

# REPORT OF THE BOTANIST.

31 Reg Rep.

S. B. WOOLWORTH, LL. D.,

*Secretary of the Board of Regents of the University :*

SIR—Since the date of my last report, specimens of one hundred and eighty-nine species of plants have been mounted and placed in the Herbarium of the State Museum of Natural History, of which one hundred and sixty-two were not before represented therein. Twenty-seven are improved specimens or new varieties not before represented. A list of the specimens mounted is marked (1).

Specimens have been collected in the counties of Albany, Columbia, Delaware, Essex, Rensselaer, Saratoga, Schoharie and Ulster. These represent one hundred and twenty-seven species new to the Herbarium, fifty-eight of which are believed to be new or hitherto undescribed. A list of the specimens collected is marked (2).

Specimens of twenty New York species, new to the Herbarium, and not among my collections of the past season, have been contributed by, or been obtained in naming specimens for, correspondents. These added to the collected species make the whole number of additions one hundred and forty-seven species. A list of contributors and their contributions is marked (3).

Previously unreported species and descriptions of new species are given in a part of the report marked (4). New stations of rare plants, remarks and observations will be found in a part marked (5). A few discoveries of special interest are herewith narrated.

It is a well-known fact that various insects are subject to the attacks of parasitic fungi, which prove fatal to them. The common house-fly is destroyed by one, the silk-worm by another, and the pupæ of different moths by others.

Another noticeable instance of this kind was observed the past season. It was found that the "Seventeen-year Locust," *Cicada septendecim*, which made its appearance in the Hudson River Valley early in the summer, was affected by a fungus. The first specimen of this kind that I saw was taken in New Jersey, and sent to me by Rev. R. B. Post. Examination revealed the fact that the Cicadas, or "Seventeen-year Locusts," in this vicinity, were also affected by it. The fungus develops itself in the abdomen of the insect, and consists almost wholly of a mass of pale-yellowish or clay-colored spores, which, to the naked eye, has the appearance of a lump of whitish clay. The insects attacked by it become sluggish and averse to flight, so that they can easily be taken by hand. After a time some of the posterior rings of the abdomen fall away, revealing the fungus within. Strange as it may seem, the insect may, and sometimes does live for a time even in this condition. Though it is not killed at once, it is manifestly incapacitated for propagation, and, therefore, the fungus may be said to prevent, to some extent, the injury that would otherwise be done to the trees by these insects in the deposition of their eggs. For the same reason, the insects of the next generation must be less numerous than they otherwise would be, so that the fungus may be regarded as a beneficial one. In Columbia county, the disease prevailed to a considerable extent. Along the line of the railroad between Catskill and Livingston stations many dead cicadas

were found, not a few of which were filled by the fungoid mass. As the insect makes its appearance only at intervals of seventeen years, and consequently will not be seen here again till 1894, it will scarcely be possible to make any further observations on it and its parasite for some time to come, yet it would be interesting to know how the fungus is propagated, or where its germs remain during the long interval between the appearance of two generations. Do the fungus germs enter the ground in the body of the larva, and slowly develop with its growth, becoming mature when it is mature, or do they remain quiescent on or near the surface of the ground, waiting to enter the body of the pupa as it emerges seventeen years hence? Or, again, is it possible that the fungus is developed annually in some closely related species as the "Harvest-fly," *Cicada canicularis*, and that it passes over from its usual habitat to the seventeen-year cicada whenever it has the opportunity? These questions are merely suggestive. They cannot yet be answered.\*

While in the Adirondack region numerous clumps of alders were noticed that had their leaves nearly all skeletonized by the larvæ of some unknown insect. The larvæ were nearly black in color and scarcely half an inch long. They were seen in countless numbers feeding upon the leaves and threatening by their numbers, even if but half of them should come to maturity, in another year to completely defoliate the alders of that region. Upon looking under the affected bushes for the pupæ of the insect, in order, if possible, to have the means of ascertaining the species, what was my astonishment to find the ground thickly flecked with little white floccose masses of mold, and that each one of these tufts of mold was the downy fungoid shroud of a dead larva from the alders. Not a single living pupa could be found, but there were hundreds of dead and moldy larvæ killed without doubt by the fungus, which is nature's antidote to an over-production of this insect, and nature's agency for protecting the alders from utter destruction.

While on the way from Summit to Jefferson in Schoharie county, an apple tree was observed on which much of the fruit was discolored, and appeared as if beginning to decay. Some of the passengers in the stage remarked that they "never before knew of apples rotting on the tree." Some of the fruit was procured, and found to be affected by a fungus known to botanists by the name *Sphæropsis Malorum*, or apple Sphæropsis. It has been described as attacking "apples lying on the ground" in winter. Here was an instance in which the apples were attacked while yet on the tree, and that, too, as early as September. The apples attacked by the fungus are rendered worthless, and experiments recently made indicate that the disease is contagious, and may be communicated from one apple to another. For example, a perfectly sound apple was placed in a drawer with one that was affected by the fungus. In a few days the sound apple began to show signs of decay. Its whole surface had assumed a dull brown color as if beginning to rot. Two or three days later small pale spots made their appearance, and in the center of each there was a minute rupture of the epidermis. An examination of the substance of the apple in these pale spots revealed fungoid filaments that had permeated the cells of the apple. In two or three days more, numerous minute black pustules or papillæ had appeared. They were thickly scattered over nearly the whole surface of the apple. These constitute the Sphæropsis. When microscopically examined, each one of these black papillæ is found to contain several oblong pale fungus spores (seeds) supported on a short stem or foot-stalk, from which they soon separate. It would be well, therefore, whenever this fungus-rot makes its

\* Since this was written, I have found in the Smithsonian Contributions, Vol. v, p. 53, a very good account of this fungus, by Dr. Leidy, of Philadelphia, but as no name was given to it, a name and description will be published.

appearance, to remove the affected apples at once from the presence of the others, whether they are on the tree or not. It is not enough to throw them on the ground by themselves, for this would not prevent the fungus from maturing and scattering its seeds. They should be buried in the ground, or put in some place where it will not be possible for the fungus to perfect itself and mature its seed. In this way the multiplication of the spores and the spread of the disease may be prevented.

The importance of the balsam fir, *Abies balsamea*, as an ornamental evergreen and as a source of balsam, renders a brief account of it and its enemies desirable.

It prefers wet or marshy soil, in cold, hilly, or mountainous regions, yet it is quite at home on comparatively dry upland, and will thrive in almost any soil. Its growth is rapid, but the tree seldom attains a very large size, the trunk rarely exceeding one foot in diameter at the base. Its usual diameter is six to eight inches, with a height of thirty to forty feet. It has a straight, gradually tapering trunk, giving off, at intervals of one or two feet, circles of branches, each one of which is a little shorter than the one next below it. This gives to the head or spray a very regular form, resembling in outline an elongated cone. The branches are given off at a wide angle with the trunk. They are generally a little ascending, but sometimes horizontal, or slightly deflexed. The branchlets are numerous, and given off with considerable regularity at each node, though scattering or adventitious branches and branchlets are of frequent occurrence, both on the trunk and branches. There are usually three regular branchlets at each node, two spreading laterally (one from each side of the branch), and one extending downwards and outwards beneath the branch. The leaves have been described in some botanical works as two-ranked. They are, however, scattered on all sides of the leading shoots and branchlets, and are more or less spirally arranged in their insertion; but those on the lower side of the branchlets are so curved and directed upwards and outwards that they appear, as a whole, to be somewhat two-ranked. They are flattened like the leaves of the hemlock, but are usually longer than those of either the hemlock or spruce. The lower surface is marked by a prominent midrib, and has a silvery or glaucous lustre, which, combined with the deep green of the upper surface, gives to the foliage a richness and beauty unequalled by that of any other of our evergreens. They remain upon the tree four or five years, so that all the shorter branches are clad with rich, dense foliage, throughout their whole extent. The cones or fruit of the balsam are produced on the upper and, consequently, on the shorter and younger branches. I have never seen them on branches below the middle of the tree. They stand erect on the branches, and in this respect differ essentially from the pendulous cones of the spruce and hemlock. On the very short branches, near the top of the tree, they are often so close together that they appear crowded or clustered. Before maturity, they are more or less tinged with bluish, or violet and purplish hues, but their beauty is generally impaired by copious exudations of resin. When quite young they are bristly with the long, slender points of the bracts, but these are at length nearly concealed by the overlapping scales. The cones have been described as three to four inches long, but I have never seen them so long. Their usual length with us is one and a half to two and a half inches. Sometimes, on the mountains, small trees four to six feet high bear a few cones. This tree, like the spruce, in some situations varies considerably from the typical form. In the Catskill Mountains I have seen it dwarfed to a diffusely spreading bush, similar to the ground hemlock. Near the summit of the high peaks of the Adirondacks it loses its beauty and thrift, and forms dense thickets in which the trunks are but



a few feet high, rapidly tapering, and coated with lichens; the branches are long, straggling, crooked, and interlaced, the whole forming a hedge-like mass through which anything larger than a rabbit would find great difficulty in passing. Starved by the lack of soil; stunted in its growth by the short, cold seasons; pressed down by the weight of accumulating snow; and bruised and cut back by masses of ice and frozen snow hurled against it by fierce blasts of wind, it can no longer attain its usual size and its natural symmetry of form. These mountain thickets of balsam are of interest to the botanist, because they show the hardy character of the tree, and its ability to live where few other trees can live; but they are the constant dread of tourists who visit the unfrequented peaks of the Adirondacks, for they are passed only with the utmost difficulty and labor.

The wood of the balsam is of little value for lumber owing to the small size of the tree. It contains resin and burns freely, but with a crackling noise. The smoke is very penetrating and irritating to the eyes. Near the summits of the mountains, however, it is almost the only available wood for camps and camp-fires. The bark of this tree furnishes the well-known "Canada balsam," a clear viscid resin of considerable repute in medicine and much used in mounting objects for the microscope. The resin is obtained from small vesicles or "blisters" in the bark. It is generally more abundant in the thrifty smooth-barked trees of low damp lands than in the stunted growths of the mountains. Because of the value of this tree as a producer of balsam, and because of its beauty and fitness to adorn parks and pleasure grounds, it ought to be cherished and preserved. But like its companion, the spruce, it has its insect and fungoid foes. While at Summit, in Schoharie county, in September, I noticed in a small grove of balsams that a dozen or more of the trees had recently been killed or were then dying. The leaves had nearly all changed their color, but for the most part yet remained on the trees. An investigation showed pretty conclusively that an insect was the cause of the death of the trees. A minute bark-mining beetle, both in its mature and in its larval state, was found between the bark and the wood. The beetle perforates the bark, excavates its furrow along the inner surface in a horizontal direction, and deposits its eggs along the sides of the furrow which is less than one-sixteenth of an inch in diameter. As soon as the eggs are hatched, the larvæ begin to mine furrows of their own at right angles to the original gallery, one part eating their way upward and another downward between the bark and the wood. These larval galleries are nearly parallel to each other, and are at their beginning so minute that they are scarcely perceptible to the naked eye; but as the larva advances in its course, it increases in size and the diameter of its furrow increases in like manner. The larvæ were found (in some instances transformed to the mature beetle) each in the larger end of its own furrow. It will be observed from the direction of the original furrow, how powerful an agent for mischief this minute beetle is. Its work is carried on in the most vital part of the tree. Three or four beetles attacking the trunk at or about the same height, and on different sides of the tree, would completely and effectually girdle it and destroy its life. Even a single beetle, by extending its furrow entirely around the trunk, would accomplish the same result, but no furrows were found thus extended. The length of the original furrows appeared to be less than four inches. The beetle itself is scarcely more than one line long, and belongs to the genus *Tomicus*. The species is probably undescribed. In the case of the spruce-destroying beetle more workers are necessary to kill the tree because the main furrows are excavated longitudinally or parallel to the axis of the trunk, while in the case of the balsam-destroying beetle the original furrow is excavated at right angles to this axis, and therefore cuts off or destroys the vital action over a much broader space.

The destruction of the balsams was not limited to the single grove in which it was first observed. In several places along the road between Summit and Jefferson, dead and dying balsams were noticed; but the affected trees were not very numerous, and it would not be a difficult matter, with prompt and united action, to arrest the progress of the mischief. If each man, on whose land the balsams grow, would, as soon as signs of the presence of the trouble are manifest, cut the affected trees, strip off the bark and burn it, he would, by so doing, destroy the colonies of larvæ, and prevent the further spread of the mischief. It is not at all probable that trees once attacked and showing signs of death can be saved, and it would be far better to cut them immediately than to allow them to remain as nurseries for these tiny marauders.

Four species of fungi are now known that attack the leaves of our balsams. None of these, so far as I am aware, actually kill the tree, but all of them necessarily detract somewhat from the vigor and the beauty of it. One of them, a kind of cluster-cup fungus, known as *Peridermium elatinum*, or fir-tree *Peridermium*, consists of minute whitish cups, filled with a deep yellow or orange-colored powder, which is the spores or seeds of the fungus. These cups burst forth from and occupy the whole of the lower surface of the leaf. This fungus is very thorough in its work, for every leaf on the affected branches is made to support its share of the cups. It detracts so much from the vigor of the leaves that they have a sickly, yellowish-green color, and do not attain more than half the size of healthy leaves. Still they are not killed at once. They remain on the tree during the summer, but fall sometime before the next succeeding crop of leaves is developed, for on the affected branches, only the leaves of a single season can be found, and these are always on the terminal shoots, and always affected by the fungus. From this, it appears that the disease is in the branch, and bursts out and makes itself visible in each successive crop of leaves. The branches affected by it are deformed, irregular, contorted and massed together, forming that peculiar dense and intricate growth, commonly known as "crow's nest." It is not often that more than one or two branches of a tree, with the branchlets, are attacked, consequently it is an easy matter to cut off the affected branches and relieve the tree from this incumbrance.

Another similar fungus, the *Peridermium balsameum*, attacks the leaves in a sort of hap-hazard manner, affecting some here and some there. This fungus, like the other, consists of minute cups that burst forth from the lower surface of the leaves, but the cups are generally longer and cylindrical, and filled with a pale or whitish powder. The affected leaves in this case attain their normal size, but they lose their green color and become pale yellowish or almost white, and being scattered everywhere among the green leaves, they give a singular variegated appearance to the foliage. I have never met with this fungus except on small balsams in the Adiroudack wilderness, and near Summit, and it is not very likely to prove detrimental to transplanted or cultivated trees.

In a grove of young balsams, near Summit, patches or groups of dead leaves were observed on many of the branches of some of the trees. An examination showed that these leaves were affected by two fungi, which, in some instances, were associated together in the same group of leaves, and even on the same leaf; in other cases each fungus occupied exclusively its own group of leaves. One of them is known to botanists by the name *Hypoderma nervisequum*, or nerve-following *Hypoderma*. It forms a black line along the midrib of the leaf, being more prominent and uniform on the lower surface. This thick black line or ridge at length ruptures along the center. It contains within a multitude of microscopic, nearly cylindrical, membranous sacks, each of which contains eight long narrow spores.

The other fungus, which does not appear to have been previously known, and to which I have given the name *Dermatea phyllophila*, or leaf-loving *Dermatea*, consists of minute shallow cups, which break forth from the lower surface of the leaf, rupturing the epidermis, and sometimes throwing off a little scale of it. These cups, when moist, are of a dingy-white color, but when dry are contracted, irregular, and of a darker hue. Like the preceding species, they contain many minute sacks and spores. Though these fungi kill the leaves that they attack, there is no evidence that they kill the trees, yet, if the attack should extend to all or nearly all the leaves on a tree at any one time, it is evident the life of the tree would be in danger.

(1.)

## PLANTS MOUNTED.

*Not new to the Herbarium.*

Hamamelis Virginica L.	Habenaria psychodes Gr.
Claytonia Caroliniana Mx.	Eleocharis Robbinsii Oakes.
Rosa micrantha Sm.	Scirpus subterminalis Torr.
Daucus Carota L.	Eriophorum gracile Koch.
Aster corymbosus Ait.	Carex Buxbaumii Wahl.
A. miser L.	C. utriculata Boott.
A. simplex Willd.	Leersia oryzoides Sw.
Solidago squarrosa Muhl.	L. Virginica Willd.
S. Canadensis L.	Festuca elatior L.
S. gigantea Ait.	Panicum glabrum Gaud.
Helianthus tuberosus L.	Andropogon scoparius Mx.
Ilex verticillata L.	Adiantum pedatum L.
Lycopus Virginicus L.	Aspidium acrostichoides Sw.
Potamogeton natans L.	

*New to the Herbarium.*

Trifolium hybridum L.	Agaricus Candolleanus Fr.
Lonicera Tartarica L.	A. limophilus Pk.
Artemisia Absinthium L.	A. umbonatescens Pk.
Hieracium aurantiacum L.	A. arenulinus Pk.
Datura Tatula L.	A. polytrichophilus Pk.
Smilax hispida Muhl.	A. graciloides Pk.
Agaricus striatifolius Pk.	Cortinarius ophiopus Pk.
A. apertus Pk.	C. craticius Fr.
A. flavidellus Pk.	C. regularis Pk.
A. peltigerinus Pk.	Marasmius præacutus Ellis.
A. conigenoides Ellis.	Panus torulosus Fr.
A. delicatellus Pk.	Boletus viscosus Frost.
A. odorifer Pk.	Polyporus dualis Pk.
A. subareolatus Pk.	P. nidulans Fr.
A. striatulus Fr.	P. fragrans Pk.
A. longistriatus Pk.	P. albellus Pk.
A. indecens Pk.	P. connatus Weinm.
A. contrarius Pk.	P. balsameus Pk.
A. lacrymabundus Fr.	P. obducens Pers.

- Polyporus callosus *Fr.*  
 P. farinellus *Fr.*  
 Hydnum Weinmanni *Fr.*  
 Irpex sinuosus *Fr.*  
 I. fuscoviolaceus *Fr.*  
 I. obliquus *Fr.*  
 Radulum orbiculare *Fr.*  
 Phlebia merismoides *Fr.*  
 Thelephora speciosa *Fr.*  
 Hymenochæte spreta *Pk.*  
 H. agglutinans *Ellis.*  
 Corticium quercinum *Pers.*  
 C. lacteum *Fr.*  
 C. Sambuci *Fr.*  
 C. cæruleum *Fr.*  
 C. Martianum *B. & C.*  
 C. suffocatum *Pk.*  
 Cyphella griseopallida *Wein.*  
 Clavaria typhuloides *Pk.*  
 C. amethystina *Bull.*  
 Pistillaria coccinea *Cd.*  
 Tremella intumescens *Sow.*  
 Næmatelia encephala *Fr.*  
 Daecrymyces minor *Pk.*  
 Amaurochæte atra *A. & S.*  
 Physarum luteolum *Pk.*  
 P. albicans *Pk.*  
 Diachæa splendens *Pk.*  
 Trichia fallax *Pers.*  
 Perichæna irregularis *B. & C.*  
 Clathroptychium rugulosum *Wallr.*  
 Nidularia pulvinata *Schw.*  
 Leptostroma lineare *Pk.*  
 Phoma strobilina *P. & C.*  
 P. stercoraria *P. & C.*  
 Sphæronema Robiniæ *B. & C.*  
 S. aurantiacum *Pk.*  
 Sphæropsis Pennsylvanica *B. & C.*  
 S. minima *B. & C.*  
 S. Syringæ *P. & C.*  
 Diplodia thujina *P. & C.*  
 Excipula lanuginosa *Pk.*  
 Discella Canadensis *Pk.*  
 D. arida *Pk.*  
 Melanconium intermedium *Pk.*  
 Torula curvata *Pk.*  
 Septonema dichænoides *P. & C.*  
 Puccinia orbicula *P. & C.*  
 P. Hydrophylli *P. & C.*  
 Uredo Cassandræ *P. & C.*  
 Melampsora Epilobii *F'ckl.*  
 Æcidium Saniculæ *Carm.*  
 Helminthosporium Absinthii *Pk.*  
 Macrosporium sarcinula *Berk.*  
 Cladosporium nodulosum *Cd.*  
 C. depressum *B. & Br.*  
 Ramularia brunnea *Pk.*  
 Cercospora Symplocarpi *Pk.*  
 C. Chenopodii *F'ckl.*  
 Verticillium pulvereum *P. & C.*  
 Peronospora infestans *De By.*  
 Polyactis cana *Berk.*  
 Trichoderma viride *Pers.*  
 Dactylium sublutescens *Pk.*  
 Oidium fasciculatum *Berk.*  
 O. albipes *Pk.*  
 Capillaria Sphæriæ-typhinæ *Cd.*  
 Menispora ciliata *Cd.*  
 Zygodemus pannosus *B. & C.*  
 Z. rubiginosus *Pk.*  
 Fusisporium rimosum *Pk.*  
 Erysiphe Liriodendri *Schw.*  
 Morchella bispora *Sor.*  
 M. semilibera *DC.*  
 M. deliciosa *Fr.*  
 Verpa digitaliformis *Pers.*  
 Peziza sulcata *Pers.*  
 P. Warnei *Pk.*  
 P. bicolor *Bull.*  
 P. myricacea *Pk.*  
 P. sulphurella *Pk.*  
 P. capitata *Pk.*  
 P. distincta *Pk.*  
 P. maculincola *Schw.*  
 P. chameleontina *Pk.*  
 P. deligata *Pk.*  
 P. Polygoni *Rehm.*  
 P. macrospora *F'ckl.*  
 Helotium caricinellum *Pk.*  
 H. bryogenum *Pk.*  
 Dermatea carpinea *Fr.*  
 D. inclusa *Pk.*  
 Patellaria leptosperma *Pk.*  
 P. lignyota *Fr.*  
 Tympanis turbinata *Schw.*  
 Ascobolus viridis *Curr.*  
 A. crenulatus *Karst.*  
 Stictis cylindricarpa *Pk.*  
 Hysterium australe *Duby.*  
 H. Thuiarum *C. & P.*  
 H. Desmazierii *Duby.*  
 Glonium simulans *Ger.*  
 Hypomyces ochraceus *Tul.*  
 Hypoxylon suborbiculare *Pk.*  
 Dothidea Rimineola *Schw.*  
 D. episphæria *Pk.*  
 D. Caricis *Fr.*  
 D. Osmundæ *P. & C.*



*Valsa innumerabilis* *Pk.*  
*Cucurbitaria Berberidis* *Gr.*  
*Lophiostoma obtecta* *Pk.*  
*Sphaeria Clintonii* *Pk.*  
*S. xestothele* *B. & C.*  
*S. exigua* *C. & P.*  
*S. Clasterium* *B. & C.*  
*S. sphærelloides* *Pk.*

*Sphæria exercitalis* *Pk.*  
*S. virens* *Pk.*  
*S. scapophila* *Pk.*  
*S. onosmodina* *P. & C.*  
*S. herbarum* *Pers.*  
*Sphærella Vaccinii* *Ck.*  
*S. Impatientis* *P. & C.*  
*Pyrenophora phæocomes* *Fr.*

(2.)

## PLANTS COLLECTED.

*Solidago humilis* *Pursh.*  
*Potamogeton lonchitis* *Tuckm.*  
*Salix purpurea* *L.*  
*Graphis eulectra* *Tuckm.*  
*Calicium curtum* *T. & B.*  
*C. brunneolum* *Ach.*  
*Sirosiphon Cramerii* *Brugg.*  
*Agaricus cristatellus* *Pk.*  
*A. fumescens* *Pk.*  
*A. pinophilus* *Pk.*  
*A. rubromarginatus* *Fr.*  
*A. radicatellus* *Pk.*  
*A. chrysophyllus* *Fr.*  
*A. abscondens* *Pk.*  
*A. septicus* *Fr.*  
*A. albogriseus* *Pk.*  
*A. micropus* *Pk.*  
*A. undulatellus* *Pk.*  
*A. rhodocalyx* *Lasch.*  
*A. squarrosoides* *Pk.*  
*A. limonellus* *Pk.*  
*A. vermifluus* *Pk.*  
*A. paludinellus* *Pk.*  
*A. lenticeps* *Pk.*  
*A. hymenoccephalus* *Pk.*  
*A. camptopus* *Pk.*  
*Coprinus macrosporus* *Pk.*  
*C. rotundosporus* *Pk.*  
*Cortinarius Copakensis* *Pk.*  
*C. lapidophilus* *Pk.*  
*Marasmius calopus* *Fr.*  
*Boletus Satanus* *Leur.*  
*Polyporus pallidus* *Schulz.*  
*P. Weinmanni* *Fr.*  
*P. planus* *Pk.*  
*P. subiculosus* *Pk.*  
*P. semitinctus* *Pk.*  
*Trametes suaveolens* *L.*

*Solenia villosa* *Fr.*  
*Hydnum sulphurellum* *Pk.*  
*Mucronella calva* *A. & S.*  
*M. aggregata* *Fr.*  
*Craterellus dubius* *Pk.*  
*Stereum sanguinolentum* *A. & S.*  
*Cyphella sulphurea* *Batsch.*  
*Clavaria fumigata* *Pk.*  
*C. corynoides* *Pk.*  
*Tremella lutescens* *Pers.*  
*Guepinia Peziza* *Tul.*  
*Hymenula olivacea* *Pk.*  
*Lycoperdon glabellum* *Pk.*  
*L. calyptriforme* *Berk.*  
*Physarum psittacinum* *Dittm.*  
*P. atrorubrum* *Pk.*  
*P. ornatum* *Pk.*  
*P. inæqualis* *Pk.*  
*Badhamia affinis* *R.*  
*Didymium eximium* *Pk.*  
*D. angulatum* *Pk.*  
*Chondrioderma difforme* *Pers.*  
*Diachæa subsessilis* *Pk.*  
*Comatricha æqualis* *Pk.*  
*C. Friesiana* *DeBy.*  
*C. pulchella* *Bab.*  
*Lamproderma violaceum* *Fr.*  
*Trichia scabra* *R.*  
*T. inconspicua* *R.*  
*Arcyria pomiformis* *Roth.*  
*Lycogala flavofuscum* *Ehr.*  
*Sacidium Pini* *Fr.*  
*Septoria Waldsteiniae* *P. & C.*  
*S. Verbascicola* *B. & C.*  
*Phyllosticta Lonicere* *Desm.*  
*Sporidesmium sicynum* *Thum.*  
*Massospora cicadina* *Pk.*  
*Ustilago Salvei* *B. & Br.*



Phragmidium bulbosum <i>Fr.</i>	Cenangium pezizoides <i>Pk.</i>
Isaria tenuipes <i>Pk.</i>	Tympanis acerina <i>Pk.</i>
Stilbum rigidum <i>Pers.</i>	Patellaria olivacea <i>Batsch.</i>
S. flavipes <i>Pk.</i>	Phacidium brunneolum <i>Pk.</i>
Sporocybe abietina <i>Pk.</i>	Triblidium morbidum <i>Pk.</i>
Cladosporium graminum <i>Lk.</i>	Hypoderma nervisequum <i>DC.</i>
Helminthosporium interseminatum	Rhytisma maximum <i>Fr.</i>
H. Hydropiperis <i>Thum.</i>	Hypocrea viridis <i>Tode.</i>
Botryosporium pulchrum <i>Berk.</i>	Hypoxylon xanthocreas <i>B. &amp; C.</i>
Aspergillus flavus <i>Lk.</i>	Dothidea Epilobii <i>Fr.</i>
Fusidium canum <i>Pass.</i>	Valsa Cratægi <i>Curr.</i>
Peronospora simplex <i>Pk.</i>	V. translucens <i>De Not.</i>
Mucor caninus <i>Pers.</i>	V. Xanthoxyli <i>Pk.</i>
M. ramosus <i>Bull.</i>	Lophiostoma scelestum <i>C. &amp; E.</i>
Peziza succosa <i>Berk.</i>	L. prominens <i>Pk.</i>
P. vulcanalis <i>Pk.</i>	Massaria gigaspora <i>Desm.</i>
P. sulphurea <i>Pers.</i>	Sphæria pulchriseta <i>Pk.</i>
P. viridicoma <i>Pk.</i>	S. sorghophila <i>Pk.</i>
P. brunneola <i>Desm.</i>	S. Typhæ <i>Schw.</i>
P. Osmundæ <i>C. &amp; E.</i>	S. curvicolla <i>Pk.</i>
Helotium albopunctum <i>Pk.</i>	S. Gnomon <i>Tode.</i>
Dermatea carnea <i>C. &amp; E.</i>	S. phellogena <i>B. &amp; C.</i>
D. phyllophila <i>Pk.</i>	S. Crepini <i>West.</i>
D. Xanthoxyli <i>Pk.</i>	S. Marciensis <i>Pk.</i>
Hæmatomyces orbicularis <i>Pk.</i>	Venturia Dickiei <i>De Not.</i>
Cenangium Cassandræ <i>Pk.</i>	

(3.)

## CONTRIBUTORS AND THEIR CONTRIBUTIONS.

Miss S. P. MONKS, Cold Spring, N. Y.

Viola pedunculata <i>T. &amp; G.</i>	Gilia tricolor <i>Benth.</i>
V. Nuttallii <i>Pursh.</i>	G. ciliata <i>Benth.</i>
Claytonia perfoliata <i>Don.</i>	G. Californica <i>Benth.</i>
Ribes sanguineum <i>Pursh.</i>	G. androsacea <i>Steud.</i>
Hosachia strigosa <i>Nutt.</i>	G. dianthoides <i>Endl.</i>
Astragalus trichocarpus <i>Gr.</i>	Plantago Patagonica <i>Jacq.</i>
A. hypoglottis <i>L.</i>	Pellæa densa <i>Hook.</i>
Ænothera parvula <i>Nutt.</i>	Cystopteris fragilis <i>R. Br.</i>

Mrs. S. M. RUST, Syracuse, N. Y.

Aspidium spin. v. dumetorum	Botrychium ternatum <i>Sw.</i>
Onoclea sens. v. obtusilobata	B. gracile <i>Pursh.</i>
Botrychium Lunaria <i>Sw.</i>	

I. C. MARTINDALE, Camden, N. J.

Alyssum calycinum <i>L.</i>	Lechea major <i>Mx.</i>
Senebiera didyma <i>Pers.</i>	Hypericum prolificum <i>L.</i>
Viola tricolor v. arvensis.	Drosera long. v. densiflorum.

<i>Drosera filiformis Raf.</i>	<i>Cacalia reniformis Muhl.</i>
<i>D. rotundifolia L.</i>	<i>Linaria elatine Mill.</i>
<i>Brassica tenuifolia Boisd.</i>	<i>L. Spuria Mill.</i>
<i>Lychnis diurna Sibth.</i>	<i>Leonurus glaucescens Bange.</i>
<i>Melilotus parviflora Desf.</i>	<i>Helmintha echioides Gært.</i>
<i>Sesuvium pentandrum Ell.</i>	<i>Heterotheca scabra DC.</i>
<i>Heliotropium Europæum L.</i>	<i>Vigna glabra Savi.</i>
<i>Potentilla reptans L.</i>	<i>Richardsonia scabra St. Hil.</i>
<i>Silene inflata Sm.</i>	<i>Euphorbia hiberna L.</i>
<i>Jussiaea repens L.</i>	<i>Gentiana angustifolia Mx.</i>
<i>Senecio Jacobæa L.</i>	<i>Tribulus terrestris L.</i>

N. L. BRITTON, New Dorp, N. Y.

*Pinus mitis Mx.*

*Pinus inops Ait.*

E. S. MILLER, Wading River, N. Y.

<i>Barbarea præcox R. Br.</i>	<i>Lemna perpusilla Torr.</i>
<i>Sagina apetala L.</i>	<i>Sagittaria variabilis Engelm.</i>
<i>Spergularia rub. v. campestris.</i>	<i>Muscari racemosum L.</i>
<i>Lathyrus palustris L.</i>	<i>Eriophorum Virginicum L.</i>
<i>L. myrtifolius Muhl.</i>	<i>Fuirena squarrosa Mx.</i>
<i>Lespedeza vio. v. sessiliflora.</i>	<i>Eleocharis obtusa Schultes.</i>
<i>Vicia Caroliniana Walt.</i>	<i>E. melanocarpa Torr.</i>
<i>Eupatorium tenerifolium Willd.</i>	<i>E. tricostata Torr.</i>
<i>Aster undulatus L.</i>	<i>Carex scoparia Schk.</i>
<i>A. lævis L.</i>	<i>C. polytrichoides Muhl.</i>
<i>Oenothera pumila L.</i>	<i>C. stipata Muhl.</i>
<i>O. chrysantha Mx.</i>	<i>C. fœnea Willd.</i>
<i>Galium circæzans Mx.</i>	<i>C. stellulata L.</i>
<i>Erigenia bulbosa Nutt.</i>	<i>C. Pennsylvanica Lam.</i>
<i>Vaccinium corymbosum L.</i>	<i>C. granularis Muhl.</i>
<i>Pyrola rotundifolia L.</i>	<i>C. lanuginosa Mx.</i>
<i>Teucrium Canadense L.</i>	<i>C. hystericina Willd.</i>
<i>Myosotis verna Nutt.</i>	<i>Festuca ov. v. duriuscula.</i>
<i>Plantago Virginica L.</i>	<i>Glyceria nervata Trin.</i>
<i>Utricularia gibba L.</i>	<i>Eragrostis reptans Mx.</i>
<i>U. subulata L.</i>	<i>Panicum verrucosum Muhl.</i>
<i>Potamogeton Oakesiana Robbins.</i>	<i>P. depauperatum Muhl.</i>
<i>Lemna polyrrhiza L.</i>	<i>Millieria herbatica Pk.</i>

E. A. RAU, Bethlehem, Pa.

<i>Disceium nudum Brid.</i>	<i>Æcidium Bigeloviae Pk.</i>
<i>Æcidium hemisphæricum Pk.</i>	<i>Uromyces hyalinus Pk.</i>
<i>Æ. porosum Pk.</i>	<i>Lecythea speciosa Pk.</i>
<i>Æ. Brandagei Pk.</i>	<i>Sphæropsis Raui Pk.</i>
<i>Æ. abundans Pk.</i>	<i>Chaetomium elatum Kze.</i>

W. R. GERARD, New York, N. Y.

<i>Glonium parvulum Ger.</i>	<i>Hysterium hyalosporum Ger.</i>
<i>Ailographum Pinorum Desm.</i>	<i>H. Cookeanum Ger.</i>

Rev. H. WIBBE, Oswego, N. Y.

<i>Drosera longifolia</i> L.	<i>Erythrea Centaurium</i> Pers.
<i>Habenaria ciliaris</i> R. Br.	<i>Scirpus Eri.</i> v. <i>cyperinus</i> .
<i>H. leucophæa</i> Nutt.	<i>Rhynchospora macrostachya</i> Torr.
<i>Houstonia pur.</i> v. <i>ciliolata</i> .	<i>Botrychium simplex</i> Hitch.
<i>Trillium erythrocarpum</i> Mx.	

Prof. P. A. PUISSANT, Troy, N. Y.

*Carex panicea* L.

L. M. UNDERWOOD, Syracuse, N. Y.

<i>Scelopendrium vulgare</i> Sm.	<i>Aspidium marginale</i> Sw.
<i>Asplenium Rutamuraria</i> L.	<i>Cystopteris fragilis</i> Bernh.

H. WILLEY, New Bedford, Mass.

*Arthonia polymorpha* Ach.

Hon. G. W. CLINTON, Buffalo, N. Y.

<i>Triticum caninum</i> L.	<i>Puccinia spreta</i> Pk.
<i>Aspid. crist.</i> v. <i>Clintoniana</i> .	<i>Uromyces Trifolii</i> Pckl.
<i>Meliola Macowani</i> Thum.	<i>U. polymorphus</i> P. & C.
<i>Melanconium Americanum</i> P. & C.	<i>Uredo transversalis</i> Thum.
<i>Septoria Waldsteinæ</i> P. & C.	<i>Polyactis vulgaris</i> Lk.
<i>Vermicularia trichella</i> Grev.	<i>Peziza planodisca</i> P. & C.
<i>V. albomaculata</i> Schw.	<i>Sphaeria cladosporiosa</i> Schw.

C. C. FROST, Brattleboro, Vt.

<i>Cortinarius Spraguei</i> B. & C.	<i>Lycogala flavofuscum</i> Ehr.
<i>Russula compacta</i> Frost.	<i>Sphaeropsis Sumachi</i> Schw.
<i>Boletus Satanus</i> Lenz.	<i>Patellaria nigrocinnabarina</i> Schw.
<i>Polyporus tomentosus</i> Fr.	<i>Hypoxylon marginatum</i> Fr.
<i>Clavaria arbori-similis</i> Frost.	<i>Diatrypella Frostii</i> Pk.
<i>Michenera Artoceas</i> B. & C.	

J. B. ELLIS, Newfield, N. J.

<i>Lenzites vialis</i> Pk.	<i>Clasterisporium caricinum</i> Schw.
<i>Sphaeropsis Ribicola</i> C. & E.	<i>Cercospora concentrica</i> C. & E.
<i>S. Alni</i> C. & E.	<i>C. grisea</i> C. & E.
<i>Septoria stictica</i> Ellis.	<i>Peziza coccinella</i> Somm.
<i>Septosporium maculatum</i> C. & E.	<i>P. fuscidula</i> Ck.
<i>Pestalozzia stellata</i> B. & C.	<i>P. ilicifolia</i> C. & E.
<i>Vermicularia compacta</i> C. & E.	<i>P. bullata</i> Ellis.
<i>Sporidesmium hysteroideum</i> C. & E.	<i>Hysterium subrugosum</i> C. & E.
<i>S. polymorphum</i> Cd.	<i>Colpoma Andromedæ</i> Duby.
<i>S. aurantiacum</i> B. & C.	<i>Stictis quereifolia</i> C. & E.
<i>Periconia Azalæ</i> Pk.	<i>S. fimbriata</i> Schw.
<i>Epicoccum scabrum</i> Cd.	<i>Nectria microspora</i> C. & E.
<i>Fusisporium episphaericum</i> C. & E.	<i>Dothidea tetraspora</i> B. & Br.



Valsa rugiella <i>C. &amp; E.</i>	Sphaeria microtheca <i>C. &amp; E.</i>
V. obscura <i>Pk.</i>	S. orthoceras <i>Fr.</i>
Massaria epileuca <i>B. &amp; C.</i>	S. tumulata <i>C. &amp; E.</i>
Lophiostoma scelestum <i>C. &amp; E.</i>	S. soluta <i>C. &amp; E.</i>
Sphaeria salviæcola <i>C. &amp; E.</i>	S. dissiliens <i>C. &amp; E.</i>
S. luteobasis <i>Ellis.</i>	S. surrecta <i>Ck.</i>
S. vexata <i>C. &amp; E.</i>	S. sepebilis <i>B. &amp; C.</i>
S. melanotes <i>B. &amp; Br.</i>	S. aculeata <i>Schw.</i>
S. minima <i>Awd.</i>	

## H. A. WARNE, Oneida, N. Y.

Polyporus induratus <i>Pk.</i>	Peziza Umbrorum <i>Fekl.</i>
Lycoperdon giganteum <i>Batsch.</i>	P. gallinacea <i>Pk.</i>
Diatrype asterostoma <i>B. &amp; C.</i>	Sphaeria fimiseda <i>C. &amp; N.</i>

## B. D. GILBERT, Utica, N. Y.

Aspidium spinulosum <i>Desv.</i>	Asplenium resectum <i>Sm.</i>
A. Boottii <i>Tuckerm.</i>	Cystopteris frag. v. dentata.

## M. W. VANDENBURG, Fort Edward, N. Y.

Rhus aromatica <i>Ait.</i>	Utricularia subulata <i>L.</i>
R. typhina <i>L.</i>	Pogonia affinis <i>Aust.</i>
Solidago latifolia <i>L.</i>	

## G. S. WATKINS, Wilmurt, N. Y.

Polyporus Beatiei *Banning.* |

## G. T. FISH, Rochester, N. Y.

Impatiens fulva *Nutt.* | Polyporus Beatiei *Banning.*

## C. DEVOL, M. D., Albany, N. Y.

Section of stem of Kalmia latifolia *L.* |

## P. C. BROWER, Albany, N. Y.

California hickory nuts. |

(4)

## PLANTS NOT BEFORE REPORTED.

SOLIDAGO HUMILIS *Pursh.*

Gravelly bank at the outlet of Lower Ausable Pond, Adirondaek Mountains. Aug.

The smaller heads, shorter flowers, whiter pappus and sharper serratures of the leaves, induce me to report this as a distinct species.

UTRICULARIA SUBULATA *L.*

Fort Edward. *M. W. Vandenburg.* Wading River, Long Island. *E. S. Miller.*

SALIX PURPUREA *L.*

Low grounds. Albany and Bethlehem. An introduced willow, which has run wild in some places.

POTAMOGETON LONCHITIS *Tuckerm.*

Ticonderoga. Aug.

LISTERA AUSTRALIS *Lindl.*

Lily Marsh, Oswego. *Rev. H. Wibbe.* This is an interesting addition to our flora.

POGONIA AFFINIS *Aust.*

Fort Edward. *Vandenburg.*

MUSCARI RACEMOSUM *L.*

Wading River. *Miller.* A stray from cultivation.

ELEOCHARIS TRICOSTATA *Torr.*

Wading River. *Miller.* This is probably the northern limit of this plant.

WOODSIA HYPERBOREA *Br.*

Crevices of rocks. Adirondack Mountains. Small forms of this fern closely resemble *W. glabella*, and it is, perhaps, questionable whether they should be regarded as two distinct species. In our specimens the chaffy scales of *W. hyperborea* are present, but not in abundance. The specimens were formerly referred to *W. glabella*.

ARTHONIA POLYMORPHA *Ach.*

Bark of trees. Geneseo. *H. Willey.*

GRAPHIS EULECTRA *Tuckerm.*

Bark of arbor-vitæ. Newcomb, Essex county. Aug.

CALICIUM BRUNNEOLUM *Ach.*

Decaying balsam trunks. Mount Marcy. Aug.

CALICIUM CURTUM *Turn. & Bor.*

Decaying prostrate trunks of hemlock trees. Catskill Mountains. Sept.

CHLOROSTYLIUM CATARACTARUM *Kutz.*

Granite pebbles in running streams. Caledonia. *G. W. Clinton.*

SIROSIPHON CRAMERI *Brugg.*

Wet surface of rocks. Mt. Marcy. Aug.

AGARICUS (LEPIOTA) CRISTATELLUS *Pk.*

Pileus convex, subumbonate, minutely mealy, especially on the margin, white, the disk slightly tinged with pink; lamellæ close, rounded behind, free, white; stem slender, whitish, hollow; spores subelliptical, .0002 \* long. Plant about 1' high, pileus 2'-4' broad.

Mossy places in woods. Copake, Columbia County. Oct.

The relationship of this very small species appears to be with *A. cristatus*.

The margin of the pileus is sometimes appendiculate with the minute fragments of the veil. The annulus is obsolete.

\* One accent signifies inch or inches, two accents signify line or lines.

AGARICUS (TRICHOLOMA) FUMESCENS *Pk.*

Pileus convex or expanded, dry, clothed with a very minute appressed tomentum, whitish; lamellæ narrow, crowded, rounded behind, whitish or pale cream color, changing to a smoky blue or blackish color when bruised; stem short cylindrical, whitish; spores oblong-elliptical, .0002-.00025' long.

Plant 1'-2' high, pileus 1' broad, stem 2'-3' thick.

Ground in woods. Copake. Oct.

The species is remarkable for the smoky or blackish hue assumed by the lamellæ when bruised, and also in drying.

AGARICUS (CLITOCYBE) PINOPHILUS *Pk.*

Pileus thin, convex, umbilicate or centrally depressed, glabrous, moist, pale tan-color, paler or alutaceous when dry; lamellæ moderately close, subarcuate, adnate or slightly decurrent, whitish; stem equal, stuffed or hollow; glabrous or subpruinose, colored like the pileus; spores nearly elliptical, .0002-.00025' long; odor and taste resembling that of fresh meal.

Plant 1'-2' high, pileus about 1' broad, stem 1''-2' thick.

Ground under pine trees. Albany and Ticonderoga. July and August.

AGARICUS RUBROMARGINATUS *Fr.*

Ground under spruce trees. Adirondack Mountains. August.

Our specimens when fresh had a slight alkaline odor; otherwise they agree well with the description of the species.

AGARICUS (MYCENA) RADICATELLUS *Pk.*

Pileus thin, campanulate, glabrous, obtuse or subumbonate, whitish, when dry striate on the margin; lamellæ ascending, narrow, close, white; stem firm, glabrous, slender, whitish, deeply rooting; spores subglobose, rough, .0003'-.00035' long.

Plant 1.5'-2' high, pileus 4'-6' broad.

Mossy ground in woods. Griffins. Delaware County. Sept.

This species is easily known by the long radicular portion of the stem, which penetrates the earth after the manner of *A. radicans*.

AGARICUS CHRYSOPHYLLUS *Fr.*

Decaying wood. Adirondack Mountains, Summit and Sandlake. Aug. and Sept.

AGARICUS (PLEUROTUS) ABSCONDENS *Pk.*

Pure white; pileus compact, convex or slightly depressed on the disk, glabrous, dry; lamellæ thin, crowded, emarginate, with a decurrent tooth; stem eccentric, curved, stuffed, slightly mealy at the top; spores minute, elliptical, .0002' long, usually with a shining nucleus; odor distinct, farina-ceous.

Stem about 2' long, pileus 2'-3' broad.

In hollow stumps. Griffins. Sept.

AGARICUS SEPTICUS *Fr.*

Decaying wood. Adirondack Mountains. Aug.



AGARICUS (CLITOPILUS) ALBOGRISEUS *Pk.*

Pileus firm, convex or slightly depressed in the center, smooth, pale-gray; lamellæ moderately close, adnate or slightly decurrent, grayish, then flesh-colored; stem solid, colored like the pileus; spores angular, irregular, .0004-.0005 long, .0003' broad; odor farinaceous.

Plant 2-3' high, pileus 6'-12" broad, stem 1'-2" thick.

Ground in woods. Adirondack Mountains. Aug.

AGARICUS (CLITOPILUS) MICROPUS *Pk.*

Pileus thin, fragile, convex or centrally depressed, umbilicate, silky, gray, usually with one or two narrow zones on the margin; lamellæ narrow, close, adnate or slightly decurrent, gray; stem short, solid, slightly thickened at the top, gray, pruinose, with white mycelium at the base; spores angular, irregular, .0004 long, .00025 broad; odor farinaceous.

Plant 1' high, pileus 6'-12" broad.

Ground under trees. Ticonderoga. Aug.

AGARICUS (LEPTONIA) UNDULATELLUS *Pk.*

Pileus membranaceous, convex, minutely scurfy, squamulose on the disk, hygrophanous, grayish-brown and striatulate when moist, wavy on the margin; lamellæ rounded behind, nearly free, subdistant, whitish, then tinged with flesh-color; stem slender, glabrous, colored like the pileus, usually curved; spores irregular, .0004 long, .0003' broad.

Plant about 1' high, pileus 6'-8" broad.

Decaying prostrate trunks of trees. Pine Hill. Sept.

When dry, the pileus is somewhat shining, and the disk a little darker.

AGARICUS RHODOCALYX *Lasch.*

Ground in woods. Adirondack Mountains. Aug.

AGARICUS (PHOLIOTA) SQUARROSIDES *Pk.*

Pileus firm, convex, viscid when moist, at first densely covered by erect papillose or subspinose tawny scales, which soon separate from each other, revealing the whitish color and viscid character of the pileus; lamellæ close, emarginate, at first whitish, then pallid or dull cinnamon color; stem equal, firm, stuffed, rough with thick squarrose scales, white above the thick floccose annulus, pallid or tawny below; spores minute, elliptical, .0002' long, .00015' broad.

Densely cæspitose, 3-6' high, pileus 2'-4" broad, stem 3"-5" thick.

Dead trunks and old stumps of maple. Adirondack and Catskill Mountains. Autumn.

This is evidently closely related to *A. squarrosus*, with which it has, perhaps, been confused, but its different colors and viscid pileus appear to warrant its separation.

AGARICUS (PHOLIOTA) LIMONELLUS *Pk.*

Pileus thin, convex or expanded, subumbonate, viscid, rough with scattered erect reddish-brown scales, lemon-yellow; lamellæ narrow, close, rounded

behind, whitish; stem equal, solid, rough with revolute or recurved scales, pallid or yellowish, smooth above the lacerated annulus, dusted with yellow particles at the insertion of the lamellæ; spores elliptical, .0003-.00035' long, .0002'-.00025' broad.

Plant caespitose, 2'-3' high, pileus 1'-2' broad, stem 2'-3" thick.

Prostrate beech trunks in woods. Griffins. Sept.

This is one of our most beautiful species. It is easily separated from its allies by its lively lemon-yellow color. It is allied to *A. flammans*.

#### AGARICUS (PHOLIOTA) VERMIFLUUS *Pk.*

Pileus convex or expanded, smooth, white, often tinged with yellow, sometimes areolate-rimose, especially on the disk, the margin decurved, and sometimes floccose-squamose from the remains of the veil; lamellæ close, white, then ferruginous-brown, usually minutely eroded on the edge; stem hollow, striated at the top where it is sometimes thickened, white; annulus lacerated or evanescent; spores ferruginous-brown, .00045'-.0005' long, .0003 broad.

Plant 2'-4' high, pileus 2'-4' broad, stem 3"-5" thick.

Fields among oat stubble. Ticonderoga. Aug.

This species is evidently closely related to *A. præcox*, but its larger size, larger spores, late appearance, etc., induce me to separate it. When moist, the pileus appears to be slightly viscid. It is so liable to the attacks of insect larvæ that it is difficult to dry a specimen before it is badly eaten.

#### AGARICUS (INOCYBE) PALUDINELLUS *Pk.*

Pileus thin, plane or slightly convex, umbonate, subfibrillose, whitish or pallid; lamellæ narrow, close, whitish then subferruginose; stem slender, equal, colored like the pileus, with an abundant white mycelium at the base; spores subelliptical, nodulose, .0003' long, .0002' broad.

Plant gregarious, 1'-2' high, pileus 5"-10" broad, stem nearly 1" thick.

In low grounds and wet places under bushes. Sandlake. Aug.

This species is easily recognized by its pale, umbonate pileus and nodulose spores.

#### AGARICUS (NAUCORIA) LENTICEPS *Pk.*

Pileus thin, convex or nearly plane, dingy-ochre or subolivaceous, the disk brown or blackish-brown; lamellæ plane, subdistant, adnate, with a decurrent tooth, whitish or pallid; stem slender, hollow, paler above and slightly squamulose; spores large, variable in size, .0005'-.00075' long, .0003-.0004' broad.

Plant 1'-1.5' high, pileus 6'-10' broad, stem scarcely 1" thick.

Sandy soil along railroads. Center. Oct.

#### AGARICUS (HYPHOLOMA) HYMENOCEPHALUS *Pk.*

Pileus thin, fragile, campanulate then expanded, sometimes umbonate, hygrophanous, brown and striatulate when moist, pallid or whitish and radiately rugulose when dry, subatomate, the whitish appendiculate veil soon evanescent; lamellæ narrow, close, dingy then brown; stem slender, brittle,

hollow, striate and slightly mealy at the top, white; spores brown, elliptical, .0003' long, .00016' broad.

Plant 3'-4' high, pileus 1'-2' broad, stem 1'-1.5' thick.

Ground under alders. Adirondack Mountains. Aug.

It belongs to the section *Appendiculati*, and is remarkable for the fragile character of the pileus and stem.

#### AGARICUS (PSILOCYBE) CAMPTOPUS *Pk.*

Pileus thin, broadly convex, glabrous, hygrophanous, brown and striatulate when moist, whitish when dry; lamellæ narrow, close, whitish becoming brown; stem equal, smooth, generally curved, slightly pruinose or mealy at the top, with a white strigose mycelium at the base; spores elliptical, .00025' long, .00016' broad.

Plant about 1' high, pileus 4"-10" broad.

Prostrate trunks of trees in woods. Catskill Mountains. Sept.

This plant bears some resemblance in color to *A. appendiculatus*, but I find no trace of a veil. The stem is solid, and the pileus is even when dry.

#### COPRINUS MACROSPORUS *Pk.*

Pileus ovate, then expanded, rimose-striate, obscurely floccose-squamulose, white, the small even brownish disk squamose; lamellæ crowded, free, white then black; stem glabrous, white, with traces of an annulus near the thickened or subbulbous base; spores very large, elliptical, .0008'-.001' long, .0005-.00065' broad.

Plant caespitose, 2-3' high, pileus 1'-2' broad, stem 1" thick.

Ground in open fields. Ticonderoga. Aug.

The prominent characters of this species are the rimose pileus, squamose disk, free lamellæ, and large spores. In its early state it resembles some species of *Lepiota*. It seems to be intermediate between the sections *Atramentarii* and *Micacei*.

#### COPRINUS ROTUNDOSPORUS *Pk.*

Pileus thin, campanulate, whitish or pale cinereous with a thin floccose subpersistent tomentum, even; lamellæ free; stem slightly tapering upward, white; spores subglobose, .0003-.00035' long, nearly as broad.

Plant 2'-3' high, pileus about 1' broad.

About the roots of trees in woods. Catskill Mountains. Sept.

This species is apparently related to *C. niveus*, and is remarkable for its nearly globose spores. All the specimens seen were old and partly dried, so that the description is not as full as could be desired.

#### CORTINARIUS (PHLEGMACIUM) COPAKENSIS *Pk.*

Pileus convex then expanded, often crowded and irregular, viscid, corrugated, pale-ochre, slightly tinged with red; lamellæ sub-distant, broad behind, at first violaceous, toothed or eroded on the margin, the interspaces sometimes veiny; stem equal or tapering upwards, stuffed, silky, whitish; spores broadly elliptical, rough, .0003'-.00035' long.

Plant subcaespitose, 2-3' high, pileus 1.5'-3' broad, stem 2"-4" thick.

Ground in woods. Copake. Oct.

The pileus when dry is glabrous and shining.



CORTINARIUS (PHLEGMACIUM) LAPIDOPHILUS *Pk.*

Pileus at first hemispherical and cinereous, then convex or expanded and tinged with ochre, often crowded and irregular, virgate with appressed fibrils; lamellæ crowded, at first dark violaceous then argillaceous-cinnamon; stem solid, equal or slightly thickened at the base, whitish; flesh of the pileus whitish; spores unequally elliptical, rough, .0003 long, .00025 broad.

Plant subcæspitose, 2'-4' high, pileus 2'-3' broad, stem 3''-5'' thick.

Rocky soil in woods. Ticonderoga. Aug.

MARASMIUS CALOPUS *Fr.*

Twigs and stems among fallen leaves in woods. Ticonderoga. Aug.

This might easily be mistaken for *M. scorodonius*, but it is without odor, and has a different insertion of the lamellæ. It is sometimes cæspitose. The pileus in our specimens is whitish.

BOLETUS SATANUS *Lenz.*

Borders of woods in grassy ground. Ticonderoga. Aug.

POLYPORUS PALLIDUS *Schulz.*

Adirondack Mountains. Aug.

POLYPORUS (MERISMA) BEATIEI *Banning in litt.*

Pilei few, springing from a common, often tuber-like base, spreading out into a suborbicular mass often a foot or more in diameter, nearly plane above or centrally depressed and imperfectly funnel-shaped, variously confluent and imbricated, sometimes single, subzonate, rough with little radiating elevations or wrinkles, which sometimes form imperfect reticulations towards the base, subpulverulent and strigose-villose in zones or almost evenly scabrous-villose, alutaceous, the margin often irregular and lobed; pores of medium size, decurrent on the stem-like base, unequal, angular, lacerated, toothed and even lamellated, generally about equal in length to the thickness of the flesh of the pileus, subconcolorous; flesh pallid or pale alutaceous, of a firm, but cheesy texture; spores globose, rough, .00025-.0003' in diameter, colorless.

"Ground" in woods. Wilmurt, Herkimer County. *G. S. Watkins* and *W. D. Edmonds.*

Ground under an oak tree. Brighton, Monroe County. *G. T. Fish.*

Both gentlemen from whom I have received specimens of this fungus, speak of it as growing on the ground, but it is quite probable that it starts from some decaying wood or tree root buried in the earth. I have also received a specimen of this plant from Miss M. E. Banning, of Baltimore, Md., who sent it under the name here given.

The species seems closely related to *P. subgiganteus* B & C., but as I am unable, from the description of that species, to satisfy myself that our plants belong to it, I have thought best to describe them under another name. The Baltimore plant has a single pileus seven inches in diameter and four inches high. The New York specimens are compound, the one from Wilmurt being ten inches broad and nine inches high, the one from Brighton, fifteen inches broad and six inches high. These are the dimensions of the shrunken, dried plants. When fresh, they were very much larger. The dimensions of the Wilmurt plant, when fresh, were given me by Mr. Edmonds, as follows:

Height, eighteen inches; circumference, fifty-seven inches; thickness of pileus about one inch. From this it will be seen that the dried plants are only about half their size when fresh. The flesh resembles in color and texture that of *P. sulphureus*, to which the species is allied, but it is a little harder. The dried plants have a decided and peculiar odor.

**POLYPORUS (ANODERMEI) WEINMANNI Fr.**

Decaying hemlock trunks. Pine Hill. Sept.

The whole plant sometimes acquires a reddish hue in drying. The pileus is two or three inches broad. A tendency to form narrow zones on the margin is manifest.

**POLYPORUS (INODERMEI) PLANUS Pk.**

Pileus thin, coriaceous, plane, suborbicular, about 1' broad, sometimes confluent, dorsally attached, minutely villose or velvety, brown or brownish fawn-colored, variegated with narrow darker glabrous zones, margin whitish; pores minute, obtuse, short, subrotund, whitish or pallid; flesh pallid.

Dead branches. North Greenbush.

This has the colors of *P. scutellatus*, but the thin plane pileus and short pores are so unlike that species that I am compelled to regard it as distinct.

**POLYPORUS (RESUPINATI) SUBICULOSUS Pk.**

Subiculum widely effused, dense, but soft and downy-tomentose, tawny-cinnamon; pores forming patches upon the subiculum, short, unequal, sometimes slightly labyrinthiform, cinereo-ferruginous, ferruginous-brown when bruised, the dissepiments when young whitish and pruinose-villose.

Creeping over mosses, decaying wood, and even stones, in sheltered places. Copake. Oct.

The patches are several inches in extent. The pores have a paler hue than the subiculum, but they become darker when bruised.

**POLYPORUS (RESUPINATI) SEMITINCTUS Pk.**

Subiculum thin, soft, cottony, separable from the matrix, whitish, more or less tinged with lilac, sometimes forming branching creeping threads; pores very short, unequal, whitish or pale cream-color, the dissepiments at first obtuse, then thinner, toothed on the edge.

Under surface of maple chips. Griffins. Sept.

This is a soft, delicate species, with merulioid pores, similar to those of *P. violaceus*. The lilac stains appear on the subiculum only.

**POLYPORUS (RESUPINATI) INDURATUS Pk.**

Effused, hard, determinate, 1"-2" thick, inseparable from the matrix, almost wholly composed of minute subrotund vesicular pores, yellowish or pale-ochre, the surface slightly pruinose and tinged with flesh-color; the yellowish mycelium or subiculum penetrating the matrix.

Decaying wood. Oneida. H. A. Warne.

This species is remarkable for the peculiar character of the pores which form little cells or cavities instead of tubes, so that in whatever direction the mass is cut or broken, the section appears equally porous. Perhaps this character will necessitate the formation of a new genus.

TRAMETES SUAVEOLENS *L.*

Decaying wood. Center. Oct.

SOLENTIA VILLOSA *Fr.*

Decaying wood. Summit. Sept.

HYDNUM SULPHURELLUM *Pk.*

Subiculum thin, effused, definite, sometimes rimose, pale sulphur-yellow; aculei scattered, conical, subobtuse, sometimes compound, colored like the subiculum; spores oblong, slightly curved, .0002-.00025' long.

Dead branches of mountain maple, *Acer spicatum*. Griffins. Sept.

The small suborbicular patches are sometimes elongated by confluence. The color is of a clear whitish sulphur hue. The teeth appear like little conical papillæ.

MUCRONELLA CALVA *A. & S.*

Prostrate hemlock trunks. Griffins. Sept.

MUCRONELLA AGGREGATA *Fr.*

Decaying wood of deciduous trees. Oneida. *Warne.*

CRATERELLUS DUBIUS *Pk.*

Pileus infundibuliform, subfibrillose, lurid-brown, pervious to the base, the margin generally wavy and lobed; hymenium dark cinereous, rugose when moist, the minute crowded irregular folds abundantly anastomosing, nearly even when dry; stem short; spores broadly elliptical or subglobose, .00025'-.0003' long.

Plant simple or cæspitose, 2'-3' high, pileus 1'-2' broad.

Ground under spruce trees. Adirondack Mountains. Aug.

In color this species bears some resemblance to *Cantharellus cinereus*. From *Craterellus sinuosus*, it is separated by its pervious stem, and from *C. cornucopioides* by its more cæspitose habit, paler color and smaller spores.

STEREUM SANGUINOLENTUM *A. & S.*

Prostrate hemlock trunks. Griffins. Sept.

The pileus is sometimes hairy and distinctly zoned with darker bands; the hymenium is even or radiately-wrinkled.

CYPHELLA SULPHUREA *Batsch.*

Living stems of herbs in damp places. Griffins. Sept.

Some of the specimens were white when collected, but in drying, these assumed the yellow color of the others.

CLAVARIA FUMIGATA *Pk.*

Stem short, thick, branching from near the base, whitish; branches numerous, forming a dense mass, smoky-ochraceous, sometimes tinged with lilac; tips obtuse; spores .0003'-.0005' long.

Ground in woods. Ticonderoga. Aug.

The tufts are 4'-5' high and remarkable for their smoky or dingy color.

CLAVARIA CORYNOIDES *Pk.*

Small, simple, clavate; club obtuse, yellowish, or cream colored, gradually narrowed below and losing itself in the short white stem.

Gregarious, about half an inch high.

Damp ground by roadsides. Adirondack Mountains. Aug.

TREMELLA LUTESCENS *Pers.*

Dead poplar branches. Adirondack Mountains. Aug.

GUEPINIA PEZIZA *Tul.*

Cup-shaped, single or clustered, erumpent, stipitate, at first nearly closed, then open and concave, 1'-3" broad, yellow, often irregular, base stem-like, concolorous or slightly whitish-pruinose, longitudinally wrinkled, the ridges extending upwards on the base of the cup; substance tremelloid, rather tough; spores oblong-elliptical, at first simple, then one to three-septate, .0004'-.0005' long, borne on spicules at the tips of rather thick subclavate sporophores.

Dead alder. Center. Sept.

In the dried specimens the color inclines to orange. The general appearance is not unlike that of a clustered *Peziza*. As our specimens exhibit some characters not mentioned in the description of the species to which we have referred them, we have given a full description of them.

HYMENULA OLIVACEA *Ph.*

Thin, closely applied to the matrix, olive-green, shining, subviscid, definite or subconfluent, with a narrow raised margin which is sometimes whitish; spores minute, cylindrical, straight, trinucleate, colorless, .0002' long.

Dead stems of *Eupatorium ageratoides*. Catskill Mountains. Sept.

LYCOPERDON GLABELLUM *Ph.*

Subglobose or subturbinate, 1'-1.5' broad, sometimes narrowed below into a short stem-like base, furfuraceous with very minute nearly uniform persistent warts, which appear to the naked eye like minute granules or papillæ, yellow, opening by a small aperture; inner mass purplish-brown, capillitium with a central columella; spores purplish-brown, globose, rough, .0002'-.00025' in diameter.

Ground in copses and in pine woods. West Albany and North Greenbush. Autumn.

The verrucæ or spinules are so minute, that at first sight, they are scarcely visible, the peridium appearing nearly smooth. They persist even in the old and flaccid condition of the plant. The species is manifestly closely related to *L. atropurpureum*, but that is described as "at first rough with minute spines," thus indicating that it becomes smooth afterwards. It is also said to be "dingy-rufous," but our plant is constantly yellow.

LYCOPERDON CALYPTRIFORME *Berk.*

Moss-covered rocks. Adirondack Mountains. Aug.

This species is remarkable for its peculiar shape and singular habitat. It is evidently rare. But two specimens were found.



MILLERIA *gen. nov.*

Peridium membranaceous, enclosing numerous minute sporangium-like bodies bearing upon the surface a stratum of spores.

This is a genus of Gasteromycetes, near Polysaccum. It is respectfully dedicated to its discoverer. *Mr. E. S. Miller.*

MILLERIA HERBATICIA *Pk.*

Peridia oval or ovate-conical, subobtuse, firm, externally minutely warty or mealy-furfuraceous, whitish, inclosing a mass of minute subglobose or slightly angular sporangioles adhering together, black externally, pallid within; spores superficial on the sporangioles, globose, colored, .0005'-.00065' in diameter.

Panicles of *Rhynchospora macrostachya*. Wading River. *Miller.*

This rare, but interesting fungus resembles in size and color the preceding species, but its interior structure is wholly different. The sporangioles appear to be composed of densely compacted or reticulated threads and cellular matter. I have not been able to detect any investing membrane, the spores appearing to rest directly upon the surface to which they give the black color. The peridium does not appear to have been ruptured naturally in any of the specimens. The cavity is only partly filled by the mass of sporangioles.

PHYSARUM PSITTACINUM *Dittm.*

Fallen leaves, decaying wood, bark and effete Hypoxylon. Adirondack Mountains. Aug.

PHYSARUM ORNATUM *Pk.*

Sporangia depressed or hemispherical, plane or slightly concave beneath, greenish-cinereous, dotted with small yellow granules, the empty walls whitish; stem short, black or blackish-brown, generally longitudinally wrinkled when dry; columella none; capillitium with numerous yellow knot-like thickenings; spores globose, smooth, violet-brown in the mass, .0004'-.0005' in diameter.

Decaying wood. Albany. Aug.

PHYSARUM ATRORUBRUM *Pk.*

Scattered or gregarious, stipitate; sporangia globose, even or somewhat wrinkled, dark-red; stem cylindrical, even, blackish or subconcolorous; capillitium when cleared of the spores whitish, sometimes with a slight pinkish tinge; columella none; spores globose, smooth, dark-brown in the mass, dark-red when separated, .0003-.00035' in diameter.

Decaying wood. Adirondack Mountains. Aug.

The plants are scarcely one line high. The capillitium is very delicate, and when cleared of the spores, the knot-like thickenings are seen to be very small and of a dark-red color, to which probably is due the pinkish tinge—sometimes observed. A part only of the thickenings are filled with lime granules. The dark-red granules of the sporangium walls are abundant, and appear to form a continuous crust.

PHYSARUM INÆQUALIS *Pk.*

Sporangia sessile, subglobose or irregular, sometimes elongated and confluent, red, abundantly dotted with minute scarlet granules; capillitium

lemon-yellow; spores brown in the mass, globose or subglobose, smooth, very unequal in size, .0003–.0012' in diameter.

Decaying wood. Griffins. Sept.

This is a most singular fungus, and but little of it was found. The capillitium though abundantly charged with lime granules, does not appear to have them continuous throughout its whole extent, and the plant would, therefore, seem to belong to the genus *Physarum*. On the other hand, the larger bodies which I have regarded as spores, give indications that they may be really an investing membrane, which encloses the true spores, for they are often found ruptured, though I have not been able to see them discharging spores or containing them. They are colored like the spores, and there are all manner of intermediate sizes between the largest and smallest. It thus appears to be neither a good *Physarum* nor a good *Badhamia*, though with close relations to both. For the present, I leave it in the genus *Physarum*. *P. rubiginosum* is said to have the sporangia walls and the granules of lime—both scarlet—which is not the case with our plant.

#### BADHAMIA AFFINIS R.

Twigs and leaves. Sandlake. Aug.

#### DIDYMIUM EXIMIUM Pk.

Sporangia subglobose, slightly umbilicate beneath, whitish or subcinereous, mealy with numerous granules; stem slender, erect, even, pallid or subrufo-scent, blackish at the base; columella orbicular, discoid, dull-yellowish or pallid; capillitium whitish; spores globose nearly smooth, blackish in the mass, .00035'–.0004' in diameter.

Fallen leaves. Adirondack Mountains. Aug.

I have not seen the full description of *D. discoideum*, which is also said to have a discoid columella, but as its capillitium is said to be brown, it is probably distinct from this species. In our plant the sporangium, after bursting at the top, sometimes breaks loose from the stem and slides downwards, thus protruding and revealing to sight the flattened disk-like columella.

#### DIDYMIUM ANGULATUM Pk.

Sporangia delicate, subglobose, whitish, externally mealy with numerous granules and crystals of lime; stem short, whitish; columella subglobose, white or pale yellow; capillitium sparse, delicate, whitish or slightly colored; spores irregular, angular, blackish in the mass, .00035'–.0005' long.

Fallen leaves. Adirondack Mountains. Aug.

#### CHONDRIODERMA DIFFORME Pers.

Fallen leaves, bark and fern stems. Adirondack Mountains. Aug.

#### DIACHÆA SUBSESSILIS Pk.

Gregarious or crowded; sporangia subglobose, sessile or with a very short white stem, the walls delicate, iridescent with various metallic tints; columella obsolete; capillitium and mass of spores violet-brown; spores globose, rough, .0004'–.0005' in diameter.

Fallen leaves. Adirondack Mountains. Aug.

This is a most singular species, and apparently very rare. In its lack of a distinct columella, it departs from the generic character, but it cannot be placed

in the genus *Lamproderma*, for the same objection would hold there, and besides that, another is found in the presence of lime granules in the stem. Even when no distinct stem is present, a small whitish mass of granules can generally be seen at the point of attachment. The capillitium appears to originate at the base of the sporangium. The spores are larger, but less rough than those of *D. splendens*.

*COMATRICHA ÆQUALIS* *Pk.*

Gregarious or loosely clustered, about three lines high, arising from a thin hypothallus; sporangia cylindrical, obtuse, fugacious, wholly falling away; capillitium brown or blackish-brown, forming an intricate net-work; stem slender, smooth, black, penetrating the capillitium as a columella and extending nearly or quite to the apex, the free portion about equal in length to one-half the altitude of the entire plant; spores globose, smooth, violet-black, .0003'-.00035' in diameter.

Decaying wood. Catskill Mountains. Sept.

In color this species is almost exactly like *Stemonitis fusca*, from which its more lax habit, proportionally longer stem and different capillitium separate it. The larger size, both of the plant itself, and of the spores, will separate it from *Comatricha typhina*. The length of the stem and of the capillitium are nearly equal, hence the specific name.

*COMATRICHA FRIESIANA* *De By.*

Decaying wood. Adirondack Mountains. Aug.

This is a variety with the sporangia generally globose.

The variety *oblonga* was found on the Catskill Mountains.

*COMATRICHA PULCHELLA* *Bab.*

Decaying stems of herbs. Adirondack Mountains. Aug.

*LAMPRODERMA VIOLACEUM* *Fr.*

Dead stems of herbs. Catskill Mountains. Sept.

Our specimens have a brownish capillitium and spores .0003'-.00035' in diameter, but they are probably a mere variety of the species.

*TRICHIA SCABRA* *R.*

Decaying wood. Griffins. Sept.

*TRICHIA INCONSPICUA* *R.*

Bark of buttonwood, *Platanus occidentalis*. Bethlehem.

*ARCYRIA POMIFORMIS* *Roth.*

Decaying wood and bark. Mechanicville. Oct.

*LYCOGALA FLAVOFUSCUM* *Ehr.*

Decaying wood and stumps. Griffins and Bethlehem. Sept. and Oct.

*OLIGONEMA BREVIFILA* *Pk.*

Bright ochery-yellow throughout; sporangia crowded, forming clusters or effused patches, shining, variable in shape; threads few, very short, cylindrical or subfusiform, not septate; spores globose, rough, .00045' in diameter.

Mosses. Oneida. *Warne.*

This species differs from *O. flavida* (*Perichæna flavida* *Pk.*) in its darker color and shorter, more strongly marked threads.

## SACIDIUM PINI Fr.

Dead balsam leaves. Adirondack Mountains and Summit. Aug. and Sept.

## SEPTORIA WALDSTEINIÆ P. &amp; C.

Spots small, unequal, suborbicular, arid, gray with a purple-brown or blackish margin, perithecia minute, few, epiphyllous, black; spores straight, .001' long.

Leaves of dry strawberry, *Waldsteinia fragarioides*. Portage. G. W. Clinton. Helderberg Mountains. May.

## SEPTORIA VERBASCICOLA B. &amp; C.

Leaves of mullein, *Verbascum blattaria*. Albany. July.

I find no description of this fungus, and take the name from specimens received from Dr. Curtis.

## PHYLLOSTICTA LONICERÆ Desm.

Living leaves of fly honeysuckle, *Lonicera ciliata*. Catskill and Adirondack Mountains. July and Aug.

## VERMICULARIA TRICHELLA Grev.

Ivy leaves. Buffalo. Clinton.

## VERMICULARIA ALBOMACULATA Schw.

Leaves of carrion flower, *Smilax herbacea*. Buffalo. Sept. Clinton.

## MELANCONIUM AMERICANUM P. &amp; C.

Pustules small, grouped or circinating on orbicular spots; stroma none or obsolete; spores compact, oozing out in subconical masses, staining the matrix black, subglobose or broadly elliptical, .0002'-.0003' long.

In conservatories on dead leaves of the American century plant, *Agave Americana*. Buffalo. Feb. Clinton.

## SPORIDESMIUM SICYNUM Thum.

Dead alder branches. Adirondack Mountains. Aug.

## PHRAGMIDIUM BULBOSUM Fr.

Leaves of *Potentilla fruticosa*. Copake. Oct.

The spores are darker colored than in European specimens, and therefore the septa are soon very obscure.

## UROMYCES TRIFOLII Fckl.

Leaves of *Medicago lupulina*. Buffalo. Clinton.

## UROMYCES POLYMORPHUS P. &amp; C.

Spots brownish; sori blackish-brown, prominent, surrounded by the ruptured epidermis; spores large, polymorphous, subglobose, elliptical, ovate, oblong or clavate, often angular, the apex acute, obtuse, truncate or even emarginate, .0014'-.002' long; pedicel equaling or exceeding the spore in length.

Lower surface of leaves of *Lathyrus ochroleucus*. Buffalo. Nov. Clinton.



## USTILAGO SALVEI B. &amp; Br.

Leaves of *Calamagrostis Pickeringii*. Mt. Marcy. Aug.

This fungus forms long discolored lines or patches on the leaves, closely resembling those formed by *Urocystis Agropyri* and *Urocystis occulta*. The spores in our specimens, as well as in those received from Europe under this name, are quite uniformly globose, not obovate as given in the description. They are generally .0004'-.0006' in diameter, but occasionally they attain a diameter of .001'. I am not aware that this species has been before detected in this country.

MASSOSPORA, *gen. nov.*

Spores numerous, loosely adhering together and forming a pulverulent mass without any evident peridium. *Insecticolous*.

This is a peculiar genus, apparently belonging to the Coniomycetes, but its affinities are doubtful.

## MASSOSPORA CICADINA Pk.

Spore mass occupying the abdominal cavity, whitish or pale cream-color, at length exposed by the falling away of the terminal rings of the abdomen; spores subglobose or broadly elliptical, granular within, sometimes containing one to three unequal nucleoli or oil globules, .00065'-.00085' in diameter.

In the abdomen of the "Seventeen-year Locust," *Cicada septendecim*. Livingston. Columbia county, and Albany. June.

A specimen was also received from *Rev. R. B. Post*, which was taken at South Amboy, New Jersey.

This is a singular fungus, unlike any other known to me. In its early stage it is wholly concealed in the body of the insect, but just before, or soon after the death of the insect, the terminal rings of the abdomen fall away, revealing the pulverulent mass of spores within, which, by a superficial observer, might easily be mistaken for a lump of pale-yellow or whitish clay. I have not been able to detect any proper peridium, nor does any seem to be necessary, the walls of the abdomen answering as a substitute. In one or two examples, the spore mass was less fully developed, and of a brighter color. The spores, in this case, were much larger, being .0015'-.002' in diameter, with the epispore roughly reticulated. This is probably an earlier condition of the same species, and is another indication that the proper position of the fungus is among the Coniomycetes, where there are several genera, with spores of two orders. The position of the genus, as it seems to me, is in the vicinity of the genus *Protomyces*, which has the spores developed in the living tissues of plants, as this has in the tissues of insects. This fungus is noticed, but not named, in *Smithsonian Contributions*, Vol. v, p. 53.

## ISARIA TENUPIES Pk.

Stem very slender, elongated, glabrous, lemon-yellow, one to one and a half inches high, divided above into a few irregular branches, which are wholly covered by the white mealy coating of conidia; conidia oblong-elliptical, .00016'-.0002' long.

Dead pupæ buried under fallen leaves. Center. Sept.

This is probably only a condition of some *Torrubia*; but, as it does not agree with any described form, I have thought best to designate it, for the present, by a name of its own.

STILBUM RIGIDUM *Pers.*

Decaying wood. Adirondack Mountains. Aug.

STILBUM FLAVIPES *Pk.*

Stem villose, tapering upward, less than a line high, buff-yellow; head small, subglobose or hemispherical, whitish; spores minute, elliptical. .0001'-.00012' long.

Decaying wood. Center. Oct.

SPOROXYBE ABIETINA *Pk.*

Very minute; stems slender, distinctly septate, nearly black, terminating above in a minute obovate or subglobose yellowish head; spores minute, oblong, spermatoid.

Bark and wood of spruce, *Abies nigra*.

Specimens of spruce bark and wood, showing the work of the spruce mining beetle were collected in the Adirondack Mountains. These were wrapped in paper, brought to Albany, and laid away. Upon examining them some months afterward, the fungus was found upon them, having evidently developed since the collection of the bark. It is about the size of *S. byssoides*.

CLADOSPORIUM GRAMINUM *Lk.*

Dead leaves of grass and sedges. Center and North Greenbush. May.

HELMINTHOSPORIUM INTERSEMINATUM *B. & R.*

Dead stems of stone root, *Collinsonia Canadensis*. North Greenbush. Oct.

HELMINTHOSPORIUM HYDROPIPERIS *Thum.*

Living leaves of smart weed, *Polygonum Hydro Piper*. Albany. Sept.

POLYACTIS VULGARIS *Lk.*

On carnation pink in conservatories. Buffalo. Dec. Clinton.

BOTRYOSPORIUM PULCHRUM *Berk.*

Dead grass leaves. Center. Sept.

In our specimens the tips of the branches are swollen; otherwise they agree with the description of the species.

ASPERGILLUS FLAVUS *Lk.*

On excrement of caterpillars in damp places. North Greenbush and Sandlake. July and Aug.

FUSIDIUM CANUM *Pass.*

Leaves of *Eriogon Canadensis*. North Greenbush. Sept.

PERONOSPORA SIMPLEX *Pk.*

Flocci somewhat tufted, short, .004'-.006' long, simple, bearing on the swollen obtuse apex five to fifteen cylindrical spicules, whose length is about half the diameter of the arospores; arospores borne on the spicules, globose, generally with a broad umbo at the apex, and a minute projecting point of attachment at the base, .0008'-.0012' in diameter.

Living and languishing leaves of the New England Aster, *Aster Nova-Angliæ*. North Greenbush. Sept.

*MUCOR RAMOSUS* Bull.

Decaying fungi. Albany. Sept.

*MUCOR CANINUS* Pers.

Excrement of dogs. Ticonderoga. Aug.

*PEZIZA SUCCOSA* Berk.

Damp shaded soil in woods. Albany and North Greenbush. July.

*PEZIZA VULCANALIS* Pk.

Burnt ground under spruce trees. Adirondack Mountains. Aug.

This is regarded by some as equivalent to *P. cupularis*, but if the figure and description of *P. cupularis* in *Mycographia* are correct, our plant should be kept separate. It is not "subsessile," but it always, so far as I have seen, has a distinct stem. Its color, externally, is brown or ochraceous-brown, and the disk is orange or yellow-orange, not of a uniform cervine color without and within as figured. Neither is it "externally farinose;" and finally the spores are considerably smaller and destitute of nuclei. Indeed, our plant approaches nearer to *P. pulchra* than to *P. cupularis* as given in *Mycographia*, and I would not be averse to regarding it equivalent to that species. But if these two are the same, the name *P. vulcanalis* antedates the other and should be retained.

*PEZIZA (HUMARIA) GALLINACEA* Pk.

Cups whitish or yellowish, expanded, sessile, attached by a slight projecting point, externally slightly furfuraceous, the margin often wavy or irregular, the hymenium smooth, sometimes uneven; asci long, slender, cylindrical; spores elliptical, smooth, uniseriate, occupying the upper part of the ascus, .0003-.0004 long; paraphyses slender, slightly clavate at the tips.

Partridge dung. Oneida. July. Warne.

*PEZIZA UMBRORUM* Fckl.

Clay soil. Oneida. Warne.

*PEZIZA SULPHUREA* Pers.

Dead stems of herbs in damp places. Albany. Sept.

*PEZIZA (DASYSCYPHE) VIRIDICOMA* Pk.

Cups minute, sessile, villose, yellowish-green; asci oblong clavate; spores crowded or biseriata, oblong or subfusiform, .0005-.0006' long, .0002'-.00025' broad.

Decaying wood. Sandlake. Aug.

The peculiar color of this minute species renders it an attractive object.

*PEZIZA BRUNNEOLA* Desm.

Fallen leaves. Center. June.

*PEZIZA OSMUNDÆ* C. & E.Near the base of *Osmunda* stems. Center. Sept.*PEZIZA (MOLLISIA) PLANODISCA* P. & C.

Cups minute, sessile, whitish, the disk plane or slightly convex, obliterating the margin; asci short; spores crowded or biseriata, subfusiform, .0003'-.00035' long.

Dead leaves of grass, *Andropogon scoparius*. Buffalo. Nov. Clinton.

**HELOTIUM ALBOPUNCTUM** *Pk.*

Cups very minute, scattered, white, the disk soon plane or slightly concave, margin generally distinct; asci cylindrical; spores biseriate, oblong, narrow, generally binucleate, .0006–.0007' long.

Fallen beech leaves in woods. Adirondack Mountains. Aug.

This is an exceedingly minute species. In drying it acquires a yellowish tinge, and it is then scarcely visible to the naked eye. The stem is so short that the plant appears sessile.

**HÆMATOMYCES ORBICULARIS** *Pk.*

About one line in diameter, sessile, pulvinate, orbicular, subtremelloid, gyrose-convolute, blackish-brown, minutely dotted with rufous particles, as is also the moist pallid or subrufous spot on which it is seated; asci narrowly clavate, subacute; spores oblong-fusiform, simple, .0006'–.0007' long, .00015' broad; paraphyses numerous, filiform.

Decaying chestnut wood. Mechanicville. Oct.

I have seen no description of this genus, and refer our specimens to it, because of their congeneric relation to *Hæmatomyces vinosus* C. & E. }

**DERMATEA CARNEA** *C. & E.*

Dead Viburnum stems. West Albany. Oct.

**DERMATEA PHYLLOPHILA** *Pk.*

Cups minute, suborbicular, often with a flexuous margin, dry, somewhat fibrous in texture, brownish and slightly hairy externally, erumpent, surrounded and partly concealed by the ruptured epidermis, sometimes throwing off a fragment of it, when moist, expanded and revealing a plane pallid or dingy-white disk; asci oblong-clavate, obtuse, sessile; spores broadly elliptical, nearly colorless, .0003'–.00035' long, .0002'–.00025' broad, generally containing a large shining nucleus; paraphyses thickened above, often a little longer than the asci.

Lower surface of balsam leaves while yet on the tree. Summit. Sept.

At first sight this fungus might be taken for some effete Peridermium, such is its general external appearance. When moist the cups are swollen and become more distinct. Under a lens the disk has a pruinose appearance. The leaves that are attacked are killed by the fungus, all those bearing it being dead, though in the immediate vicinity of living ones.

**DERMATEA XANTHOXYLI** *Pk.*

Cups densely tufted, minute, often irregular from mutual compression, brownish-lilac, externally and on the margin whitish with a villose pruinosity, disk plane or slightly concave; asci short, clavate; spores crowded, simple, slightly curved, subcylindrical, obtuse, colorless.

Dead branches of prickly ash, *Xanthoxylum Americanum*. West Troy. Oct.

The tufts are scarcely a line broad and easily overlooked, yet they sometimes contain a dozen cups each.



CENANGIUM CASSANDRÆ *Pk.*

Oblong or hysteriiform, erumpent, closely surrounded by the ruptured epidermis, black; asci oblong-clavate; spores linear, curved, involved in mucus, slightly colored, .0011'-.0012' long.

Dead stems of leather leaf, *Cassandra calyculata*. Center. June.

CENANGIUM PEZIZOIDES *Pk.*

Cups scattered, minute, erumpent, sessile or attached by a narrowed base, smooth, black; asci oblong-clavate; spores crowded oblong-elliptical, .0008'-.001' long, often containing a single large nucleus, sometimes slightly curved.

Dead stems of leather leaf, *Cassandra calyculata*. Center. June.

This was associated with *C. Cassandra*, but the two are easily distinguished.

TYMPANIS ACERINA *Pk.*

Cups subcaespitose, obconic, erumpent, black with a distinct often flexuous margin, disk concave; asci oblong-cylindrical; spores oblong, colored, .0005'-.0008' long, containing a granular endochrome, at length quadrinucleate or triseptate.

Bark of maple trees. Adirondack and Catskill Mountains. Aug. and Sept.

The cups often manifest a tendency to form lines or grow in linear tufts. They are usually accompanied by *Sphaeronema acerina*, which is probably one condition of the species. Both frequently grow from the same chink in the bark.

PATELLARIA OLIVACEA *Batsch.*

Decaying wood. Adirondack and Catskill Mountains. July and Sept.

A form of this species occurs which is hispid with straight rigid black hairs or setæ.

PHACIDIUM BRUNNEOLUM *Pk.*

Perithecia small, innate, brown or blackish-brown, with four or five rather broad teeth; disk dingy-white; asci cylindrical or clavate, narrow; spores small, colorless, sublanceolate or oblong-ovate, often binucleate, .0003'-.0004' long.

Fading leaves of *Galium trifidum*. Summit. Sept.

I have seen no description of *Phacidium autumnale* Fekl., but according to my European specimens of that species, our plant is quite different.

TRIBLIDIUM MORBIDUM *Pk.*

Perithecia seated on a thin black crust, irregular, elliptical or oblong, rugose, black, at length widely gaping or even suborbicular, revealing the dingy-white or cinereous disk; asci narrowly lanceolate, tapering towards the base; spores filiform, .003'-.004' long.

Decaying prostrate trunks of spruce. Sandlake. Aug.

The general appearance of the perithecia is such as to suggest the idea that they are diseased or badly developed. They indicate that the plant is a *Triblidium*, but the spores are like those of *Colpoma*.

GLONIUM HYALOSPORUM *Ger. in litt.*

Decaying wood. Willowemoc. *W. R. Gerard.*

HYPODERMA NERVISEQUUM *DC.*

Leaves of balsam. Mt. Marcy and Summit.

The specimens are without fruit, but so closely resemble European specimens that I have no hesitation in referring them to this species.

RHYTISMA MAXIMUM *Fr.*

Living stems of willows, *Salix sericea*. Stamford, Delaware county. Sept.

This is also without fruit, but so characteristic in other respects, that there can scarcely be a doubt of its identity. It kills the stems and branches it attacks.

HYPOCREA VIRIDIS *Tode.*

Maple chips. Griffins. Sept.

This is so unlike our ordinary forms of *H. gelatinosa*, that it seems best to keep them distinct, though some botanists unite them.

HYPOXYLON XANTHOCREAS *B. & C.*

Prostrate dead alders. Center. Sept.

Our specimens agree with those received from Dr. Curtis under this name, but they do not agree with the description of the species as published in Grevillea. In our specimens the young plant is covered with a compact yellow conidiferous stratum bearing elliptical conidia .00016–.0002 long. As the stroma increases in size, it becomes naked above, and of a purple-brown or chestnut color, which contrasts beautifully with the yellow margin. When old it becomes darker, but I have not seen it “black” as described. The surface is generally irregular or uneven. The stroma is whitish or pallid within, but near the surface it is yellow. The spores vary from .0004–.0006 in length. I find none, neither in our specimens, nor in those of Dr. Curtis, as small as stated in the description. But for the examples of Dr. Curtis, I should have regarded our plant as a different species, so widely does it differ from the description.

DIATRYPE ASTEROSTOMA *B. & C.*

Birch bark. Oneida. *Warne.*

DOTHIDEA EPILOBII *Fr.*

Dead stems of willow herb, *Epilobium angustifolium*. Adirondack Mountains. Aug.

VALSA TRANSLUCENS *De Not.*

Dead willow branches. West Albany. Apr.

VALSA XANTHOXYLI *Pk.*

Pustules slightly prominent, erumpent, with a yellowish or tawny furfuraceous disk which is dotted by the ostiola; perithecia two to fifteen, rarely single, fragile, pale, surrounded by a tawny tomentum, which is sometimes agglutinated into a kind of spurious receptacle; ostiola distinct, short, obtuse, black, at first suffused with a yellowish-green powder; asci subcylindrical; spores crowded or biseriate, oblong, obtuse, straight or slightly curved, .0008–.001 long, .0003 broad, three to five-septate with an occasional longitudinal septum, at first colorless, then yellowish.

Dead branches of prickly ash, *Xanthoxylum Americanum*. West Troy. Oct.

The species belongs to the Pseudovalsa series.

VALSA CRATÆGI *Curr.*

Dead ash branches. Catskill Mountains. Sept.

Our specimens do not fully agree with the description of the species to which we have referred them, but the differences are not very decided.

LOPHIOSTOMA SCELESTUM *C. & E.*

Decaying wood of apple tree. Helderberg Mountains. May.

LOPHIOSTOMA PROMINENS *Pk.*

Perithecia very prominent, hemispherical, adnate at the base, .07-.08' broad, smooth, black; ostiola distinct, compressed, black, shining; asci sub-clavate; spores biseriate, oblong or subfusiform, straight or slightly curved, colored, five-septate, .0008-.001' long.

Dead twigs of button-bush, *Cephalanthus occidentalis*. Center. June.

The species is related to *L. bicuspdatum*, but the perithecia are not immersed, and the spores are destitute of cuspidate points and longitudinal septa.

MASSARIA GIGASPORA *Desm.*

Dead branches of sheep-berry, *Viburnum Lentago*. Albany. May.

The spores in our specimens are .003' long, and quadrilocular with the two central cells shorter than the terminal ones.

SPHÆRIA (VILLOSÆ) PULCHRISETA *Pk.*

Perithecia very minute, .003-.004 in diameter, superficial, numerous, at length collapsing, black, beautifully hispid with straight diverging black setæ; asci narrowly fusiform or lanceolate; spores narrow, subfusiform, colorless, .00025-.0003 long, the endochrome sometimes parted in the middle.

Chips in woods. Griffins. Sept.

Externally this fungus has the appearance of some species of *Venturia*, but it appears to have paraphyses among the asci.

SPHÆRIA FIMISEDA *Ces. & De Not.*

Excrement of cows. Oneida. *Warne.*

SPHÆRIA CLADOSPORIOSA *Schw.*

Old *Polyporus sulphureus*. Buffalo. Apr. *Clinton.*

This, as Berkeley remarks, is not a true *Sphaeria*, but as the specimens are not in condition to show its true relations, it is left where Schweinitz placed it.

SPHÆRIA PHELLOGENA *B. & C.*

Corky bark of elm. Bethlehem. May.

SPHÆRIA(CAULICOLÆ) CURVICOLLA *Pk.*

Perithecia small, .03-.04' broad, scattered or two to three confluent crowded, erumpent, at length naked, hemispherical, black; ostiola short, sub-cylindrical, slightly curved; asci oblong; spores crowded or biseriate, colorless, .0006-.0009' long, .0003' broad.

Dead stems of *Polygonum articulatum*. Center. Oct.

The noticeable character of this species is its short curved ostiolum, which is usually bent upwards toward the top of the stem on which the *Sphæria* grows. It is generally cylindrical, but sometimes slightly attenuated, sometimes a little compressed.

*SPHÆRIA (CAULICOLÆ) SORGHOPHILA* *Pk.*

Perithecia very minute, immersed, erumpent through a longitudinal chink, elliptical, black; asci elongated, clavate; spores biseriate, oblong-cylindrical, triseptate, constricted at the septa, pale when young, then colored, .0011'-.0012' long.

On the brush of an old broom. North Greenbush. June.

The ostiola are so obscure that they can with difficulty be seen.

*SPHÆRIA TYPHÆ* *Schw.*

Decaying leaves of *Typha latifolia*. Greenbush. May.

*SPHÆRIA GNOMON* *Tode.*

Fallen leaves of *Ostrya Virginica*. West Troy. June.

*SPHÆRIA CREPINI* *West.*

Spikes of club-moss, *Lycopodium annotinum*. Mount Marcy. Aug.

The affected spikes become conspicuous by reason of the discoloration produced by the parasite. The scales appear slightly thickened or the epidermis a little elevated by the tomentose stratum beneath it.

*SPHÆRIA MARCIENSIS* *Pk.*

Perithecia minute, punctiform, covered by the epidermis, which is ruptured by the distinct slightly prominent blunt ostiola; asci oblong-cylindrical, sessile; spores crowded, subfusiform, blunt, slightly colored, triseptate, .001'-.0011' long, .0003' broad, the cells generally nucleate.

Leaves of club-moss, *Lycopodium annotinum* and *L. Selago*. Mount Marcy. Aug.

This species, though closely related to the preceding, is clearly distinct. It inhabits only the leaves, has no investing tomentum, has a more decided ostiolum and longer spores. The matrix is not discolored by it.

*VENTURIA DICKIEI* *De Not.*

Leaves of twin-flower, *Linnaea borealis*. Mount Marcy. Aug.

I am not aware that this interesting little fungus has before been detected in this country.

(5.)

NEW STATIONS, NOTES AND OBSERVATIONS.

*CIMICIFUGA RACEMOSA* *Ell.*

Schodaek, Rensselaer county. *Rev. H. Wibbe.* All the specimens of this plant that I have seen have the pods supported on a short stalk or pedicel, as figured and described by Dr. Torrey in the New York State Botany, although they are described in both the Manual and Class Book as sessile.

*VIOLA CANADENSIS* *L.* was observed in flower near Griffins, as late as the middle of September.



HYPERICUM PYRAMIDATUM *Ait.*

Near "Ball's Head," Rensselaer county. *Wibbe.*

ELATINE CLINTONIANA *Pk.*

Having recently reëxamined and compared the seeds of this plant and *E. Americana*, I find that the seeds vary somewhat, and that the differences which I formerly observed vanish when many specimens are compared. I am, therefore, of the opinion that the former is merely a dwarf state of the latter.

IMPATIENS FULVA *Nutt.*

A white-flowered form. Irondequoit. *G. T. Fish.*

RHUS TYPHINA *L.*

Apparently a hybrid between this and *R. glabra*. Fort Edward. *M. W. Vandenburg.*

POTENTILLA RECTA *L.*

Oswego. *Wibbe.*

LYTHRUM SALICARIA *L.*

River banks, near Oswego. *Wibbe.*

LONICERA CÆRULEA *L.*

Plentiful on the borders of Lake Tear. Mount Marcy.

NARDOSMIA PALMATA *Hook.*

Guilderland, Albany county.

SOLIDAGO LATIFOLIA *L.*

Apparently a hybrid between this and *S. cæsia*. Fort Edward. *Vandenburg.*

SOLIDAGO RIGIDA *L.*

Plentiful along the Harlem railroad at Copake. This is probably one of its most northern stations.

HIERACIUM AURANTIACUM *L.*

Meadows near Oswego. *Wibbe.* This plant appears to be rapidly spreading over the State.

VACCINIUM CORYMBOSUM *L.* v. ATROCOCCUM *Gr.*

This strongly marked variety occurs in Sandlake.

ATRIPLEX HASTATA *L.*

Spreading and becoming rather common about Albany.

MONTELIA TAMARISCINA *Nutt.*

Shore of Lake Champlain at Ticonderoga.

ULMUS AMERICANA *L.*

A corky-bark form of this tree occurs in the vicinity of Albany. The corky portion is in layers parallel to the surface of the trunk. I have not observed it on the branches.

SALIX MYRTILLOIDES *L.*

Marshes near Center, Albany county.

POTAMOGETON OAKESIANUS *Robbins.*

Wading River. *Miller.*

HABENARIA CILIARIS *R. Br.*

This most beautiful plant was detected near Manlius, by *Mr. Wibbe.*

TRILLIUM ERYTHROCARPUM *Mx.*

A monstrosity in which all the parts, except the stem and stigmas, appear to be double. There are six leaves, six sepals, six petals, twelve stamens, and apparently two ovaries closely united. The stigmas are numerous, but I have not been able to count them accurately. *Oswego. Wibbe.*

CHAMÆLIRIUM LUTEUM *L.*

Near Nassau, Rensselaer county. *Wibbe.*

SCIRPUS ERIOPHORUM *Mx.* v. *CYPERINUS Gr.*

*Oswego. Wibbe.*

RHYNCHOSPORA MACROSTACHYA *Torr.*

Shore of "Mud Pond," five miles southwest of *Oswego. Wibbe.*

BROMUS TECTORUM *L.*

Along the Hudson River railroad. *Greenbush.*

TRITICUM CANINUM *L.*

*Buffalo. Clinton.* This is a remarkable variety in which the leaves are involute and the sheaths hairy.

ASPIDIUM SPINULOSUM *Sw.* v. *DUMETORUM Sm.*

*Syracuse. Mrs. S. M. Rust.*

ASPIDIUM CRISTATUM *Sw.* v. *CLINTONIANUM Eaton.*

*Buffalo. Clinton.*

ASPIDIUM ACULEATUM *Sw.* v. *BRAUNII Koch.*

This beautiful fern proves to be more common than was at first supposed. I have observed it in three new localities the past season. Near Summit, Schoharie county; near Griffins, Delaware county; and in the Catskill Mountains, near Big Indian.

ONOCLEA SENSIBILIS *L.* v. *OBTUSILOBATA Torr.*

*Syracuse. Mrs. Rust.*

BOTRYCHIUM LUNARIA *Sw.*

*Mrs. Rust* sends specimens of this interesting fern from the original locality near *Syracuse*, where she first discovered it. She writes that the plants occur in but one little spot, and, with most commendable care for the preservation of the fern, she says that she cautiously plucks a few without taking them up by the roots. We sincerely hope that others who may possess the knowledge of this single New York locality, may be equally careful not to destroy it. It is greatly to be regretted that the locality of *Woodsia glabella*, at Little Falls, has been exhausted, and its loss should stimulate all true lovers of nature to be careful of such rare gifts.

*Mrs. Rust* finds, in *Onondaga* county, thirty-seven of the fifty species of ferns that have been detected in the State.

BOTRYCHIUM SIMPLEX *Hitch.*

Near *Oswego. Wibbe.*

BOTRYCHUM LANCEOLATUM *Angst.*

Pine Hill, Ulster county.

AGARICUS RADICATUS *Relh.*

Two forms of this species occur here, one with a rather stout smooth stem, the other with a more slender stem covered with minute scurfy particles. The former agrees with the description of the species, the latter does not. This last is the most common form with us.

AGARICUS RUGOSODISCUS *Pk.*

This Agaric, when wounded, exudes a serum-like juice. It belongs to the subgenus *Collybia* rather than to *Omphalia*, and should be placed near *A. succosus*.

AGARICUS LACCATUS *Scop.*

This wonderfully variable species sometimes has the lamellæ notched behind precisely as in the subgenus *Tricholoma*.

AGARICUS HÆMATOPUS *Pers.*

I find a non-cæspitose form of this species with red-margined lamellæ. Its red juice, however, will serve to distinguish it and show its true relations.

AGARICUS SARCOPHYLLUS *Pk.*

This species, which was discovered in 1869, and had not since been found by me, reappeared this season in a pasture near Ticonderoga. It is very rare.

AGARICUS ARVENSIS *Schæff.*

In an oat field. Ticonderoga.

AGARICUS SEROTINOIDES *Pk.*

I am satisfied that this is a mere variety of *A. serotinus*, and should not be kept distinct. It is probable also that *A. perplexus* *Pk.* is only an American variety of *A. sublateritius*, from which it scarcely differs except in the color of the lamellæ.

COPRINUS ANGULATUS *Pk.*

The description of this species was drawn up from dried specimens, and is therefore inaccurate. It is here revised.

Pileus thin, campanulate or convex, rimose-sulcate, sub-fuscos, disk squamose, with a few brownish sub-persistent verrucæ; lamellæ narrow, close, free; stem equal or slightly tapering upward, hollow, white; spores black, triangular-ovate, compressed, .0003'-.0004 long, .0003' broad, .0002 thick.

CANTHARELLUS AURANTIACUS *Fr.*

Center. A variety with the lamellæ nearly white.

TROGIA ALNI *Pk.*

The spores are very minute, narrow, cylindrical, slightly curved, colorless, .0002'-.00025' long.

POLYPORUS SCUTELLATUS *Schw.*

This species, as it occurs with us, is generally dimidiate, and more or less unguulate. The pores are not distinctly rhomboidal in most cases, nor have I seen them changed to a black color. In unguulate specimens they are elongated, and, in length, much exceed the thickness of the hymenophorum. In the young

state the pileus is clothed with a minute velvety villosity, but this disappears with age, and the pileus becomes either uniformly black or blackish variegated with paler zones, rarely wholly pale. I have met with it both on alder and witch-hazel.

#### RETICULARIA UMBRINA Fr.

In Dr J. Rostafinski's Monograph of the Myxogasters, *Reticularia lycoperdon* Bull, has been substituted for the name in common use. This Monograph, being based on an entirely new system of Classification, necessitates a change of name in numerous instances. How thoroughly different the system, and how wide spread the change of names therein inaugurated may be inferred from the following facts. Of the hundred or more species given in the Handbook of British Fungi less than one-fourth remain under their old names. Three out of the four species of *Reticularia* are referred to as many different genera, leaving one species only in the genus and another specific name is given to that one. The generic name *Fuligo* takes the place of *Æthalium*, and the two supposed species, *Æ. septicum* and *Æ. caporiarium*, help make up a page of synonyms under the name *Fuligo varians*. The genus *Diderma* is discarded and its thirteen species are distributed among three genera, *Chondrioderma* taking the largest share. In several instances two, and in one or two cases three supposed species have been united in one. The genus *Physarum* has had its characters so modified that it now comprehends species that before were found in *Diderma*, *Didymium* and *Angioridium*; and one of its species, *Physarum nutans*, with its varieties, has been transferred to *Tilmadoche* and separated into two species.

The adoption of so many new names at once will necessarily be attended by some disadvantages, yet we think the advantages to be derived from the adoption of this new method of classification will more than compensate for the temporary inconvenience. One thing is quite evident to my mind, and that is, that the species may be more satisfactorily referred to their proper places by this system and by the description, given by Rostofinski than they possibly could be by the old system and descriptions.

The following is a list of the New York Myxogasters at present known. The names in the first or left hand column are those required by and arranged according to the new system; those in the second column are the old names, applied to such of the species as have before been reported and published as New York species:

<i>Present Names.</i>	<i>Former Names.</i>
<i>Physarum cinereum</i> Batsch.	<i>Didymium cinereum</i> Fr.
<i>P. contextum</i> Pers.	<i>Diderma flavidum</i> Pk.
<i>P. flavidum</i> Pk.	<i>Didymium flavidum</i> Pk.
<i>P. sinuosum</i> Bull.	<i>Angioridium sinuosum</i> Græv.
<i>P. polymorphum</i> Mont.	<i>Didymium connatum</i> Pk.
<i>P. albicans</i> Pk.	<i>D. subroscum</i> Pk.
<i>P. citrinellum</i> Pk.	<i>Diderma citrinum</i> Fr.
<i>P. luteolum</i> Pk.	
<i>P. inæqualis</i> Pk.	
<i>P. ornatum</i> Pk.	
<i>P. atrorubrum</i> Pk.	
<i>P. psittacinum</i> Dilton.	
<i>P. pulcherripes</i> Pk.	<i>Physarum pulcherripes</i> Pk.
<i>Tilmadoche nutans</i> Pers.	<i>P. nutans</i> Pers.
<i>T. mutabile</i> R.	



<i>Present Names.</i>	<i>Former Names.</i>
Craterium leucocephalum <i>Pers.</i>	Craterium leucocephalum <i>Ditton.</i>
Leocarpus fragilis <i>Dicks.</i>	Leocarpus vernicosus <i>Lk.</i>
Fuligo varians <i>Sommf.</i>	{ <i>Æthaliium</i> septicum <i>Fr.</i>
F. ochracea <i>Pk.</i>	{ <i>Æ.</i> ferrincola <i>Schw.</i>
Badhamia hyalina <i>Pers.</i>	{ <i>Licea</i> ochracea <i>Pk.</i>
B. magna <i>Pk.</i>	Dietydium magnum <i>Pk.</i>
B. rubiginosa <i>Chev.</i>	Craterium obovatum <i>Pk.</i>
B. affinis <i>R.</i>	Didymium farinaceum <i>Fr.</i>
Didymium farinaceum <i>Schrad.</i>	D. squamulosum <i>A. &amp; S.</i>
D. squamulosum <i>A. &amp; S.</i>	D. xanthopus <i>Fr.</i>
D. microcarpum <i>Fr.</i>	
D. eximium <i>Pk.</i>	
D. angulatum <i>Pk.</i>	Diderma umbilicatum <i>Pers.</i>
Chondrioderma radiatum <i>L.</i>	D. farinaceum <i>Pk.</i>
C. spumarioides <i>Fr.</i>	D. crustaceum <i>Pk.</i>
C. crustaceum <i>Pk.</i>	D. Mariæ-Wilsoni <i>Clinton.</i>
C. testaceum <i>Fr.</i>	
C. difforme <i>Pers.</i>	
C. Michellii <i>Lib.</i>	Diachæa elegans <i>Fr.</i>
Diachæa leucopoda <i>Bull.</i>	
D. splendens <i>Pk.</i>	Spumaria alba <i>DC.</i>
D. subsessilis <i>Pk.</i>	Stemonitis fusca <i>Roth.</i>
Spumaria alba <i>Bull.</i>	S. ferruginea <i>Ehr.</i>
Stemonitis fusca <i>Roth.</i>	S. herbatica <i>Pk.</i>
S. ferruginea <i>Ehr.</i>	Comatricha æqualis <i>Pk.</i>
S. herbatica <i>Pk.</i>	C. typhina <i>Roth.</i>
Comatricha æqualis <i>Pk.</i>	C. Friesiana <i>DeBy.</i>
C. typhina <i>Roth.</i>	C. pulchella <i>Bab.</i>
C. Friesiana <i>DeBy.</i>	Lamproderma physaroides <i>A. &amp; S.</i>
C. pulchella <i>Bab.</i>	L. violaceum <i>Fr.</i>
Lamproderma physaroides <i>A. &amp; S.</i>	L. arcyrioides <i>Sommf.</i>
L. violaceum <i>Fr.</i>	Amaurochæte atra <i>A. &amp; S.</i>
L. arcyrioides <i>Sommf.</i>	Tubulina cylindrica <i>Bull.</i>
Amaurochæte atra <i>A. &amp; S.</i>	Clathroptychium rugulosum <i>Wallr.</i>
Tubulina cylindrica <i>Bull.</i>	Dietydium cernuum <i>Pers.</i>
Clathroptychium rugulosum <i>Wallr.</i>	Cribraria intricata <i>Schrad.</i>
Dietydium cernuum <i>Pers.</i>	C. purpurea <i>Schrad.</i>
Cribraria intricata <i>Schrad.</i>	Reticularia lycopodon <i>Bull.</i>
C. purpurea <i>Schrad.</i>	Trichia fallax <i>Pers.</i>
Reticularia lycopodon <i>Bull.</i>	T. varia <i>Pers.</i>
Trichia fallax <i>Pers.</i>	T. scabra <i>R.</i>
T. varia <i>Pers.</i>	T. chrysosperma <i>Bull.</i>
T. scabra <i>R.</i>	T. reniformis <i>Pk.</i>
T. chrysosperma <i>Bull.</i>	T. inconspicua <i>R.</i>
T. reniformis <i>Pk.</i>	
T. inconspicua <i>R.</i>	Hemiarcyria rubiformis <i>Pers.</i>
	{ T. rubiformis <i>Pers.</i>
Hemiarcyria rubiformis <i>Pers.</i>	{ T. pyriformis <i>Hoffm.</i>
H. clavata <i>Pers.</i>	{ T. clavate <i>Pers.</i>
H. serpula <i>Scop.</i>	{ T. serpula <i>Pers.</i>

<i>Present Names.</i>	<i>Former Names.</i>
Arcyria punicea Pers.	Arcyria punicea Pers.
A. incarnata Pers.	A. incarnata Pers.
A. cinerea Bull.	} A. cinerea Fl. Dan. A. digitata Schw. A. nutans Fr.
A. nutans Bull.	
A. pomiformis Roth.	
Lachnobolus globosus Schw.	A. globose Schw.
Oligonema flavida Pk.	Perichæna flavida Pk.
O. brevifila Pk.	
Perichæna cæspitosa Pk.	Physarum cæspitosum Pk.
P. corticalis Batsch.	
P. irregularis B. & C.	
Lycogala epidendrum Bux.	Lycogala epidendrum L.
L. flavo-fuscum Ehr.	

*Didymium oxalinum* Pk. is probably only a form of *Physarum cinereum*, and is therefore omitted. *Dictydium microcarpum* received from Dr. Howe, is *Lamproderma physaroides* A. & S., and *Didymium simulans* Howe, is *Badhamia hyalina* Pers.

Of *Physarum sinuosum*, two varieties have occurred; one with the outer walls of the sporangium ochraceous, the other, with them nearly black.

*Physarum citrinellum* appears to be quite distinct from *Diderma citrinum*, to which it was referred. The following is a description of it:

Sporangia subglobose, double-walled, the outer wall crustaceous, yellow, the inner very delicate, whitish; stem very short, reddish; capillitium whitish or slightly tinged with yellow, its knots numerous, large; spores blackish in the mass, globose, minutely rough, .0004'-.0005' in diameter.

Mosses. Catskill Mountains.

The stem is so short that the sporangia appear sessile. The double-wall of the sporangium prevents the reference of the species to *Physarum Schuermacheri*.

#### FULIGO VARIANS *Sommf.*

The widely variant forms that are brought together under this name by Dr. Rostafinski, present to the eye such diverse appearances, that it is difficult to believe that they should all be united. The forms with a floccose æthaliium like the old *Æ. septicum*, *Æ. vaporarium* and *Æ. ferrincola* are readily united, but those with a crustaceous æthaliium would appear rather to constitute another species, while the form with a naked gyrose surface seems still more worthy of specific distinction. Aside from its external peculiarities, its internal structure strengthens the idea of its specific validity. Nevertheless, it must be admitted that the spores are so nearly alike in all the forms, that they do not confirm the differences exhibited externally. I am of the opinion, however, that the last-mentioned form will yet be separated from the others, and also that *Fuligo ochracea* does, and will equally merit specific distinction, and for this reason I have not united it with the others. *Æthaliium geophilum* Pk. is not an *Æthaliium*, nor even a *Myxogaster*. It is probably *Hyphelia terrestris* Fr.

#### BADHAMIA MAGNA Pk. (*Dictydium magnum* Pk.).

Perhaps some may regard this as a form of the very variable *Badhamia utricularis*. It approaches *B. utricularis* v. *Schinperiana*, but differs clearly in its larger size and globose sporangia with reticulately corrugated walls.

## DIDYMIUM MICROCARPUM Fr.

*D. nigripes* Fr. and *D. xanthopus* Fr. have been united under this name. To an observer of their external characters they appear quite distinct. Both forms occur with us, the former on fallen leaves, the latter on living Sphagnum.

## CHONDRIODERMA TESTACEUM Fr.

A form of this species with the outer walls of the sporangium, a clear white with no tinge of pink, is quite common.

## CHONDRIODERMA SPUMAROIDES Fr.

Our specimens (*Diderma farinaceum* Pk.) abound in lime granules and belong to the variety *carcerina*.

## STEMONITIS HERBatica Pk.

Though resembling *S. ferruginea* in color, this species is easily distinguished from it by the comparatively shorter stem, larger meshes of the capillitium and decidedly larger spores, which frequently attain a diameter of .0004 inch, nearly twice the usual dimensions of the spores of *S. ferruginea*. There is a small form of *S. ferruginea*, which is nearly equal to *S. herbatica* in size, but it is true to the characters of its own species, and would not be confounded with *S. herbatica* after an examination of its spores.

## HEMIARCYRIA CLAVATA Pers.

The threads of the capillitium in our specimens are much larger than is indicated in the description of the species. Their diameter is about equal to the diameter of the spores, and about twice the diameter ascribed in the description.

## SPHEROPSIS MALORUM Berk.

This sometimes attacks apples while yet hanging on the tree.

## PESTALOZZIA PECKII Clinton.

According to specimens received from Europe, this is not distinct from *P. monochæta* Desm.

## CONIOTHECIUM TORULOIDEUM B. &amp; C.

The fungus thus referred to in the Twenty-third Report, and more recently regarded at different times as *Torula stilbospora* Cd. and *Trimmatostroma Salicis* Cd. has recently been published as *Trimmatostroma Americana* Thumen. We hope it has finally found a permanent resting place under this name. It forms numerous small black dusty dots on dead branches of willows, and stains or crocks the fingers handling it.

## SEPTONEMA BICOLOR Pk.

Owing to the delay in the issue of the Twenty-eighth Report, this name is antedated by *Sporideomium Peziza*, C. & E.

## BACTRIDIDIUM FLAVUM K.

The specimens formerly referred to this species fall more properly under the more recent species *Bactrididium Ellisii* Berk.

## PUCCINIA MENTHÆ Pers.

On *Pycnanthemum incanum*. Bethlehem.

PUCCINIA SPRETA *Pk.*

Leaves of *Mitella nuda*. Buffalo. Clinton. Leaves of *Mitella diphylla*. Griffins.

PUCCINIA STRIOLA *Lk.*

Leaves of *Carex irrigua*. Summit.

USTILAGO URCEOLORUM *Tul.*

Fruit of *Carex irrigua*. Mount Marcy. The spores in these specimens are large and much less angular and unequal than usual.

STILBUM GIGANTEUM *Pk.*

I find this associated with *Patellaria leptosperma Pk.* in such a way as to suggest the probability, at least, that it is a form of the latter species.

HELVELLA SULCATA *Afz.*

The prominent character in this species, as indicated by the name, is the sulcate stem. The furrows are very deep, and extend, without interruption, the entire length of the stem. The whole stem, as shown by a cross-section, is made up of the costæ intervening between these furrows. I do not find the stem "stuffed," as required by the description in *Syst. Myc.* Vol. ii, p. 15. The pileus is generally darker than that of *H. crispa*.

Our New York species of *Helvella* readily fall into three groups depending on the character of the stem. The following tabular arrangement will exhibit this feature, and aid in tracing the species.

*New York Species of Helvella.*

Stem even, stout, three lines or more in diameter.

Pileus inflated, gyrose-lobate.

Spores elliptical..... *H. esculenta Pers.*

Spores globose..... *H. sphaerospora Pk.*

Pileus deflexed, lobate, spores elliptical..... *H. Infula Schaff.*

Stem costate-sulcate, stout.

Pileus whi e..... *H. crispa Fr.*

Pileus colored..... *H. sulcata Afz.*

Stem even, slender, less than two lines thick.

Stem glabrous..... *H. gracilis Pk.*

Stem velvety-pruinose..... *H. elastica Bull.*

The first and second species in the table belong to the more recent genus *Gyromitra*. The last one, *H. elastica*, is sometimes nearly black, and is, perhaps, then *H. atra*. These two, according to the descriptions, have the pileus free, but in our plant it is sometimes adnate to the stem. *H. lacunosa* and *H. ephippium* have not yet occurred with us.

CENANGIUM CERASI *Fr.*

This is not limited to cherry in its habitat, but occurs also on birch.

XYLARIA DIGITATA *Grev.*

One of our most common *Xylarias* agrees with the characters ascribed to this species, except in the size of the spores. These are described as .0007 - .0008 long. In our plant they are about .0005 long. Because of its short spores, it has sometimes been referred to *X. Hypoxylon*; but in this species the stem should be villose, a character which our plant does not exhibit. The difference between its spores and those of *X. digitata* is so marked and so constant that it should not be disregarded. I therefore propose to distinguish



our plant as a variety, giving it the name *X. digitata* var. *Americana*. It is frequent on decaying wood and old prostrate, mossy trunks.

The following tabular arrangement will exhibit the principal distinguishing features of the New York species thus far reported :

*New York Species of Xylaria.*

Club everywhere fertile, obtuse.	
Spores .0008'-.0012' long.....	<i>X. polymorpha</i> Grev.
Spores .0004' long.....	<i>X. corniformis</i> Fr.
Club sterile above, subacute or attenuated.	
Sterile apex short, subacute.	
Club irregular, subovate, large.....	<i>X. grandis</i> Pk.
Club regular, subcylindrical.....	<i>X. acuta</i> Pk.
Sterile apex acuminate or attenuated.	
Stem short, villose. ....	<i>X. Hypoxylon</i> Grev.
Stem not villose.	
Perithecia numerous, little prominent.	
Stems generally connate at the base or digitately branched.....	<i>X. digitata</i> Grev.
Stems always simple.....	<i>X. graminicola</i> Ger.
Perithecia few, very prominent.....	<i>X. filiformis</i> A. & S.

In *X. acuta* the short, sterile apex sometimes appears like a short mucronate point, and sometimes it is quite obsolete, so that the plant might be mistaken for *X. coniformis*, but for its larger spores. Its thicker club, simpler habit, and peculiar apex, separate it from *X. digitata*.

*X. graminicola* might easily be taken for a simple form of *X. digitata* v. *Americana*. *X. Hypoxylon* is extremely rare with us.

*SPHÆRIA EXIMIA* Pk.

Owing to the delay in the issue of the Twenty-eighth Report, the name of this species was antedated by *S. ampicornis* Ellis.

*SPHÆRIA MORBOSA* Schw.

This deleterious fungus was found on branches of the wild black cherry, *Prunus serotina*, in Keene Valley, Essex county. It is now known to occur on *Prunus domestica*, *P. Americana*, *P. Cerasus*, *P. Virginiana*, *P. Pennsylvanica* and *P. serotina*. Two of these are plum-trees—one introduced, the other native—and the remaining four are cherry trees, of which the three last are indigenous.

In the preceding pages, when no name is added to the station or stations, the plant has been found therein by the writer. Dates signify the time when the specimens were collected, and therefore indicate, to some extent, the time of the occurrence of the plant.

Grateful acknowledgements are rendered to those Botanists who have kindly aided me by contributions of specimens. Their names appear in the preceding pages.

Respectfully submitted,

CHARLES H. PECK.

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