateral stems or no stems at all, usually growing like brackets from stumps, logs and standing trunks; several species are edible. 23 species are reported from the

United States. (220). Peck, Reg. Rep. 39: 58-67 (describes 17 species).

PLUTEOLUS.—Five of the eight known species are reported from America. Peck, Reg. Rep. 46: 58-61.

PLUTEUS.—11 American species reported. (65). Peck, Reg. Rep. 23: 87, 88 (describes three species).

PSATHYRA.—Two American species. (56).

PSATHYRELLA.—7 American species. (50). Peck, Reg. Rep. 23: 102, 103 (describes three species).

PSILOCYBE.—11 species reported as American. (59).

RUSSULA.—A few of our species are said to be edible; others are regarded as poisonous. In collecting it is always essential to note the taste and odor of the fresh specimen and the color of the gills. Our species are not well understood, although 30 have been reported from the country. (100). Macadam, Jour. Mycol. 5: 58-64, 135-141 (paper never completed but descriptions of 25 species are included.)

SCHIZOPHYLLUM.—A single species is everywhere common. (7).

STROPHARIA.—Seven species are reported from this country. (65). Morgan, Journ. Cinn. Nat. Hist. 6: 112, 113 (describes three species).

TRICHOLOMA.—Some 50 species are known from America, several of which are edible. (200). Peck, Reg. Rep. 44: 38-64 (descriptions of 46 species).

TROGIA.—We have a single interesting little species in this country. (6).

TUBARIA.—Two species reported from this country. (17). Morgan, Journ. Cinn. Soc. Nat. Hist. 6: 109, 110.

VOLVARIA.—7 American species. (35). Some of the species are edible.

XEROTUS.—Genus mostly tropical. Two species within our limits. (29).

The BOLETACEAE are easily recognized among fleshy, fungi by their layer of pores which take the place of gills and which are quite easily separable in most cases both from

the substance of the pileus and from each other. The color of the spores should always be determined in the manner indicated for the agarics, and the taste of the fresh specimen is essential. In addition the colors of the pileus, flesh and pores should be noted, and if there is any difference in color between the young pores and those of the mature plant this fact should be noted also. In certain species the flesh or pores or both will change color rapidly or slowly when wounded; in some instances the change is to a bright blue. This changing condition should be noted in any given species. Any peculiarity of shape of stem or markings on the stem like veining, reticulation or glandular dots should be carefully noted. If a veil is present, its character will be important as will the relation of the pores themselves to the stem, whether adnate, free or merely depressed around it. Finally the character of the pileus should be noted whether viscid, hygrophanous, or dry.

Specimens need to be dried rapidly and after the drying has once commenced it should be carried to the end without stopping.

The four genera can be distinguished by the following synopsis:

Stem central or eccentric.
Pores very easily separating from the pileus. BOLETUS.
Pores less readily separating from each other and from the pileus.
Fleshy; pores arranged in radiating rows. BOLETINUS.
Tough; pores uniform; pileus densely floccose. STROBILOMYCES.
Stem lateral; pores separate from each other forming tubes. FISTULINA.

Several of the species of *Boletus* are edible, a few are poisonous; one entire group known as the *Luridi*, recognized by the red mouths of the pores, is generally suspected. Over a hundred species are known from the United States, and the South especially contains many undescribed forms. The descriptions of most of the species are easily accessible in Peck, Boleti of the United States. (Bull. N. Y. State Mus. No. 8*).

* Can be obtained of the State Librarian of New York for the small sum of twenty cents.

Our species of *Boletinus* and *Strobilomyces* are few in number, five of the former and only two of the latter, said to be edible. *Fistulina* contains the "beefsteak fungus," common in certain regions on chestnut stumps, and two or three other less known species.

The POLYPORACEÆ contain mostly woody or leathery forms. A few fleshy species belonging to the genus *Polyporus* are edible when young but soon grow tough. The same suggestions given for the *Boleti* will apply to the fleshy species of this genus.

The HYDNACEÆ are represented by several genera more or less conspicuous. The fleshy species belong to the genus *Hydnum* and a number of them are edible. Some 30 species are described by Morgan, Journ. Cinn. Soc. Nat. Hist. 10: 7-14, including a number of the edible species. In collecting them the taste, odor, and colors when fresh should be carefully noted.

Among the CLAVARIACEÆ, or coral fungi, the members of two genera are fleshy and some of each genus are edible. *Clavaria* has branches that are circular in section and *Sparassis* has flattened branches. They sometimes form masses several inches in extent. None of the species are poisonous, so far as known, though not all are edible. *Sparassis* is represented in America by four of its six species, while of over 200 species of *Clavaria* some 50 species occur in the United States. Morgan, Journ. Cinn. Soc. Nat. Hist. 11: 86-90 describes 20 species occurring in Ohio; and Peck, Reg. Rep. 24: 104, 105, gives a synopsis (without descriptions) of 20 species occurring in New York State. In collecting, the color of the spores, taste, odor and color of the fresh plants should be carefully noted.

The student of edible fungi will find valuable assistance in Peck, Report of State Botanist of the State of New York (extract from Regent's Report 48), a work recently issued and containing descriptions and colored plates of about sixty of our edible mushrooms.

ERRATA.

Distance from the printer made it impossible for either of the writers to see more than one proof so that numerous minor mistakes have entered into the bulletin. A few of the more glaring are here corrected:

Page 122, 8 lines from the bottom for *fungus* read *fungous*.

Page 129 footnote, for *naturalichen* read *naturlichen*.

Page 131, 5 lines from the top, for *amylovorous* read *amylovorus*.

Page 135, line 10 from bottom, for *puriannulatum* read *pluriannulatum*.

Page 137, line 5, for *Enothera* read *Oenothera*.

Page 144, line 8, for *Rhyncospora* read *Rhynchospora*.

Page 147, line 15, and elsewhere, for *Azederach* read *Azedarach*.

Page 155, a * should follow *Macrosporium Cheiranthi*.

Page 188, line 4, for *Dlatrypella* read *Diatrypella*.

Page 194, line 6 from bottom, for *reselal* read *rosella*.

Page 198, line 14, for *Lephodermium* read *Lophodermium*.

Page 206, line 8, for *flavada* read *flavida*.

Page 224, lines 8 and 16, for *Corticum* read *Corticium*.

Page 225, line 16, for *Corticum* read *Corticium*.

Page 226, line 3, for *akesii* read *Oakesii*.

Page 232, line 17, for *beevissimo* read *brevissimo*.

Page 232, line 18, for for *sinereo–* read *cinereo–*.

Page 245, line 16, for *species* read *form*.

Page 198, first line, for *Hysteriographuim* read *Hysterographium*.

Page 198, line 14, for *Lephodermium* read *Lophodermium*.

Page 207, line 11, for *Corebella* read *Cerebella*.

Page 218, line 12 from bottom, for *vacclnorum* read *vaccinorum*.

Page 220, line 3, for *Caroliniamm* read *Carolinianum*.

Page 258, line 8 from bottom, *Flamula* read *Flammula*.

Page 260, line 5, for *Lactarlus* read *Lactarius*.

Page 164, line 7, for *Pleurotis* read *Pleurotus*.

Page 272, line 7 is wrongly indented. It is co-ordinate with lines 3 and 4, not with lines 5 and 6 as printed.

Page 278, line 19, for *Corpinus* read *Corprinus*.

Page 279, line 8, for *Heleloma* read *Hebeloma*.

HOST INDEX.

Myrica cerifera
Meliola manca, 182.
Nerium Oleander
Capnodium sp., 182.
Nymphæa. See **Castalia.**
Nyssa sylvatica
Leptothyrium dryinum, 174.
Glenospora Curtisii, 153.
Oenothera laciniata
Aecidium Epilobii, 209.
Peronospora Arthuri, 137.
Septoria Oenotheræ, 170.
Synchytrium fulgens, 135.
Onagra biennis (Oenothera)
Erysiphe communis, 177.
Septoria Oenotheræ, 170.
Osmanthus Americana (Olea)
Meliola amphitricha, 182.
Ostrya Virginica
Corticium diminuens, 224.
Corticium Oakesii, 226.
Diatrype platystoma, 187.
Hypoxylon fuscum, 190.
Taphria Virginica, 176.
Panicum ciliatifolium
Phyllachora graminis, 195.
Panicum dichotomum
Cercospora fusimaculans, 146.
Phyllachora graminis, 195.
Panicum maximum
Puccinia emaculata, 214.
Panicum Porteranum
Phyllachora graminis, 196.
Panicum sanguinale
Piricularia grisea, 139.
Septoria graminum, 170.
Ustilago Rabenhorstiana, 207.
Panicum virgatum
Puccinia emaculata, 214.
Vermicularia affinis, 172.
Panicum sp.
Phoma campylospora, 165.
Phyllachora graminis, 196.
Piricularia grisea, 139.
Parthenocissus quinquefolia
Laestadia Bidwelli, 191.
Plasmopara viticola, 138.
Paspalum læve
Myriogenospora Paspali, 185.
Phyllachora graminis, 196.
Paspalum platycaule
Cerebella Paspali, 207.
Paspalum setaceum
Phyllachora graminis, 196.
Paspalum undulatum
Piricularia grisea, 139.
Paspalum sp.
Piricularia grisea, 139.
Passiflora incarnata
Cercospora fuscovirens, 146.
Cercospora truncatella, 152.
Peltandra sagittæ folia
Cercospora pachyspora, 148.
Penstemon pubescens
Aecidium Penstemonis, 209.
Cercospora Penstemonis, 148.
Persea palustris
Cercospora purpurea, 149.
Meliola Martiniana, 182.
Peziza psammophila
Chromosporium fulvum, 138.
Phaseolus vulgaris
Cercospora canescens, 143.
Colletotrichum Lindemuthianum, 160.
Uromyces appendiculatus, 219.
Phaseolus sp.
Uromyces appendiculatus, 219.
Phlox Floridana
Cercospora omphakodes, 148.
Phlox sp.
Erysiphe cichoracearum, 177.
Phytolacca decandea
Cercospora flagellaris, 145.
Phyllosticta Phytolaccæ, 168.
Phlyctæna vagabunda, 165.
Pinus echinata (mitis)
Lophodermium Pinastri, 198.
Peridermium cerebrum, 213.
Pinus palustris
Peridermium orientale, 213.
Pinus Taeda
Peridermium cerebrum, 213.
Peridermium orientale, 213.
Pinus Virginiana (inops)
Peridermium cerebrum, 213.
Pinus sp.
Agyrium brunneolum, 200.
Arrhytidia flava, 222.
Arrhytidia fulva, 222.
Aulographum pinorum, 196.
Corticium calceum, 223.
Corticium chrysocreas, 224.
Dacryomyces chrysocomus, 222.
Dacryomyces deliquescens, 222.
Dacryomyces stillatus, 222.
Dasyscypha lachnoderma, 202.
Flammula Underwoodii, 258.
Fusarium miniatum, 158.
Guepinia Spathularia, 223.
Hemiarcyria serpula, 134.
Hysterium macrosporum, 197.
Inocybe vatricosa, 260.
Isaria radiata, 156.

INDEX TO GENERA.