

# BREDIN-ARCHBOLD-SMITHSONIAN BIOLOGICAL SURVEY OF DOMINICA

## Myxomycetes from Dominica<sup>1</sup>

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### Introduction

This paper is based mostly on the collections made during my participation in the Bredin-Archbold-Smithsonian Biological Survey of Dominica (British West Indies). Species of myxomycetes previously reported from this island but not found on this expedition are also included to bring the record up to date. The present report although based on a very short collecting period and, therefore, far from complete, evidently represents the first extensive investigation of the slime molds of Dominica.

From January through March 1966, over 500 myxomycete specimens were collected in the field and 63 were obtained from 187 moist chamber cultures. These efforts yielded 96 taxa (1 doubtful) of which 2, 1 of *Diachea* and 1 of *Physarum*, are described here as new species.

Dominica, the largest of the Windward Islands and third largest of the Lesser Antilles, is located at 15°10'–15°40' N. latitude and 61°44'–61°30' W. longitude, about halfway between Guadeloupe and Martinique, and has an area of slightly more than 300 square miles; its maximum length is ca. 29 miles and its greatest width, ca. 15 miles. The highest peaks are Morne Diablotins (ca. 4,700 ft.), Morne Trois Pitons (ca. 4,500 ft.), Watt Mountain (ca. 4,000 ft.), and Morne Micotrin (ca. 3,900 ft.). Because of its relatively recent volcanic origin, the island is characterized by a much craggier topography and a (consequently) wetter climate than other major Caribbean Islands. The difficulties in road building, timber harvesting, etc., caused by the rugged terrain; the heavy downpours; and the strong

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<sup>1</sup> This is the first in a series of floristic studies. Other floral papers in this series will appear in "Smithsonian Contributions to Botany." A companion series on the fauna appears in the "Proceedings of the United States National Museum" and "Smithsonian Contributions to Zoology."

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winds have retarded the advancement of lumbering, agriculture (less than half of Dominica was under cultivation in 1963), and tourism, and have resulted in the preservation of relatively large tracts of the typical Caribbean forests that have largely disappeared from the more highly developed islands. The last decade or so, however, has witnessed an acceleration in road construction and the erection of an airport, which, among other factors, are greatly hastening the conversion of virgin lands to crop cultivation and the development of tourist trade and facilities.

Unpublished climate maps<sup>3</sup> show that only a very narrow coastal fringe (mostly less than 2 miles wide) receives less than 100 inches of yearly rainfall and experiences a true dry season; most of the mountainous interior lies in the zone characterized by 200–300 inches, or even more. The relative humidity is always high (50–80% in Roseau, 85% or more in the interior) and a considerable amount of precipitation occurs even during the drier parts of the year. The temperature range is ca. 65–90° F., averaging in the upper seventies. According to Hodge (16), from whose extensive treatise much of the present introductory information was taken, a dry season extends from mid-January to mid-June, April being the driest and calmest month. The wet season consists of a summer portion (mid-June to mid-September), a “break” of “complete sunny days with occasional heavy showers only at night” (mid-September to mid-November), and a winter portion (mid-November to mid-January). Fentem (12) mentions an “undependable and indefinite drought between mid-January and mid-June on the leeward coast which generally lasts about 6 weeks” and a tendency toward a second period of minimum rainfall in September and October.

In view of the generally high precipitation and humidity one would imagine the dry season to be the best time on most parts of the island for gathering myxomycetes. Enough moisture is present, even then, for their development, yet fructifications can ripen completely without being washed away immediately by intense downpours or rapidly disfigured by filamentous molds. The validity of this assumption remains to be tested by collecting in Dominica during the wet season. Certain areas subjected to pronounced droughts, however, may be expected to produce myxomycetes only after the onset of rainy periods. In Jamaica, for example, certain pastured and wooded tracts exhibiting distinct seasonal changes in verdure were myxomycologically barren during the dry season, but very fruitful during or immediately following the rainy season (9).

Most of my time on Dominica supposedly coincided with the “dry” season, but the weather was somewhat different from that anticipated.

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<sup>3</sup> Kindly supplied by the Lands & Surveys Department of Dominica.

An unusually dry spell in December and January, which sometimes necessitated a partial curtailment of electric power, but provided very pleasant weather, was followed by an extremely wet February and an only slightly drier March. February, especially, was marked by nightly violent downpours changing into milder, more or less intermittent rain of varying intensity nearly every day (at least, inland). Although the nearly continuous rain impeded slime-mold collecting considerably, my dampened spirits were revived by the discovery of a number of myxomycetes fruiting in good condition, even during the rain, in certain rather sheltered niches; the undersides of very large logs, and substrates protected by "umbrellas" of overlapping banana leaves or buried within piles of leaf litter, yielded collections of several species.

Topographic and climatic features of the island have given rise to a diversity of soil types and microenvironments, resulting in a corresponding distribution of vegetation types. Hodge (16) lists the following five primary plant formations, of which all but the first are climatic: 1. Swamp forest, an edaphic climax occurring only in a few small places on the island and represented in my collections by locality no. 14. 2. Dry evergreen formation, including the littoral woodland vegetation of the windward (E.) coast. 3. Seasonal formations, such as the thorny scrub vegetation along the dry leeward (W.) coast and more or less evergreen forests in other areas exposed to periodic drought; this formation has been largely replaced by crop cultivation. 4. Rain forest, the dominant, luxurious vegetation type of the wet interior regions, much of which has become secondary or suboptimal as a result of encroachment by shifting agriculture. Partially cleared areas, in which considerable decay of stumps and felled trees has already taken place, usually offer great promise for the collector. The accumulation of rotten logs and other plant debris, the presence of living crop plants (the most common substrate for some slime molds), the more open, sunny situations created by removal of the forest, and the surrounding border of undisturbed, shaded woodland provide a variety of habitats and microenvironments and a corresponding diversity of myxomycete species. This type of situation is represented in my collections by localities 7-12, of which no. 8 yielded the greatest number of species. The undisturbed rain forests of the mountain slopes, on the other hand (except for locality no. 13), generally were found to be relatively unproductive despite the seemingly ideal combination of high moisture, deep shade with sporadic, moderate sunlight, windstillness, and abundance of rotten wood. (Rather surprisingly, however, several myxomycetes developed in bark cultures of the strongly resinous codominant tree, "gommier" [*Dacryodes excelsa* Vahl].) The paucity of myxomycetes, which seems to prevail in this type of habitat in other Caribbean islands as well, has puzzled

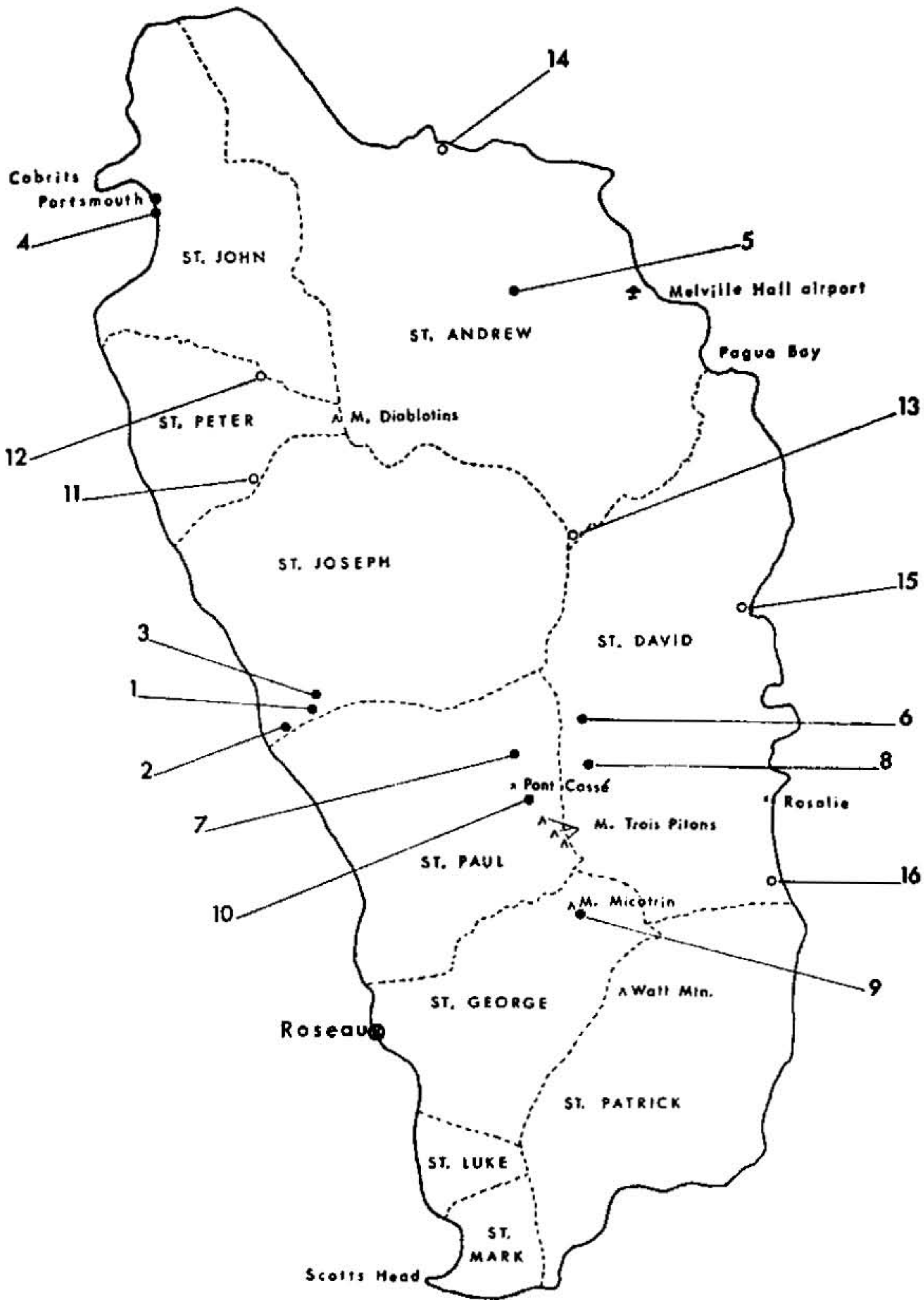
collectors for some time. Possibly the substrates are too acid to permit spore germination or subsequent development of many species. The density of the vegetation and the relative lack of air movement could be expected to retard spore dispersal within the forest. Most wood-inhabiting animals that might feed on myxomycetes were comparatively uncommon in the deep forest and can probably be ruled out as cause of the sparse myxomycota. 5. Montane formations, found on mountain summits and similar habitats exposed to strong, desiccating winds, and consequently characterized by stunted vegetation types such as "elfin woodland." These are unproductive for field collecting of slime molds. Two rather poor but interesting moist chamber developments (*Physarum ?leucopus* and *P. ?bubalinum*) were obtained from plant material collected at the top of Morne Diablotins. One would surmise that great numbers of spores would be deposited in such an open habitat, and that the cooler temperatures of the summits might permit the survival of some species not normally thriving in the tropics. Extensive collecting of substrate samples from this formation, followed by moist chamber culture, would be a worthwhile undertaking for energetic collectors possessing the endurance to make repeated climbs to the summits and the stamina to collect after reaching them.<sup>4</sup>

Politically, Dominica is divided into 10 parishes of greatly differing size; the largest ones are St. Joseph on the west side, St. David on the east side, and St. Andrew to the north and northeast. Most myxomycete collecting was carried out in these, as well as in St. Paul and St. George, mainly because of accessibility. Although these parishes proved highly fertile, some of the others may, upon thorough exploration, turn out to be at least equally rich in myxomycetes.

Slime molds (including field collections and moist chamber fruitings) were acquired from about three dozen localities, of which (to save space) the 16 represented by the greatest number of field specimens are coded by number and pinpointed on map 1. The first 10 constituted more or less "favorite" collecting spots because of their combined accessibility and high yield (mostly more than 20 specimens). Nos. 11-16, lower in yield, appeared very promising but, owing to distance or inaccessibility, were less frequently and thoroughly searched for myxomycetes. Nos. 1-3 are in St. Joseph; 11-12 in St. Peter; 4 in St. John; 5, 13, and 14 in St. Andrew; 6, 8, 15, and 16 in St. David; 9 in St. George; 7 and 10 in St. Paul. They are briefly described in the following paragraphs. The absence of road numbers or names, and of accurately defined or permanent landmarks, accounts for the sometimes awkward citations of locality.

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<sup>4</sup> On certain other islands, well-established footpaths to the mountain summits make this habitat more easily accessible than it is, at present, in Dominica.



Map 1.—Dominica, B.W.I., showing the 16 most productive collecting localities for myxomycetes.

1. ST. JOSEPH: Clarke Hall Estate and vicinity (ca. half-mile radius), along the Layou River (the largest river on the island), extending E. approximately to the swinging footbridge and SE. to the "Café" area, elev. 100-200 ft. This region, traversed by one of the major roads, is almost entirely cultivated and most of the gatherings

were made in old, well-established cacao, banana, or coconut plantations between highway and river, or along the roadside.

2. ST. JOSEPH: From Clarke Hall W. to the highway bridge near the mouth of the Layou River, elev. ca. 150 ft. to nearly sea level, an area essentially similar to no. 1.

3. ST. JOSEPH: Mannelts Gutter, a small creek (marked but not labeled on current maps) ca. ½-mile NE. of Clarke Hall, continuing N. from the road passing Brookhill Estate, elev. ca. 200 ft. Most myxomycetes were collected on large, more or less shaded, wet, rotten logs and surrounding plants and debris near an ascending footpath along the W. bank of the creek.

4. ST. JOHN: S. of Portsmouth, near the mouth of the Indian River, elevation near sea level, a dry area (at least when visited) on the leeward (W.) coast. The species found, predominantly those tolerant of some exposure (*Lycogala epidendrum*, the common *Hemitrichia* spp., *Stemonitis webberi*, etc.), were collected mostly on relatively dry, more or less shaded logs in open areas.

5. ST. ANDREW: Governor Estate, 3-4 miles W. of the airport, and also beyond the end of the jeep road on a footpath ascending into the disturbed rain forest, elev. ca. 400-600 ft. Myxomycetes were picked up on the estate itself in low-lying plantations next to the Clyde River, as well as along the forest path.

6. ST. DAVID: St. David Bay road, ca. 1.5 miles N. of its intersection with Rosalie road, near L'Arouma Popotte, elev. ca. 1,000 ft. Slime molds were collected mostly in clearings and banana plantations adjoining the highway, on rotting logs and in leaf litter.

7. ST. PAUL: 1-2 miles N. of Pont Cassé, in banana plantations on the E. side of the highway leading to the airport, elev. 1,350-1,450 ft., habitat and substrates essentially similar to those of locality no. 6. Collecting efforts on the W. side of the road were unrewarding, probably because those plantations were experimental plots for poisonous chemicals.

8. ST. DAVID: About 100 yards E. of the intersection between the roads to St. David Bay and Rosalie, along the latter, elev. ca. 1,400 ft. This locality, reached by a short, narrow, steep footpath descending from a roadside parking area, was characterized by an ideal diversity of habitats, consisting of a dense, secondary rain forest encircling a newly cut, sunny clearing next to a slightly older one planted to banana trees and root crops; the entire cut area was lined with numerous large logs (many of which were covered with moss, filmy ferns, and various other epiphytes) and stumps from the original forest in various stages of decay. Of all stations visited, this spot proved the richest in number of species, but its productivity declined rather sharply during the last month or so of my stay.

9. ST. GEORGE: Along the road between Laudat and Fresh Water Lake, and on the basal S. slope of Morne Micotrin, elev. ca. 2,400 ft. Usable by passenger cars nearly all the way, this is the highest paved road on the island and cuts through the rich montane rain forest of Morne Micotrin; thus, botanists find many species typical of this plant formation by merely hiking along the road or making short forays into the forest. The average annual rainfall measured at a weather station near the lake is about 250 inches. Most of the myxomycetes were collected near the road (at the edge of the forest) and in adjacent citrus orchards.

10. ST. PAUL: Along the basal part of the trail ascending Morne Trois Pitons on its NW. slope, near Pont Cassé, elev. 2,000–2,200 ft., a region of disturbed montane rain forest grading into newly cut clearings and banana plantations.

11. ST. PETER: Rochette, ca. 2-3 miles inland from Colihaut, elev. 2,200 ft., also an area of disturbed rain forest and cultivation.

12. ST. PETER (border of ST. JOHN): S. end of Syndicate Estate, near the road junction and on the basal slope of Morne Diablotins, elev. 2,000–2,100 ft., an area of more or less disturbed rain forest merging with banana and citrus plantations. Myxomycetes were collected mostly in the forest.

13. ST. ANDREW: Central Forest Reserve, Borne area, elev. ca. 1,400 ft., in rain forest.

14. ST. ANDREW: Near the road junction ca. 1.5 miles W. of Eden Estate, in the swamp-woodland formation by the Eden River (probably the spot cited by Hodge as 2 miles W. of Calibishie). Myxomycetes were found on a group of huge *Pterocarpus officinalis* Jacq. logs lying in the swamp-woodland, on decaying logs on solid ground across the road, or were cultured from bark of nearby *Terminalia catappa* L. and *Carica papaya* L. trees.

15. ST. DAVID: Near the road bridge by the mouth of the Castle Bruce River, elevation near sea level; a dry (at least when visited), flat coastal area partly planted to coconut and banana.

16. ST. DAVID: Taberi Estate, near the mouth of the Bibiay River, elev. 150-200 ft., essentially similar to locality no. 15.

Certain places, such as Felicite (ST. PATRICK) and South Chiltern House (ST. LUKE) were infertile with respect to field collections but brought forth a good number of specimens from bark samples in moist chamber culture, denoting a potential productivity.

In addition to the field collections, nearly 200 moist chamber cultures were maintained during the 3 months. They contained mostly pieces of bark from living trees, but occasionally also deadwood from the beach, various types of plant detritus, pieces of burlap, sclerotia, and living plasmodia with pieces of their substrates. The cultures

were prepared usually the same day as collected by soaking the samples (except active plasmodia) overnight in new, stacked finger bowls that had been washed in tap water, covered on the bottom with filter paper, and filled with tap water to cover the sample. After the excess water was poured off, the dishes were observed every few days for myxomycete developments and substrate pieces bearing ripe fructifications were removed. Since the only purpose of this work was to supply further records of species occurring in Dominica, no attempt at sterilization of the cultures was made. The use of new materials and the performance of the entire work on the island rendered foreign contamination unlikely. The cultures were kept at least one month and those not disintegrated or overrun by filamentous molds were again soaked overnight and maintained approximately another month; no effort was made, however, to provide a uniform timetable for all cultures. The rewetting procedure added an unexpectedly large number of specimens, bringing the proportion of moist chambers producing myxomycetes to ca. 35%.

### Geographical Considerations

The present known total for Dominica of 99 or 100 species of myxomycetes compares very favorably with approximate figures published for other Caribbean islands (Antigua, 50; Cuba, 24, Hispaniola, 30; Jamaica, 110; Puerto Rico and Virgin Islands, 70; Trinidad, 50) and indicates that this verdant island abounds in slime molds. In addition to the 2 newly described taxa, 9 known species appear to constitute new records for the Antilles: *Cribraria minutissima*, *Licea operculata*, *Perichaena minor*, *Comatriza subcaespitosa*, *Echinostelium cribrarioides*, *Diderma chondrioderma*, *Didymium comatum*, *Physarum psittacinum*, and *P. pulcherripes*. Especially interesting among these is *Echinostelium cribrarioides*, previously noted only from the Greek type collection. *Badhamia panicea*, an early record (17), is still known, in the West Indies, only from Dominica.

Table 1 shows several other species to be noted from only one additional Caribbean island (*Ceratiomyxa sphaerosperma*, *Hemitrichia paragoga*, *Comatriza aequalis*, *Macbrideola martinii*, *Stemonitis flavogenita*, *Badhamia affinis*, *Didymium intermedium*, *Physarum galbeum*, *P. roseum*, and *P. rubiginosum* from Jamaica; *Perichaena vermicularis* and *Didymium minus* from Antigua; *Didymium crustaceum* from Cuba; *Badhamia nitens* and *Didymium difforme* from Hispaniola; and *Physarum auriscalpium* from St. John, U.S. Virgin Islands). These listings, however, probably do not reflect the actual Antillean distributions for the species concerned, because the myxomycota of most of the islands has not yet been intensively surveyed. Floristic



studies of the myxomycetes inhabiting the Caribbean islands are still in the beginning stages.

A number of species more or less common in the West Indies were not encountered in Dominica, but are undoubtedly present and perhaps prevalent during some other time of the year. *Badhamia nitens*, *B. panicea*, *Stemonitis herbatica*, and *Diderma rugosum*, reported by Lister (17), were not recovered; *Arcyria nutans* and *Comatricha nigra* were conspicuous by their absence; *Arcyria insignis* and *Diderma testaceum* likewise will probably be added to the record by future collectors. As might be expected, *Ceratiomyxa fruticulosa*, *Arcyria cinerea*, *A. denudata*, *Hemitrichia stipitata*, *H. vesparium*, *H. serpula*, *Stemonitis fusca*, *Fuligo septica*, and *Physarum melleum* were practically ubiquitous throughout the collecting period. *H. stipitata*, as in Jamaica and elsewhere, fruited under widely differing conditions of moisture and exposure, its habitat ranging from dry, burnt, exposed wood to very wet, rotten, deeply shaded logs. *Cribraria violacea* (in moist chamber), *Diderma effusum*, *Didymium nigripes*, *D. squamulosum*, *Physarum compressum*, *P. nucleatum*, and, oddly, *Trichia favoginea* (a temperate-zone species not very often collected in the tropics) likewise showed up frequently. *Lycogala epidendrum* was abundant, but *L. exiguum* was almost equally common. *Tubifera microsperma*, *Comatricha typhoides*, *Clastoderma debaryanum*, and *Physarum nutans* were not as prevalent as in Jamaica, but *Didymium squamulosum* was by far more plentiful in Dominica.

Lister (18) remarked on the scarcity of the genus *Trichia* in Antigua and speculatively attributed its [then] absence in Dominica to the rapid destruction, by termites, of rotten wood, which is the substrate for plasmodia of *Trichia* spp. This reasoning seems unfeasible, since other wood-inhabiting slime molds (*Hemitrichia* spp., *Stemonitis* spp., *Lycogala* spp., etc.) were then known from Antigua and are widely distributed over the Caribbean region. In Jamaica 8 species of *Trichia* are known, but there the genus is generally confined to the higher altitudes (4,000 ft. or more) having a more temperate climate. The more tropical environment and absence of such high elevations on Antigua and (except on a few windswept peaks) Dominica may provide a more plausible explanation. *Trichia favoginea*, however, is well established on the latter island, and additional species of *Trichia* may well develop at other times of the year.

One disappointing surprise was the lack of myxomycetes on or within the abundant epiphytic bromeliads, a habitat frequently colonized by certain species in Jamaica.

Obviously a minimum of one year's study would be required to gain even a preliminary knowledge regarding any seasonal distribution of the various slime-mold species on Dominica. Since the short

TABLE I.—Hitherto known Antillean distribution of myxomycetes collected in  
Dominica

Species	Antigua	Cuba	Dominica	Guadeloupe	Hispaniola	Jamaica	Martinique	Puerto Rico and U.S. Virgin Islands	Trinidad	References
<b>Ceratiomyxales</b>										
<i>Ceratiomyxa fruticulosa</i>	X		X	X	X	X		X	X	2, 4, 7, 8, 9, 11, 14, 17
<i>C. sphaerosperma</i>						X				2, 9
<b>Liceales</b>										
<i>Cribraria intricata</i>						X		X	X	4, 9, 14
<i>C. languescens</i>	X					X		X	X	4, 9, 14, 17
<i>C. microcarpa</i>						X		X		2, 9, 14
<i>C. minutissima</i>										New Antillean record
<i>C. tenella</i>	X		X			X				2, 9, 17
<i>C. violacea</i>	X					X		X	X	2, 4, 9, 14, 17
<i>Dictydium cancellatum</i>	X			X		X		X	X	2, 4, 8, 9, 14, 17
<i>Licea operculata</i>										New Antillean record
<i>Lycogala epidendrum</i>	X	X		X	X	X		X	X	4, 5, 6, 7, 8, 9, 14, 17
<i>L. exiguum</i>				X		X	X			8, 9
<i>Reticularia lycoperdon</i>						X		X		9, 14
<i>Tubifera ferruginosa</i>				X	X	X		X		7, 9, 11, 14
<i>T. microsperma</i>	X	X		X		X			X	4, 5, 8, 9, 17
<b>Trichiales</b>										
<i>Arcyria cinerea</i>	X	X		X	X	X		X	X	2, 4, 5, 6, 7, 8, 9, 11, 13, 14, 17, 21
<i>A. denudata</i>	X	BPI	X	X	X	X	X	X	X	2, 4, 7, 9, 11, 14, 17
<i>A. incarnata</i>	X				X	X		X	X	4, 9, 11, 14, 17
<i>Hemitrichia paragoga</i>						X				9
<i>H. serpula</i>	X	X		X	X	X		X	X	2, 4, 5, 7, 8, 9, 14, 17
<i>H. stipitata</i>	X	X		X	X	X		X	X	2, 4, 5 <sup>a</sup> , 6, 8 <sup>a</sup> , 9, 11, 13, 14 <sup>a</sup> , 17 <sup>a</sup>
<i>H. vesparium</i>	X	X				X		X	X	2, 4, 5, 9, 14, 17
<i>Perichaena chryosperma</i>	X	X			X	X		X	X	2, 4, 5, 7, 9, 11, 14, 17
<i>P. depressa</i>	X					X		X	X	2, 4, 9, 14, 17
<i>P. minor</i>										New Antillean record
<i>P. vermicularis</i>	X									17
<i>Trichia favoginea</i>		BPI <sup>o</sup>			X	X		X	X	2, 4 <sup>b</sup> , 7 <sup>b</sup> , 9, 14 <sup>o</sup>
<b>Echinostellales</b>										
<i>Echinostellum cribrarioides</i>										New Antillean record
<i>E. minutum</i>						X			X	2, 4, 9
<b>Stemonitales</b>										
<i>Clastoderma debaryanum</i>						X			X	2, 4, 9
<i>Comatricha aequalis</i>						X				9
<i>C. elegans</i>		BPI			X	X			X	2, 4, 9, 11
<i>C. irregularis</i>						X		X		9, 14
<i>C. longa</i>	X					X		X	X	4, 9, 14, 17
<i>C. subcaespitosa</i>										New Antillean record
<i>C. typhoides</i>	X	X			X	X		X	X	2, 4, 5, 7, 9, 14, 17
<i>Diachea bulbillosa</i>						X		X		9, 14
<i>D. leucopodia</i>	X	X				X		X	X	2, 4, 5, 9, 11, 17
<i>D. silvaepluvialis</i>										New Antillean record (new species)
<i>Lamproderma arcyrtoneima</i>	X				X	X		X		2, 7, 9, 11, 14, 17
<i>L. scintillans</i>	X				X	X				9, 11, 17
<i>Machrideola martinii</i>						X				2, 3
<i>Stemonitis axifera</i>		X		X	X	X	X			5, 6, 7, 8, 9, 11, 13
<i>S. smithii</i>						X			X	4, 9
<i>S. flavogenita</i>						X				9
<i>S. fusca</i>	X	X		X	X	X	X	X	X	4, 5, 7, 8, 9, 14, 17
<i>S. herbatica</i>			X	X	X	X		X		6, 7, 8, 9, 14, 17, 21
<i>S. hyperopta</i>						X		X		9, 14
<i>S. nigrescens</i>						X		X		2, 9, 14
<i>S. splendens</i>	X					X		X	X	4, 9, 14, 17
<i>S. webberi</i>		X				X				9, 20

See footnotes at end of table.

TABLE 1.—Hitherto known Antillean distribution of myxomycetes collected in  
Dominica—Continued

Species	Antigua	Cuba	Dominica	Guadeloupe	Hispaniola	Jamaica	Martinique	Puerto Rico and U.S. Virgin Islands	Trinidad	References
Physarales										
<i>Badhamia affinis</i>						X				9
<i>B. nitens</i>			X		X					7, 17
<i>B. panicea</i>			X							17
<i>Craterium aureum</i>					X	X		X		6, 7, 9, 14
<i>C. leucocephalum</i>	X	X				X		X	X	4, 5, 9, 14, 17
<i>Diderma chondrioderma</i>										New Antillean record
<i>D. effusum</i>	X					X		X	X	4, 9, 14, 18
<i>D. hemisphaericum</i>	X				X	X		X	X	4, 9, 11, 14, 17
<i>D. rugosum</i>			X			X			X	4, 9, 17
<i>D. spumarioides</i>	X					X		X		9, 14, 17
<i>Didymium clavus</i>	X				X	X			X	2, 4, 9, 11, 17
<i>D. comatum</i>										New Antillean record
<i>D. crustaceum</i>		X								5
<i>D. difforme</i>					X					9
<i>D. intermedium</i>						X				2, 9
<i>D. iris</i>	X				X	X			X	4, 6, 9, 11, 17, 21
<i>D. minus</i>	X									18
<i>D. nigripes</i>	X				X	X		X	X	2, 4, 7, 9, 11, 14, 18
<i>D. squamulosum</i>	X	X			X	X		X	X	4, 5, 7, 9, 11, 14, 17
<i>Fuligo cinerea</i>	X					X				9, 17
<i>F. septica</i>	X	X		X	X	X	X	X	X	4, 5, 7, 8, 9, 14, 17
<i>Physarella oblonga</i>	X					X		X	X	2, 4, 9, 14, 17
<i>Physarum aeneum</i>			X					X		14, 17
<i>P. auriscalptum</i>								X		9
<i>P. bogoriense</i>	X					X		X	X	2, 4, 9, 14, 17
<i>P. bubalinum</i>										New Antillean record (new species)
<i>P. cinereum</i>	X	X			X	X		X	X	4, 5, 7, 9, 11, 14, 17
<i>P. compressum</i>	X				X	X		X		6, 7, 9, 11, 14, 17, 21
<i>P. didermoides</i>					X	X		X		6, 7, 9, 14, 21
<i>P. echinosporum</i>	X					X				9, 20
<i>P. galbeum</i>						X				9
<i>P. lateritium</i>	X					X				9, 18
<i>P. leucophaeum</i>	X			X	X	X				2, 6, 7, 8, 9, 13, 17
<i>P. leucopus</i>						X				9
<i>P. melleum</i>	X				X	X		X	X	4, 7, 9, 11, 14, 17
<i>P. notabile</i>				X		X				8, 9
<i>P. nucleatum</i>	X					X				2, 9, 18
<i>P. nutans</i>					X	X		X	X	4, 7, 9, 13, 14
<i>P. oblatum</i>						X				9
<i>P. penetrans</i>						X				9
<i>P. polycephalum</i>		X				X		X	X	4, 5, 9, 14
<i>P. psittacinum</i>										New Antillean record
<i>P. pulcherripes</i>										New Antillean record
<i>P. pusillum</i>	X				X	X		X		2, 7, 9, 11, 14, 17
<i>P. roseum</i>						X				9
<i>P. rubiginosum</i>						X				9
<i>P. stellatum</i>	X		X			X		X	X	2, 4, 9, 14, 17
<i>P. tenerum</i>	X					X		X	X	4, 9, 14, 17
<i>P. viride</i>	X			X		X		X	X	2, 4, 8, 9, 14, 17

\* As *H. clavata*; *H. stipitata* was formerly a synonym of *H. clavata* and, as indicated by Martin (20, p. 58), early tropical collections so cited were *H. stipitata*.

<sup>b</sup> As *T. affinis*.

<sup>c</sup> As *T. persimilis*; *T. favoginea*, *T. affinis*, and *T. persimilis* were united recently (10).

collecting period encompassed only  $\pm 1$  season and a limited number of localities (many of which could not be visited regularly), no meaningful statements on this subject can be made at this time. However, the number and monthly distribution of collections of each species, listed in table 2, may be of interest and serve future collectors as a basis for comparison. It should be pointed out that the progressive decrease revealed by *Ceratiomyxa fruticulosa*, *Arcyria cinerea*, *A. denudata*, *Hemitrichia serpula*, *H. stipitata*, *H. vesparium*, *Didymium nigripes*, and *Physarum compressum* may be due largely to change in collecting habits rather than season. After the first month or so of collecting, these ubiquitous species were frequently passed over, except as locality vouchers or otherwise especially desirable specimens. Similarly, the more or less pronounced increase in frequency of the *Lamproderma* spp., *Diderma hemisphaericum*, *Didymium squamulosum*, *Physarum aeneum*, and *P. melleum* can perhaps be ascribed, at least partly, to the fact that their preferred habitat (buried in leaf litter) was less thoroughly investigated during the first few weeks.

The number of myxomycetes acquired from moist chambers is high compared with results obtained previously in Jamaica by Alexopoulos and Beneke (2) and by me (9). More than one-third of the cultures produced myxomycetes and many yielded more than 1 species, especially after being resoaked. The often heavy infestation of the cultures with mites, springtails, etc., may have suppressed the appearance of additional species.

The development time of each of the 26 species obtained from moist chamber culture (not including those collected as plasmodia, which are considered field collections) is included in table 2; 14 of these species were also found in the field, including nearly all cited members of the Physarales. *Cribraria violacea* was the species most frequently harvested, appearing in more than a dozen moist chambers; it was, surprisingly, never observed in the field. No previously published notices of moist chamber fruitings were found for the following species: *Diderma hemisphaericum*, *Fuligo cinerea*, *Physarum leucophaeum*, *P. leucopus*, *P. melleum*, *P. notabile*, and *P. viride*.

The relatively long time needed by all myxomycetes to fruit in the moist chambers is noteworthy and perhaps due, at least partly, to the use of tap water (distilled water being unavailable). Even members of such genera as *Cribraria*, *Licea*, and *Echinostelium*, which often fruit within a few days (1), required at least 1 to 2 weeks. In the cases of *Arcyria cinerea*, *Hemitrichia vesparium*, *Lamproderma arcyrionema*, and *Physarum pusillum*, the disparity of development periods shown by different cultures within the species is perplexing, but the later fruitings (as well as some of the other species appearing after very long incubation) may have resulted from contamination during handling and rewetting.

## Acknowledgments

I wish to thank G. W. Martin and C. J. Alexopoulos for their help in the identification of specimens, J. A. Stevenson and P. L. Lentz for determining fungal substrates of certain collections, and Arlene Frank for technical assistance.

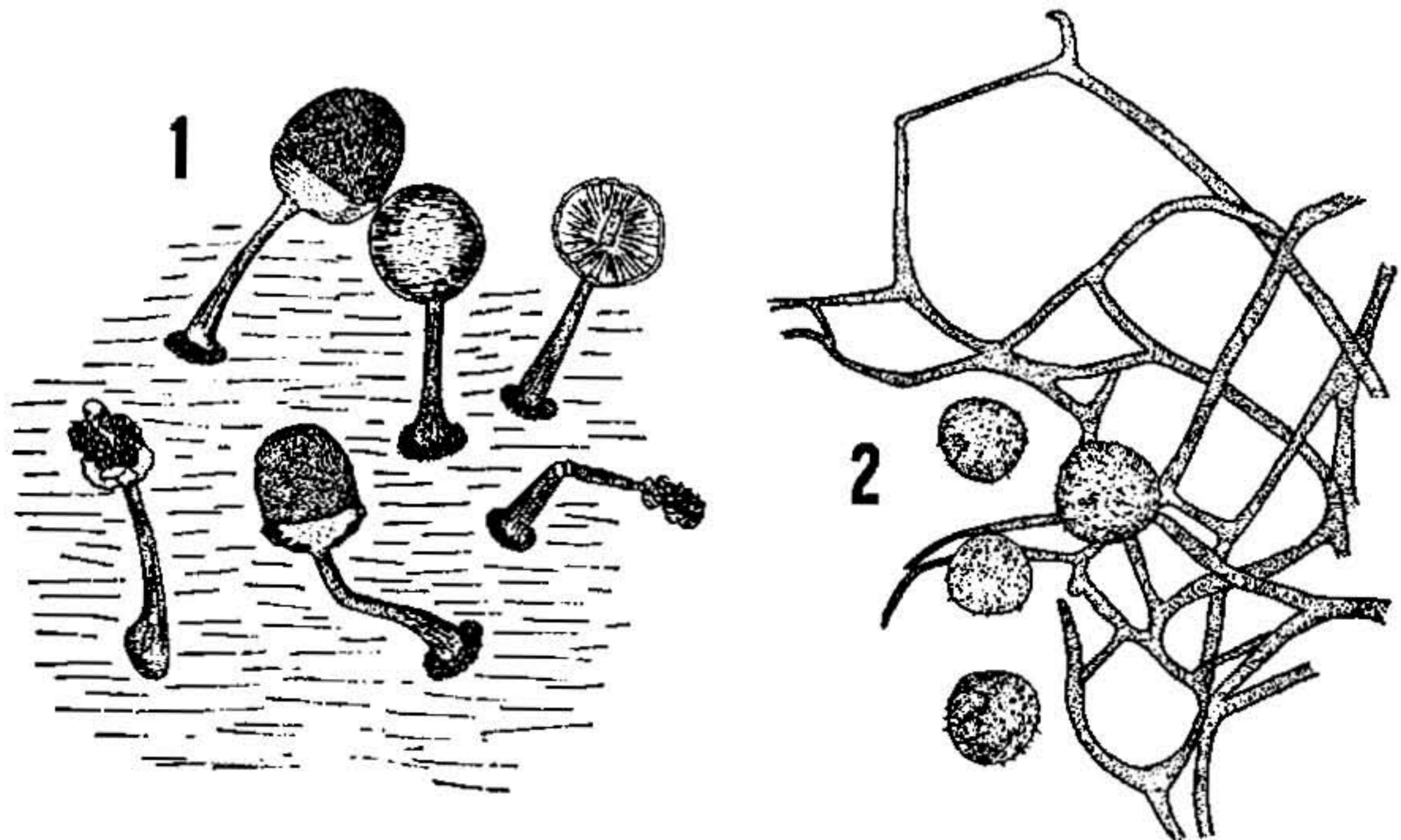
## New Species

*Diachea silvaepluvialis*, sp. nov.

FIGURES 1, 2

Sporangia gregaria, stipitata, globosa vel late ovoidea, 1-1.25 mm alta, 350-450 $\mu$  diam., hypothallo circulari, membranaceo, brunneo plerumque subtenta; stipes 500-670 (-750) $\mu$  altus, membrana brunnea translucenti tectus, crystallis calcareis, albis 5-15 $\mu$  diam. dense farctus, basaliter dilatatus, apicaliter pro columella plus minusque cylindracea apicem sporangii attingens. Peridium tenue, plus minusque argenteo-iridescens, ad basim pro disco vel cupula vadosa leniter rugulosa saepe persistens; capillitium ab columella facile separatum, reticulum laxum filorum gracilium (1-2 $\mu$  diam.) atro-brunneorum levium, ramificantium et anastomosantium, cum ramulis numerosis, formans. Sporae atrobrunneae, globosae, dense sed inaequaliter spinulosae, 10-14 (-16) $\mu$  diam.

Sporangia gregarious, stalked, globose to broadly ovoid, 1-1.25 mm high, 350-450 $\mu$  in diameter, many subtended by a brownish, membranous circular hypothallus; stalk  $\frac{1}{2}$ - $\frac{2}{3}$  (- $\frac{3}{4}$ ) of total height, externally dark orange or dark brown, glossy, faintly striate, consisting



FIGURES 1-2.—*Diachea silvaepluvialis* sp. nov.: 1, Habit,  $\times 25$ ; 2, portion of capillitium and 4 spores,  $\times 900$ .

TABLE 2.—Monthly distribution of myxomycete species collected and development periods for moist chamber cultures

Species	Number of specimens collected			Development periods (days) for moist chamber specimens
	January	February	March	
<b>Ceratiomyxales</b>				
<i>Ceratiomyxa fruticulosa</i>	5	6	3	
<i>C. sphaerosperma</i>	1			
<b>Liceales</b>				
<i>Cribraria intricata</i>	1	1	1	
<i>C. languescens</i>	1	1		
<i>C. microcarpa</i>	2 <sup>a</sup>	3 <sup>b</sup>	1	10, 14, 23, 25, 25
<i>C. minutissima</i>	1 <sup>a</sup> +1 <sup>b</sup>			12, 24
<i>C. tenella</i>			3	
<i>C. violacea</i>	3 <sup>a</sup> +2 <sup>b</sup>	3 <sup>a</sup> +3 <sup>b</sup>		7, 10, 11, 12, 14, 14, 14, 15, 16, 23, 25
<i>Dictydium cancellatum</i>	3	6		
<i>Licea operculata</i>	2 <sup>a</sup>	3 <sup>b</sup>		11, 14, 20, 23, 28
<i>Lycogala epidendrum</i>	1	4	3	
<i>L. exiguum</i>	3	1	1	
<i>Reticularia lycoperdon</i>	3	1	1	
<i>Tubifera ferruginosa</i>			1	
<i>T. microsperma</i>			2	
<b>Trichiiales</b>				
<i>Arcyria cinerea</i>	8+2 <sup>b</sup> +1 <sup>c</sup>	5+1 <sup>b</sup>	1	12, 15, 24, 54
<i>A. denudata</i>	10	6	2	
<i>A. incarnata</i>	3		4	
<i>Hemitrichia paragoga</i>			1	
<i>H. serpula</i>	8	3	3	
<i>H. stipitata</i>	10	6	2	
<i>H. vesparium</i>	4+1 <sup>b</sup>	2+1 <sup>b</sup>	1	28, 51
<i>Perichaena chryosperma</i>	1	1		
<i>P. depressa</i>	8	2	1	
<i>P. minor</i>			1	
<i>P. vermicularis</i>	1 <sup>b</sup>	2 <sup>b</sup>		23, 25, 34
<i>Trichia faroginea</i>	2	6	2	
<b>Echinostellales</b>				
<i>Echinostelium cribrarioides</i>	1 <sup>a</sup>			24
<i>E. minutum</i>	1 <sup>a</sup>	2 <sup>b</sup>		17, 20, 27
<b>Stemonitales</b>				
<i>Clastoderma debaryanum</i>	1	2		
<i>Comatricha aequalis</i>		2	2	
<i>C. elegans</i>	1 <sup>b</sup>			24
<i>C. irregularis</i>	1		3	
<i>C. longa</i>	7		1	
<i>C. subcaespitosa</i>	1		3	
<i>C. typhoides</i>	5+1 <sup>b</sup>		1	15
<i>Diachea bulbillosa</i>	1	1		
<i>D. leucopodia</i>			2	
<i>D. silvaepluvialis</i>	1		1	
<i>Lamproderma arcyriouema</i>	1+2 <sup>b</sup>	1+2 <sup>b</sup>	2	14, 43, 66, 77
<i>L. scintillans</i>	1	1	4	
<i>Macbrideola martinii</i>		1 <sup>b</sup>		20
<i>Stemonitis axifera</i>	3	1	2	
<i>S. smithii</i>	2		1	
<i>S. flavogenita</i>	2 or 3			
<i>S. fusca</i>	6	3	2	
<i>S. hyperoptera</i>	2			
<i>S. nigrescens</i>		1		
<i>S. splendens</i>	3	3		
<i>S. webberi</i>	1	2	3 or 4	

See footnotes at end of table.

TABLE 2.—Monthly distribution of myxomycete species collected and development periods for moist chamber cultures—Continued

Species	Number of specimens collected			Development periods (days) for moist chamber specimens
	January	February	March	
<b>Physarales</b>				
<i>Badhamia affinis</i>			1 or 2	
<i>Craterium aureum</i>			1	
<i>C. leucocephalum</i>			3	
<i>Diderma chondrioderma</i>		1		
<i>D. effusum</i>	2	8+1 <sup>b</sup>		44
<i>D. hemisphaericum</i>	1 <sup>b</sup>	1	4	17
<i>D. spumarioides</i>	1			
<i>Didymium clavus</i>		1	2	
<i>D. comatum</i>			1	
<i>D. crustaceum</i>			1	
<i>D. difforme</i>			1	
<i>D. intermedium</i>			1	
<i>D. iridis</i>	2	1+1 <sup>b</sup>		28
<i>D. minus</i>			1	
<i>D. nigripes</i>	3	7	3	
<i>D. squamulorum</i>		7	12	
<i>Fullgo cinerea</i>	1	1 <sup>a</sup>		26
<i>F. septica</i>	1	9	3	
<i>Physarella oblonga</i>	2	4	1	
<i>Physarum aeneum</i>		1	4	
<i>P. auriscalpium</i>	1 <sup>b</sup>	1+1 <sup>b</sup>		15, 31
<i>P. bogoriense</i>	2	4	3	
<i>P. bubaltnum</i>	1+?1 <sup>c</sup>			ca. 29
<i>P. cinereum</i>			3	
<i>P. compressum</i>	7	8	2	
<i>P. didermoides</i>		4		
<i>P. echinosporum</i>			2	
<i>P. galbeum</i>		1		
<i>P. lateritium</i>			1	
<i>P. leucocephalum</i>		1 <sup>a</sup> +2 <sup>b</sup>		15, 20, 23
<i>P. ?leucopus</i>	1 <sup>a</sup>			ca. 29
<i>P. melleum</i>	1 <sup>a</sup>	2	12	67
<i>P. notabile</i>		1 <sup>a</sup>		23
<i>P. nucleatum</i>	6	8	4	
<i>P. nutans</i>	2	2+1 <sup>a</sup>	1	7
<i>P. oblatum</i>		1		
<i>P. penetrans</i>	1			
<i>P. polycephalum</i>	1	1	3	
<i>P. psittacinum</i>		2	2	
<i>P. pulcherripes</i>	1	1	1	
<i>P. pusillum</i>	1 <sup>a</sup>	1+1 <sup>a</sup> +1 <sup>b</sup>		12, 43, 50
<i>P. roseum</i>			1	
<i>P. ?rubiginosum</i>	1			
<i>P. stellatum</i>	3	2		
<i>P. tenerum</i>	3	1		
<i>P. viride</i>	2+1 <sup>a</sup>	4+1 <sup>b</sup>		23, 36

<sup>a</sup> = m.ch., collected and harvested the same month.

<sup>b</sup> = m.ch., harvested the following month.

<sup>c</sup> = m.ch., collected in January, harvested in March.

Unmarked = field collections.

of a translucent, brown membrane densely packed with white, single or aggregated, more or less angular lime crystals  $5-15\mu$  in diameter; basally enlarged, apically continued through the entire sporangium as a more or less cylindrical columella. Peridium delicate, moderately silvery-iridescent, usually persisting at base of sporangium as a broad, slightly rugose disc or shallow cup, pale brown and smooth by transmitted light. Capillitium arising all along columella, consisting of an open, loose, easily detached network of delicate, dark brown, smooth, slightly wavy, branching and anastomosing threads  $1-2\mu$  in diameter, with many concolorous or slightly paler free ends. Spores dark brown in mass, dark purplish brown by transmitted light, globose, closely but unevenly spinulose, sometimes with a densely warted area  $3.5-5.0\mu$  in diameter,  $10-12\mu$  (2197) or  $10-14(-16\mu)$  (2998) in diameter.

Holotype: B.W.I., DOMINICA: ST. GEORGE parish, road from Laudat to Fresh Water Lake, elev. 2,200-2,500 ft. (9), on moist, decaying leaves on shaded ground, Farr 2197 (BPI). Paratype: ST. ANDREW parish, Central Forest Reserve, Borne area, elev. 1,400 ft. (13), on moist, dead leaf on shaded ground in rain forest, Farr 2998 (BPI).

Two species of *Diachea* with nonwhite stalks have been described. In *D. thomasi* Rex the lime itself is bright orange; the hypothallus is venulose and likewise orange; the sporangia are sessile or short-stipitate and larger, and the columellae much smaller than in *D. silvaepluvialis*. *Diachea megalospora* Thind & Manocha evidently is very similar to *D. thomasi*, differing from the latter only in having slightly larger and more coarsely marked spores.

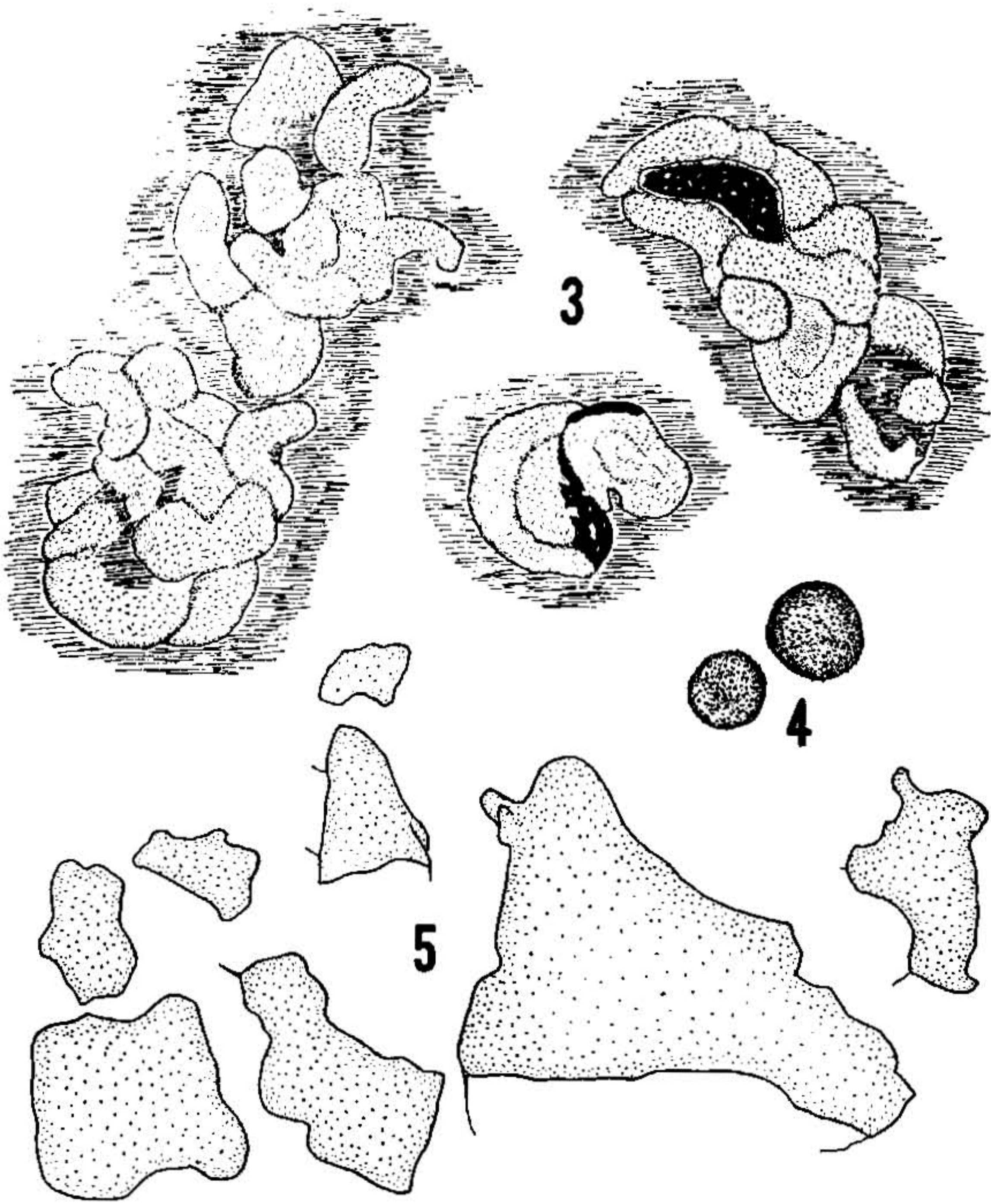
***Physarum bubalinum*, sp. nov.**

FIGURES 3-5

Sporangia fasciculos vel rosulas gregarias 1-3 mm diam. formantia, sessilia vel pseudostipitata, bubalina, plusminusve convoluta, leviter compressa, ca.  $250\mu$  lata, unitunicata; hypothallus nigellus, corneus, inconspicuus; peridium membranaceum, albidum, granulis calcareis bubalinis incrustatum; columella nulla; capillitium ex nodulis albis maximam partem grandibus, angularibus vel elongatis et filis paucis subhyalinis constans, aliquando pseudocolumellam formans; sporae atrobrunneae, globosae vel ovoideae vel ellipsoideae, minute et dense spinulosae,  $10-12$  vel  $10 \times 12\mu$  diam.

Sporangia in gregarious clusters or rosettes 1-3 mm in diameter, sessile or borne on black, weak, stalklike extensions of the hypothallus, convoluted to nearly pseudoaethalioid, buff, slightly compressed laterally, ca.  $250\mu$  thick. Hypothallus blackish, horny, inconspicuous. Peridium single, membranous, whitish, densely encrusted with tawny or pale brown, sometimes fading, clusters of lime granules. Columella none. Capillitium consisting of white lime nodes greatly varying in size and shape but predominantly large and angular or elongated (occa-





FIGURES 3-5.—*Physarum bubalinum* sp. nov.: 3, Habit,  $\times 25$ ; 4, two spores,  $\times 900$ ; 5, capillitial lime knots,  $\times 900$ .

sionally aggregated into a small pseudocolumella), and few, subhyaline connecting threads. Spores dark brown in mass, purplish brown by transmitted light, globose to ovoid or ellipsoid, minutely and densely spinulose,  $10-12$  or  $10 \times 12 \mu$  in diameter.

Holotype: B.W.I., DOMINICA: St. JOSEPH parish, along Layou River near Clarke Hall Estate, elev. ca. 200 ft. (1), on outside of rind of cacao fruit (*Theobroma cacao* L.) rotting in deep shade, Farr 2101 (BPI).

A scanty moist chamber development with broken but apparently similarly shaped, iridescent sporangial clusters and similar spores may represent a completely limeless phase of this species (collected

in St. PETER parish, summit of Morne Diablotins, elfin woodland, elev. 4,700 ft., on stem of *Lobelia stricta* Sw. in moist chamber, Farr 3033b).

This myxomycete has similarities to several known species of *Physarum*, but cannot be accommodated in any of them. From *P. nicaraguense* and convoluted forms of *P. compressum* it differs mainly in its sessile habit and tawny color; from *P. gyrosum* in color, capillitial structure, and spore size. Two closely related, temperate-zone species, *P. virescens* and *P. confertum*, sometimes produce clumped, off-color sporangia resembling those of the new species in shape, but considerably smaller and with more delicate capillitium; *P. virescens*, furthermore, has smaller, smoother spores.

### Annotated List of Species

The species of myxomycetes are listed in alphabetical order within the genera; these, in turn, are arranged alphabetically under the nowadays generally accepted orders Ceratiomyxales, Liceales, Trichiales, Echinosteliales, Stemonitales, and Physarales. The localities are cited according to parishes, starting with St. JOSEPH, and arranged in a clockwise direction. Within each parish, numbered localities, listed in ascending order (locality numbers printed in boldface), precede those without a number. For the unnumbered locations, only those elevations above 100 ft. are mentioned.

### Order CERATIOMYXALES

*Ceratiomyxa fruticulosa* (Müll.) Macbr. No. Amer. Slime-Moulds, 18. 1899.

DISTRIBUTION: Cosmopolitan.

ST. JOSEPH: **1**, near underside of wet, decaying log, 2122; **2** (Cocoa Centre), on underside of wet, rotting, decorticated log, 2552, 2568; ca. ½ mile S. of Mero, at mouth of Mero River, on rotting log, 2506. ST. ANDREW: **5**, on underside of wet, rotten log, 2590. ST. DAVID: **8**, on wet, rotting log, 2151, 2289, 2915, 2916 (the latter poor); **15**, on rotten logs by river and in banana plantation, 2737 (scanty); 1.5 miles S. of Castle Bruce, on underside of very rotten, wet, shaded log in forest, 2171 (yellowish). ST. GEORGE: **9**, on wet, rotting, shaded log, 2199 (scanty). ST. PAUL: **7**, in hollow of decaying, wet stump, 2708; on side of wet, rotting log, 3009.

*Ceratiomyxa sphaerosperma* Boed. Misc. Zool. Sumatr. 24: 1. 1927.

DISTRIBUTION: Central America, Antilles, Indonesia.

ST. DAVID: Rosalie Agric. Exp. Sta., ca. 1 mile NE. of town, near intersection of road to St. Sauveur, on fibers of decaying coconut husks, 2139; the colonies appear globose but are seen, under a dissecting microscope, to consist of branches borne on gelatinous, more or less dichotomously branched stalks.

## Order LICEALES

*Cribraria intricata* Schrad. Nov. Gen. Pl., 7. 1797.

DISTRIBUTION: Cosmopolitan.

ST. PETER: 11, on underside of very wet, rotten, shaded log, 2078a.  
ST. ANDREW: 5, on underside of wet, very rotten log, 2592 (moldy).  
ST. PAUL: 7, on rotting twig buried in leaf litter, 2821; sporangia yellow, with fairly abundant free ends in the net.

*Cribraria languescens* Rex, Proc. Acad. Phila. 1891: 394. 1891.

DISTRIBUTION: Probably cosmopolitan.

ST. JOSEPH: 2 (Cocoa Centre), on extremely rotten, wet, decorticated log, 2560. ST. ANDREW: Ca. 1 mile W. of Porte-La-Fin, on decaying polypore on rotting log, 2352 (moldy).

*Cribraria microcarpa* (Schrad.) Pers. Syn. Fung., 190. 1801.

DISTRIBUTION: Probably cosmopolitan.

ST. JOSEPH: 1, on bark of large tree (? *Inga*) behind "cabana" at Clarke Hall swimming area, in moist chamber, 2846 (a reddish, slightly atypical fruiting with spores 8-10 $\mu$  in diameter and many "giant spores"); also from bark of ?leguminous tree in cacao plantation, in moist chamber, 2989a, associated with *Perichaena vermicularis* (2989b); also on bark of *Mangifera indica* L. in moist chamber, 2990; 2, on bark of *Mangifera indica* in moist chamber, 2367; on bark of rotten log, 2783 (sporangia dull orange); Macoucheri Est., ca. ½ mile inland from W. coast, on bark of indeterminate tree in moist chamber, 2365.

*Cribraria minutissima* Schw. Trans. Amer. Philos. Soc. II, 4: 260. 1832.

DISTRIBUTION: USA, South America, Europe, Asia, Dominica.

ST. JOSEPH: 1, on bark of *Cocos nucifera* L. in moist chamber, 2363 (sporangia golden yellow). ST. PATRICK: Felicite, from exposed log on beach in moist chamber, 2476a; associated with *Arcyria cinerea* (2476b).

*Cribraria tenella* Schrad. Nov. Gen. Pl., 6. 1797.

DISTRIBUTION: Cosmopolitan.

ST. DAVID: Ca. 1-1.5 miles E. of north branch of Ravine Deux Dleaus, S. of Bois Diable Ridge, elev. ca. 1,100-1,200 ft., on wet, decaying, decorticate log at edge of open, partly cleared rain forest, 3030. ST. PAUL: 7, on rotting log in banana plantation, 2831, 2833, the latter associated with *Arcyria cinerea*; free ends in net not numerous. Lister (17) describes Dominica material as having "scarcely the rudiments of a cup," mostly round nodes, and no "free rays."

*Cribraria violacea* Rex, Proc. Acad. Phila. 1891: 393. 1891.

DISTRIBUTION: Cosmopolitan.

ST. JOSEPH: 1, on bark of indeterminate tree (? *Inga*) in moist chamber, 2332a, associated with *Licea operculata* (2332b); on bark of

"Salamanda" (botanical name as yet undetermined) in moist chamber, 2593a (abundant); on bark of *Artocarpus communis* Forst. in moist chamber, 2864, teste G. W. Martin; 2, on bark of *Mangifera indica* in moist chamber, 2368 (4 sporangia); Mero, on bark of *Lagenaria siceraria* (Mol.) Standl. in moist chamber, abundant, 2595, teste G. W. Martin; associated with *Physarum nutans* (2596). ST. ANDREW: 14, on bark of *Carica papaya* in moist chamber, 2478, teste G. W. Martin (sporangia of last 2 harvests larger); on bark of *Terminalia catappa* in moist chamber, 2369. ST. PATRICK: Felicite, from exposed log on beach in moist chamber, 2475. ST. LUKE: Pointe Guignard, from wood of exposed log near beach, in moist chamber, 2860; South Chiltern House, elev. ca. 1,200 ft., on bark of indeterminate large tree with light gray, splintery, easily detachable bark, in moist chamber, 2722b, associated with *Physarum notabile* (2722a). ST. PAUL: N. of Mahaut, near Rodney's Rock, on bark of *Terminalia catappa* in moist chamber, 2855.

*Dictydium cancellatum* (Batsch) Macbr. No. Amer. Slime-Moulds, 172. 1899.

DISTRIBUTION: Cosmopolitan.

ST. JOSEPH: 1, on underside of rotting log, 2362, 2480 (both very moldy), 2674 (good); 2 (Cocoa Centre), on underside of wet, rotting log, 2551 (mostly moldy), teste G. W. Martin; 3, on top of wet, rotting log, 2616, 2902 (a beautiful specimen); Macoucheri Est.,  $\frac{1}{2}$  mile inland from W. coast, on bark of decaying, shaded log, 2061. ST. DAVID: 8, near underside of wet, rotting log, 2661. ST. GEORGE: Along trail to Trafalgar Falls, elev. ca. 1,000 ft., on wet log in shade, collected by Mrs. Clifford Evans, 2326 (3 sporangia).

*Licea operculata* (Wing.) Martin, Mycologia 34: 702. 1942.

DISTRIBUTION: USA (New England and Midwest), Panama, Europe, Japan, Dominica.

ST. JOSEPH: 1, on bark of indeterminate tree in moist chamber, 2766, determined by G. W. Martin; on bark of *Inga* sp. in moist chamber, 2859b, associated with *Physarum leucophaeum* (2859a); on bark of indeterminate tree (?*Inga*) in moist chamber, 2332b, associated with *Cribraria violacea* (2332a) (placement of this specimen into moist chamber for ca. 1 week, in May 1966, in Beltsville, Md., yielded 2 additional sporangia). ST. ANDREW: 14, on bark of *Pterocarpus officinalis* in moist chamber, 2370. ST. PAUL: Beauclair Est., ca. 0.9 mile W. of Springfield Est., elev. ca. 1,000 ft., on bark of tall, acacia-like leguminous tree in moist chamber, 2854. My identifications of this species are based on Dr. Martin's determination of 2766.

*Lycogala epidendrum* (L.) Fr. Syst. Myc. 3: 80. 1829.

DISTRIBUTION: Cosmopolitan.

ST. JOSEPH: 1, on top of shaded, moist, decorticate log, 2599; 2, on wood of rather dry, rotten log, 2226 (peridium black); 3, on

top of shaded, wet, decorticate, rotten log, 2613, 2669, 2890, 2891; 2890 resembles *L. exiguum*, but the peridial warts are not chambered (perhaps a young stage of the latter species). ST. JOHN: 4, on top of rotting log, 2977. ST. PAUL: Beauclair Est., ca. 0.9 mile W. of Springfield Est., elev. ca. 1,000 ft., on top of smooth, decorticate, rotting log, 2562.

*Lycogala exiguum* Morg. Journ. Cincinnati Soc. Nat. Hist. 15: 134. 1893.

DISTRIBUTION: Cosmopolitan.

ST. JOSEPH: 1, on rotting log, 2029; 2, on bark at top of rotting log, 2784 (blackish). ST. ANDREW: Ca. 1 mile W. of Porte-La-Fin, on log, 2353. ST. PATRICK: La Pleine (Plaisance Bay, ca. 1 mile N. of La Ronde River), on side of decorticate decaying log, 2307. ST. PAUL: 7, on side of moist, rotting log, 2697. This species seems to be more common in Dominica than in Jamaica and some other islands, where *L. epidendrum* predominates.

*Reticularia lycoperdon* Bull. Hist. Champ. France, 95. 1791.

DISTRIBUTION: Cosmopolitan.

ST. JOSEPH: 1, on exposed side near bottom of decaying log, 2033; on bark of decaying logs, 2843. ST. ANDREW: 14, near underside of fairly exposed, rotten member of log pile in clearing, 2245; and on same log, 2341. ST. GEORGE: Roseau Botanic Gardens, on side of rotting hardwood log, 2636 (small aethalium).

*Tubifera ferruginosa* (Batsch) Gmel. Syst. Nat. 2: 1472. 1791.

DISTRIBUTION: Cosmopolitan.

ST. JOHN: Northern outskirts of Portsmouth, along road to Cabrits, on decaying coconut log, 2958.

*Tubifera microsperma* (Berk. & Curt.) Martin, Mycologia 39: 461. 1947.

DISTRIBUTION: Probably cosmopolitan.

ST. JOSEPH: 3, fairly abundant on rotten log, 2911. ST. PAUL: 7, on rotting logs in banana plantation, 2825 (somewhat moldy).

## Order TRICHIALES

*Arcyria cinerea* (Bull.) Pers. Syn. Fung., 184. 1801.

DISTRIBUTION: Cosmopolitan.

ST. JOSEPH: 1, on end of decaying, wet log, 2031 (very poor), 2303. ST. PETER: 11, on underside of wet, rotting, shaded log, 2083 (digitate form). ST. ANDREW: 5, on underside of rotting log, 2589 (digitate form) and 2591 (associated with *Trichia favoginea*); on burned wood inside of hollow stump, 2625 (teste G. W. Martin); 13, on rotting debris in rain forest, 2996. This specimen, although microscopically typical of the species, manifests an unusual color variation. The sporangia are black on the outside and olivaceous yellow or drab internally, with black or iridescent, olivaceous-yellow calyculi and

long, black stalks. The globose, pale yellow spores, 7–8 $\mu$  in diameter, exhibit, under the 90 $\times$  oil-immersion objective, a faint but regular reticulation of 12–14 meshes per hemisphere. This characteristic, not mentioned for the species in any of the standard monographs, was also found in several other, authentic collections of *A. cinerea* (including the digitate form) both from the tropics and from temperate regions. ST. DAVID: 8, on underside of wet, decaying log, 2286 (digitate form); 16, on underside of moist, shaded, rotting log, 2313 (digitate form). ST. PATRICK: Felicite, in moist chamber from exposed log on beach, 2476b; in moist chamber from another log, 2984. ST. MARK: Scotts Head, on bark of indeterminate tree along beach, in moist chamber, 2988; slightly aberrant in the pale flesh color of the sporangia, and in the larger spores (8–10 $\mu$ ). ST. GEORGE: 9, in rain forest in shade, from a moist chamber in which an orange plasmodium was placed, 2366b; along trail to Trafalgar Falls, elev. ca. 1,000 ft., on underside of wet, decaying, mossy log in shade, 2329 (very poor and moldy). ST. PAUL: 6, on underside of wet, rotting log, 2203; 7, 2702 (very poor); 10, 2273 (poor), 2427.

*Arcyria denudata* (L.) Wettst. Verh. Zool.-Bot. Ges. Wien 35: Abh. 535. 1886.

DISTRIBUTION: Cosmopolitan.

ST. JOSEPH: 1, on underside of rotting log, 2359, 2361 (the latter weathered and moldy); on underside of very damp, rotting branch on ground, 2773; 3, on underside of wet, decorticate, very rotten log, 2610. ST. PETER (bordering ST. JOHN): 12, on underside of rotting logs, 2374; a weathered, chocolate-colored specimen having capillitium sculptured with nearly complete rings and some reticulate fragments. ST. ANDREW: 5, on underside of rotting log in banana plantation, 2619; 13, on wet, rotting stump in rain forest, 3000, collected as immature, brown sporangia; 14, on underside of rotting log covered by leaves, etc., 2246, 2247. ST. DAVID: 6, on rotting logs in banana plantation, 2726; 8, on underside of rotting log, 2158 (sparse) and near underside of wet, burned, decorticate, rotten log, 2656 (associated with *Hemitrichia stipitata*); on bark near underside of rotting log, 2473 (weathered); 16, on log, 2311. ST. GEORGE: 9, on underside of wet, rotting log, 2194 (sparse). ST. PAUL: 7, on underside of wet, rotting log, 2695; 2 miles NE. of Springfield Est., in pasture, elev. 1,800 ft., on underside of moist, decaying log, 2337 (sparse).

*Arcyria incarnata* (Pers.) Pers. Obs. Mycol. 1: 58. 1796.

DISTRIBUTION: Cosmopolitan.

ST. JOSEPH: 1, on underside of moist, decaying log, 2301, 2842, a pale-violet gathering with persistent patches of peridium, but with microscopic structure normal for the species; same data, 2844, a "typical" specimen; 3, on decaying herbaceous stem on rotten log, 3018. ST. JOHN: Along border between W. and E. Cabrits, elev. ca.

100 ft., on logs, 2965 (a weathered, brown, scanty, collection). ST. PAUL: 10, near underside of decaying log, 2270 (an anomalous development characterized by capillitium 6–8 $\mu$  in diameter and covered only with closely set rings, and by many "giant spores"); same data, 2275 (a bright-pink fruiting consisting of extremely long and elastic sporangia).

*Hemitrichia paragoga* Farr, Bull. Inst. Jamaica, Sci. Ser. No. 7:34. 1957.

DISTRIBUTION: Antilles (Jamaica and Dominica).

ST. PAUL: 7, on underside of wet, rotting log, 2879. Although in battered condition, this specimen can be recognized as almost certainly conspecific with the Jamaican type of the species, collected in the rain forest of the John Crow Mountains; the Dominica fruiting has larger spores (9–11 $\mu$  instead of 8–9 $\mu$ ), less spiny capillitium, and shorter tapered free ends.

*Hemitrichia serpula* (Scop.) Rost. ex List. Monog. Mycetozoa, 179. 1894.

DISTRIBUTION: Cosmopolitan.

ST. JOSEPH: 1, on bark of decaying log, 2120, 2125; 2, on underside of greatly decayed, decorticate log, 2229; on decaying coconut log near road, 2489, 2490; Macoucheri Est.,  $\frac{1}{3}$  mile inland from W. coast, on decaying, shaded branch, 2060, (1 annular plasmodiocarp). ST. JOHN: 4, on side of mossy, shaded, rotting log, 2972, associated with *H. stipitata* (2971). ST. DAVID: 8, near underside of decaying log, 2156; on roots of filmy fern on wet, decaying log, 2293; on underside of rotten log, 2461; 16, on bark on underside of rotting log, 2309, 2312. ST. PAUL: 7, on dead leaves buried in litter pile, 2826; on rotting twigs, roots, and banana debris, 2878.

*Hemitrichia stipitata* (Mass.) Macbr. No. Amer. Slime-Moulds, 207. 1899.

DISTRIBUTION: Cosmopolitan.

ST. JOSEPH: 1, on wet, decaying log, 2032 (scanty), 2121, 2123 (the latter *teste* G. W. Martin); on very wet, rotten wood, 2725 (sporangia collected in red droplet stage, mature after 2 days); 3, on decaying coconut petiole on ground, 2609. ST. PETER: 11, on wet, shaded, decaying log, 2077 (poor). ST. JOHN: 4, on exposed underside of rotting log, 2971, associated with *H. serpula* (2972). ST. ANDREW: 5, on underside of moist, rotting log, 2623. ST. ANDREW/ST. DAVID border: Pagua Bay, on burned, fairly dry, shaded, rotting log on black sand beach, 2241 (sparse). ST. DAVID: 6, on underside of wet, rotten log, 2219; 8, on bark near underside of decaying log, 2287; on wet, decaying stump, 3006 (approaching *H. clavata* by its vasselike sporangia and slightly roughened capillitium); on underside of decaying log in rain forest, 2419; Rosalie Agric. Exp. Sta., ca. 1 mile NE. of Rosalie, at junction of road to St. Sauveur, on underside of wet, rotting log, 2137. ST. PATRICK: Felicite, near mouth of Sarisari River, on protected side of burned, dry, decorticate log ca. 10 ft. from beach, 2305. ST. GEORGE: Along trail to Trafalgar Falls, elev.

ca. 1,000 ft., on underside of very moist, shaded, decaying log, 2328. ST. PAUL: 7, on underside of moist, very rotten log, 2701; 10, on very rotten, crumbling log in rain forest, 2433, *teste* G. W. Martin.

*Hemitrichia vesparium* (Batsch) Macbr. No. Amer. Slime-Moulds, 203. 1899.

DISTRIBUTION: Cosmopolitan.

ST. JOSEPH: 2 (Cocoa Centre), on decaying ?coconut log, 2549; 3, on underside of rotting log, 2614. ST. PETER: 11, on bark on underside of rotting log, 2081, 2082. ST. JOHN: 4, on wood, mossy bark, and protruding from loose bark on side of rotting log, 2976. ST. ANDREW: Pointe Baptiste, elev. ca. 100 ft., on wood, 2258. ST. PATRICK: Felicite, near mouth of Sarisari River, on rotting, moist, decorticate log in shade of *Coccoloba* grove ca. 15 ft. from beach, 2306, *teste* G. W. Martin; from exposed, rotting log near road, in moist chamber, 2633. ST. LUKE: South Chiltern House, elev. ca. 1,200 ft., on bark of *Mangifera indica* in moist chamber, 2982 (good material).

*Perichaena chryosperma* (Curr.) List. Mycetozoa, 196. 1894.

DISTRIBUTION: Cosmopolitan.

ST. PETER: 11, on bark of rotten log, 2079; with capillitium bearing long spines, and with spores 10–12 $\mu$  in diameter, subglobose to ovoid, some thinner-walled on one side. ST. PAUL: Beauclair Est., ca. 0.9 mile W. of Springfield Est., elev. ca. 1,000 ft., on underside of wet, very rotten, decorticate log, 2567.

*Perichaena depressa* Lib. Pl. Crypt., 378. 1837.

DISTRIBUTION: Cosmopolitan.

ST. JOSEPH: 3, on side of moist, rotting log, 2611; between bridge near mouth of Layou River and W. coast, on decaying coconut petioles on ground, 2501; Macoucheri Est., ca. ½ mile inland from W. coast, on bark of shaded, decaying branch, 2059; sporangia hoary, pale greenish gray, with deep-orange capillitium. ST. PETER: 11, on bark of rotten log, 2078. ST. JOHN: 4, on underside of log, 2385 (moldy), 2974. ST. ANDREW: 14, on inner bark and protruding from cracks in outer bark of rotting log, 2248, 2339, 2340. ST. DAVID: 8, on decaying rootlets of filmy fern on bark of decaying log, 2285; 16, on decorticate, decaying log, 2308.

*Perichaena minor* (G. List.) Hagelst. Mycologia 35:130. 1943.

DISTRIBUTION: North America, Great Britain, Japan, Dominica.

ST. DAVID: 8, on rotting log, 2800, sporangia stipitate to sessile; capillitium yellow.

*Perichaena vermicularis* (Schw.) Rost. Monog. Sluzowce (Mycetozoa), Append. 34. 1876.

DISTRIBUTION: Cosmopolitan.

ST. JOSEPH: 1, on bark of ?leguminous tree in moist chamber, 2989b, associated with *Cribraria microcarpa* (2989a); 2, on bark of



indeterminate tree in moist chamber, 2486, partly ruined in transit; on bark of ?*Tabebuia* sp. in moist chamber, 2853 (capillitium showing long spines).

*Trichia favoginea* (Batsch) Pers. Neues Mag. Bot. 1: 90. 1794.

DISTRIBUTION: Probably cosmopolitan.

ST. JOSEPH: 3, on rotting debris on decaying log, 2892. ST. DAVID: 8, on decaying twig on ground, 2280; on dead leaf on decaying log in rain forest, 2422 (battered); in hollow, rotten stump in freshly cut forest, 2474; on dead banana leaf, 2654; on decaying, mossy log, 2659a; on decaying, small root, 2914; 16, on bark of shaded, rotting log, 2310. ST. PAUL: 7, on underside of rotting log, 2700; 10, on decaying log, 2431. All specimens reveal elaters 5–6 $\mu$  or 6–7 $\mu$  in diameter, and spores covered with the high, sharp, complete reticulation peculiar to *T. favoginea sensu strictu*. The elaters of 2654 bear short spines, and those of 2422 have many bulbous free ends; those of the other collections are smooth, and have short-tapered apices.

### Order ECHINOSTELIALES

*Echinostelium cribrarioides* Alexop. Amer. Midl. Nat. 66: 391. 1961.

DISTRIBUTION: Greece, Dominica.

ST. JOSEPH: 1, on bark of "Salamanda" (botanical name as yet undetermined) in moist chamber, 2364, teste C. J. Alexopoulos. The sporangia differ from those of the Greek type collection in being chocolate brown rather than cream-colored, in lacking a conspicuous basal collar, and in exhibiting a denser capillitium.

*Echinostelium minutum* deBy. in Rost. Monog. Sluzowce (Mycetozoa), 215. 1874.

DISTRIBUTION: Probably cosmopolitan.

ST. JOSEPH: 1, on bark of indeterminate tree (?*Inga*) behind "cabana" at Clarke Hall swimming area, in moist chamber, 2857; Macoucheri Est., ca. ½ mile inland from W. coast, on bark of *Mangifera indica* in moist chamber, 2331 (very sparse, pinkish). ST. ANDREW: 5, on bark of *Dacryodes excelsa* in moist chamber, harvested in abundance, 2927 (nearly white). Both pink and white forms are known from Jamaica; no color is indicated for collections from Trinidad.

### Order STEMONTALES

*Clastoderma debaryanum* Blytt, Bot. Zeit. 38: 343. 1880.

DISTRIBUTION: Probably cosmopolitan.

ST. JOSEPH: 1, on underside of very damp, rotting log in shade, 2127b (mostly moldy); 3, on side of wet, rotten log, 2668. ST. DAVID: 8, on white mold on underside of very rotten, wet, decorticate log, 2421.

**Comatricha aequalis** Pk. Ann. Rep. N.Y. State Mus. 31:42. 1879.

DISTRIBUTION: North America, Europe, Antilles, Africa.

ST. ANDREW: "Hill," ca. 2 miles W. of Pagua Bay, in banana plantation, on wet twig in leaf litter, 2951. ST. PAUL: 7, on underside of moist, very rotten log and on polypore, 2698 (sporangia cocoa-colored, somewhat clavulate); on underside of wet, rotting log, 3007 (moldy); Harris Soltoun Est., ca. 1.5 miles W. of Pont Cassé, elev. ca. 1,400 ft., on wet, shaded, rotting stump near footpath in disturbed rain forest, 2657 (spores 8–10 $\mu$  in diameter).

**Comatricha elegans** (Racib.) List. Guide Brit. Mycetozoa ed. 3, 31. 1909.

DISTRIBUTION: USA, Europe, Southern Asia, Japan, Antilles.

ST. PETER (near border of ST. JOHN): 12, on bark of *Dacryodes excelsa* in moist chamber, 2632.

**Comatricha irregularis** Rex, Proc. Acad. Phila. 1891:393. 1891.

DISTRIBUTION: North and South America, Antilles, Malaya, Japan, Australia.

ST. JOSEPH: 2, on top of rotting coconut log, 2785. ST. JOHN: 4, on side of rotting log and on old polypores, 2975; near mouth of Picard River, Prince Rupert Bay, near exposed underside of rotting log, 2956. ST. DAVID: 16, on fairly dry, decaying log, 2315 (slightly aberrant).

**Comatricha longa** Pk. Ann. Rep. N.Y. State Mus. 43:70. 1890.

DISTRIBUTION: Probably cosmopolitan.

ST. JOSEPH: 2, on bark on underside of dry, decaying log, 2230, teste G. W. Martin. ST. ANDREW: 14, in swamp-woodland, pendent from old fruiting body of *Trametes corrugatus* (Pers.) Bres. (2256, det. J. A. Stevenson) growing on underside of large, very rotten, decorticate *Pterocarpus officinalis* log, 2244; on same log, 2347, det. G. W. Martin. These specimens correspond well with Lister's (17) description (quoted from the collector's letter) of early Dominica material as "on a root [,] hanging down like a goat's beard." ST. DAVID: 16, on bark of decaying log and on adjacent green leaves, 2316, 2317. ST. PAUL: 10, on log, 2278 (a large fruiting on a silvery hypothallus, ca. 2 inches in diameter, similar in color to *Stemonitis flavogenita*); 1.5 miles E. of Pont Cassé, in banana plantation, elev. ca. 1,900 ft., on rotting log, 2930.

**Comatricha subcaespitosa** Pk. Ann. Rep. N.Y. State Mus. 43:71. 1890.

DISTRIBUTION: North and South America, Europe, Dominica.

ST. DAVID: 8, on bark of rotten logs and on twigs and debris covering bark, 2290; practically completely covering a 2 $\times$ 0.5 ft. area on underside of wet, rotting log, 2918; ca. 0.5–1 mile E. of north branch of Ravine Deux Dleaux, S. of Bois Diable Ridge, elev. ca.

1,100–1,200 ft., on wet rotting log in open, partly cleared rain forest, 3028 (capillitium with brown thickenings; spores globose to ovoid, 8–10 $\mu$  in diameter, finely warted). ST. PAUL: 7, over entire underside of rotting log and on nearby fern roots, leaves, moss, etc., 3010 (mostly moldy).

*Comatricha typhoides* (Bull.) Rost. ex List. Monog. Mycetozoa, 120. 1894.

DISTRIBUTION: Cosmopolitan.

ST. JOSEPH: 1, on end of decaying log and on adjacent dead leaf, 2302; 3, on very rotten, wet log, 3020, long-stalked. ST. ANDREW: 14, on underside of very rotten, decorticate, wet *Pterocarpus officinalis* log, 2242, 2243, associated with *Arcyria denudata*. ST. DAVID: 6, on underside of wet, rotting log, 2207 (abundant but moldy); 1.5 miles S. of Castle Bruce, elev. ca. 400 ft., on underside of shaded, wet, decaying log in forest, 2172. ST. PATRICK: Felicite, near mouth of Sarisari River, on bark of *Calophyllum* (probably *C. antillanum* Britton) along road, in moist chamber, 2484.

*Diachea bulbillosa* (Berk. & Br.) List. Journ. Bot. 36:165. 1898.

DISTRIBUTION: North America, Panama, Antilles, Asia, Africa.

ST. DAVID: Ca. 1 mile N. of St. Sauveur, on underside of living *Pandanus* leaves near roadside, 2168; sporangia globose, silvery-iridescent; spores 10–14 $\mu$  in diameter. ST. PAUL: 10, on underside of dead leaves in forest litter, 2432.

*Diachea leucopodia* (Bull.) Rost. Monog. Sluzowce (Mycetozoa), 190. 1874.

DISTRIBUTION: Cosmopolitan.

ST. JOSEPH: 1, on wet, dead leaves and twigs in roadside litter pile, 2881, a fine, abundant collection; 3, on dead leaves, 2899, with spores atypically small (6–8 $\mu$  in diameter).

*Diachea silvaepluvialis* Farr (see p. 409)

*Lamproderma arcyronema* Rost. Monog. Sluzowce (Mycetozoa), 208. 1874.

DISTRIBUTION: Cosmopolitan.

ST. JOSEPH: 1, on bark of *Juniperus* sp. in moist chamber, 2849, a beautiful collection consisting of small sporangia (ca. 0.2–0.4 mm. in diameter); on bark of *Artocarpus communis* in moist chamber, 2863; 3, near underside of very rotten, wet, decorticate log, 2663; Macoucheri Est., ca. 1/3 mile inland from W. coast, on bark of *Mangifera indica* in moist chamber, 2985 (scanty but good). ST. DAVID: 8, on underside of wet, rotting log, 2802 (moldy); ca. 1 mile N. of St. Sauveur, elev. ca. 400 ft., on decaying leaf debris by rotting, roadside log, 2169 (sporangia were collected in white droplet stage and turned purple within 3–4 hrs). ST. GEORGE: 9, on bark of *Clusia plukenetii* Urb. in moist chamber, 2983a, associated with 2 sporangia of *Physarum pusillum* (2983b). ST. PAUL: 7, on dead leaf in litter pile, 2941.

**Lamproderma scintillans** (Berk. & Br.) Morg. Journ. Cincinnati Soc. Nat. Hist. 16: 131. 1894.

DISTRIBUTION: Probably cosmopolitan.

ST. JOSEPH: 1, in wet leaf litter along road, 2884; 2, in wet leaf litter along road, 2778, associated with *Didymium crustaceum* (2777). ST. PAUL: 7, on wet, rotting plant debris on ground, 2713, associated with *Didymium squamulosum* (2712); on dead leaves in litter pile, 2822 and 2829, the latter with gold-colored peridia; Brantridge Est.,  $\frac{3}{4}$  mile E. of Pont Cassé, elev. ca. 2,000 ft., on bark of decaying twig among roadside herbs, 2129 (poorly developed). In my collections as in those cited by Lister (17), the capillitium is not conspicuously paler near the columella.

**Macbrideola martinii** (Alexop. & Beneke) Alexop. Mycologia 59: 114. 1967.

DISTRIBUTION: Antilles (Jamaica, Dominica).

ST. JOSEPH: 1, on bark of large, indeterminate tree (?*Inga*) behind "cabana" at Clarke Hall swimming area, in moist chamber, 2858, teste C. J. Alexopoulos; the second find of this species, which was discovered in Jamaica.

**Stemonitis axifera** (Bull.) Macbr. No. Amer. Slime-Moulds, 120. 1899.

DISTRIBUTION: Cosmopolitan.

ST. JOSEPH: 1, near underside of shaded, decorticate, moist, rotten log, 2948, with sporangia 5 mm. tall, and spores 4–7 $\mu$  in diameter; 3, near underside of rotting log, 2895a, associated with 1 sporangium of *Physarum psittacinum* (2895b) (sporangia pale-ferruginous, 6 mm. tall, containing spores 5–6 $\mu$  in diameter); ca. 1 mile N. of Clarke Hall, elev. ca. 250 ft., on fairly dry, exposed, rotten log, 2100. ST. DAVID: 8, on wood of rotting log, 2155; 15, on rotten logs by river and in banana plantation, 2735. ST. PAUL: 2 miles NE. of Springfield Est., elev. ca. 1,800 ft., on underside of very rotten, moist log in pasture, 2338. The sporangium and spore measurements of 2948 and 2895a place these two collections on the border of *S. smithii*.

**Stemonitis smithii** Macbr. Bull. Nat. Hist. Univ. Iowa 2: 381. 1893.

DISTRIBUTION: Probably cosmopolitan.

ST. JOSEPH: 3, on rotting log, 2893. ST. PAUL: 10, on wood of rotting log, 2271, 2272; sporangia pale reddish brown, subclavulate, 3–4 mm. tall; spores 5–6 $\mu$  diameter. The numerous forms intergrading with *S. axifera* suggest that *S. smithii* may well represent a depauperate condition or diminutive form of *S. axifera* rather than a distinct species, although the possibility of two extensively hybridizing species is not ruled out.

**Stemonitis flavogenita** Jahn, Verh. Bot. Ver. Brandenburg 45: 165. 1904.

DISTRIBUTION: Probably cosmopolitan.

ST. JOSEPH: 1, near underside of rotting log, 2360. (This identification is somewhat doubtful. The surface net is rather stout and lacks

free ends, but the meshes are too small for *S. splendens*; the capillitium is strongly webbed). ST. PAUL: 4, on underside of decaying log, 2269; sporangia very slender, clustered; 7, on dead leaves in litter pile, 2944.

*Stemonitis fusca* Roth, Mag. Bot. Römer & Usteri 1<sup>2</sup>: 26. 1787.

DISTRIBUTION: Cosmopolitan.

ST. JOSEPH: 2, on bark and splinter on decaying log, 2227; 3, near underside of rotting log, 2672; on rotting plant debris and on wood, 2898; on dead leaf, 2900, partly associated with *Physarum pulcherripes* (2901) (spore markings faint); on cut end of wet, decorticate, rotting log, 3019. ST. ANDREW: Pointe Baptiste, elev. ca. 100 ft., on bark near underside of fairly exposed, damp, rotten log, 2257 (spores slightly smaller than usual); ca. 1 mile W. of Porte-La-Fin, abundant laterally on bark of rotting log, 2350. ST. DAVID: 6, near underside of rather wet, decaying log, 2133; 15, on rotten logs by river and in banana plantation, 2734; 16, on bark of decaying shaded log, 2314 (surface net weakly developed); on decorticate, rotting log, 2318. The spore markings of nos. 2734 and 2898 approach those of *S. virginiensis* Rex.

*Stemonitis herbatica* Peck, Ann. Rep. N.Y. State Mus. 26: 75. 1874.

Reported by Lister (17).

DISTRIBUTION: Probably cosmopolitan.

*Stemonitis hyperoptera* Meyl. Bull. Soc. Vaud. Sci. Nat. 52: 97. 1918.

DISTRIBUTION: North and South America, Europe, Antilles, Japan.

ST. DAVID: 8, on wet, rotten, decorticate log, 2152. ST. PAUL: 10, on bark near underside of rotting log, 2277 (spores 4–5 $\mu$ ).

*Stemonitis nigrescens* Rex, Proc. Acad. Phila. 1891: 392. 1891.

DISTRIBUTION: USA, South America, Wales, Antilles.

ST. JOSEPH: 3, on side of rotten log, 2667 (surface net large-meshed).

*Stemonitis splendens* Rost. Monog. Sluzowce (Mycetozoa), 195. 1874.

DISTRIBUTION: Cosmopolitan.

ST. JOSEPH: 1, on underside of rotting log, 2482, with meshes of surface net 8–40 $\mu$  in diameter (average 20 $\mu$ ), but mostly less than 20 $\mu$ . ST. PETER (border of St. JOHN): 12, on underside of rotten logs, 2378. ST. DAVID: Rosalie Agric. Exp. Sta., 1 mile NE. of Rosalie, near junction with road to St. Sauveur, on bark and wood of decaying branch, 2140; on fairly exposed rotting log in shade, 2321. No. 2140 consists of fuscous, stunted sporangia borne in groups of dense fascicles; however, the columellae are tortuous above, dissipating below the apex, and other microscopic characteristics likewise are typical for the species. No. 2321 is a poorly developed but interesting collection approaching *S. confluens* Cke. & Ell. ST. GEORGE: 9, on

underside of rotting log in citrus orchard, 2448; Roseau Botanic Gardens, on top of decaying hardwood log, 2635.

*Stemonitis webberi* Rex, Proc. Acad. Phila. 1891:390. 1891.

DISTRIBUTION: Probably cosmopolitan.

ST. JOHN: 4, laterally on bark of decaying log, 2970; along border between W. and E. Cabrits, elev. ca. 100 ft., on side of rotting log, 2964. ST. ANDREW: In banana plantation ca. 100 yards inland (W.) from Pagua Bay, on burned log, 2953. ST. DAVID: 15, on rotten logs, 2732, 2739; Baut Sable Bay, S. of Ravine Soudé, on shaded end of fairly exposed rotting log at S. end of black sand strip, 2319. ST. PAUL: 7, on side of exposed log at edge of banana plantation, 2942.

### Order PHYSARALES

*Badhamia affinis* Rost. Monog. Sluzowce (Mycetozoa), 143. 1874.

DISTRIBUTION: Cosmopolitan.

ST. JOHN: Along border between W. and E. Cabrits, elev. ca. 100 ft., on bark of decaying log, 2962; the specimen fits the species in all characters except for the unusual length of the stalks (up to nearly 1.5 mm.).

*Badhamia* sp. (*B. ?affinis*)

ST. JOHN: 4, on moss on rotting log, 2973. The fruiting bodies of both *Badhamia* collections are more or less completely dehisced, so that their original shapes are not clearly evident. The capillitium of no. 2962 is typical, reticulate, and the spores are blackish in mass, smoky brown with many showing a pale dehiscence line by transmitted light, globose to ovoid or ellipsoid, densely spinulose, and mostly 14–16 $\mu$  in diameter. No. 2973 fits the description of var. *orbiculata* (Rex) G. List. (19; 15), reported by Lister from Antigua and considered by Martin (20) a synonym of *B. affinis*, although it does not compare well with some authentic specimens of var. *orbiculata*. The fruiting bodies (usually only their basal halves remaining) are sessile, probably sporangiate and plasmodiocarpous, and apparently somewhat flattened, as indicated by the single layer of parallel white spikes constituting the capillitium of each; the spores are distinctly violaceous brown in mass, light brown by transmitted light, globose, spinulose, and 10–12 $\mu$  in diameter, which is below the size range generally known for *B. affinis*. Both collections are white, without any red or brown tinges even near the sporangial bases; they differ conspicuously from each other in habit, capillitium, and spore characteristics and are probably not conspecific.

*Badhamia nitens* Berk. Trans. Linn. Soc. 21:153. 1853.

Reported by Lister (17).

DISTRIBUTION: USA, Europe, Antilles, Asia, S. Africa.

*Badhamia panicea* (Fr.) Rost. in Fckl. Jahrb. Nassau Ver. Nat. 27-28: 71. 1873.

Reported by Lister (17).

DISTRIBUTION: North and South America, Europe, Dominica.

*Craterium aureum* (Schum.) Rost. Monog. Sluzowce (Mycetozoa), 124. 1874.

DISTRIBUTION: Cosmopolitan.

ST. DAVID: 8, on dead leaf in wet leaf litter at edge of freshly cut rain forest, 2913; sporangia yellow, subglobose to turbinate, with small but distinct, thickened basal cup.

*Craterium leucocephalum* (Pers.) Ditm. in Sturm, Deuts. Fl. Pilze 1: 21. 1813.

DISTRIBUTION: Cosmopolitan.

ST. JOSEPH: 3, on dead leaf in litter pile, 3017. ST. JOHN: Northern outskirts of Portsmouth, along road to Cabrits, on dead coconut leaflet in litter pile, 2957. ST. PAUL: 7, on dead banana leaf in litter pile, 2835, teste G. W. Martin.

*Diderma chondrioderma* (dBy. & Rost.) G. List. in List. Monog. Mycetozoa ed. 3: 258. 1925.

DISTRIBUTION: USA (Western and Midwestern), Europe, Asia, Dominica.

ST. PAUL: 10, on decaying log, 2428; fructification sessile, consisting of several sporangia and 1 elongated plasmodiocarp; capillitium mostly slender.

*Diderma effusum* (Schw.) Morg. Journ. Cincinnati Soc. Nat. Hist. 16: 155. 1894.

DISTRIBUTION: Cosmopolitan.

ST. JOSEPH: 1, on dead coconut leaf sheath still attached to young plant, 2758; 2, in moss on deeply shaded, decaying log, 2228. ST. LUKE: South Chiltern House, elev. ca. 1,200 ft., on bark of *Calophyllum* sp. in moist chamber, 2981. ST. DAVID: 8, on leaf, twig, and rotten log, 2160; on bark of decaying twig, 2417; on dead leaves, 2424; on decaying banana sheath, 2466; on living fern leaf and dead phanerogamic leaf, 2658; and on decaying, mossy log, 2659b, associated with *Trichia favoginea* (2659a); on living moss and small leaves on rotten log, 2747 (poor); no. 2160 consists of extensive, sheetlike, perforated plasmodiocarps. ST. PAUL: 7, around base of living banana plant and on nearby rotting debris, 2696.

*Diderma hemisphaericum* (Bull.) Hornem. Fl. Dan. 33: 13. 1829.

DISTRIBUTION: Cosmopolitan.

ST. JOSEPH: 1, on decaying bamboo cane and on dead leaves in wet litter pile along road, 2880; on dead leaf, 2950; 2, on dead leaf in wet litter pile near road, 2780. ST. GEORGE: 9, from moist chamber containing a ± orange plasmodium in leaf litter, 2366a, associated with *Arcyria cinerea* (2366b). The identity of the plasmodium was not ascertainable; Martin (1949) reports white or nearly white plasmodia

for both the *Diderma* and the *Arcyria*. ST. PAUL: 7, on rotting plant debris on ground, 2711; on dead leaves in litter pile, 2827.

*Diderma rugosum* (Rex) Macbr. N. Amer. Slime-Moulds, 105. 1899.

Reported by Lister (17).

DISTRIBUTION: USA (Eastern and Midwestern), Europe, Antilles, Asia.

*Diderma spumarioides* (Fr.) Fr. Syst. Mycol. 3:104. 1829.

DISTRIBUTION: Cosmopolitan.

ST. DAVID: 8, on living herbaceous leaves among debris on ground, 2284; peridium areolate; spores unevenly warty, 9–11 $\mu$  in diameter. These traits agree essentially with Lister's (17) description of Dominica material.

*Didymium clavus* (Alb. & Schw.) Rab. Deuts. Krypt. Fl. 1:280. 1844.

DISTRIBUTION: Cosmopolitan.

ST. ANDREW: "Hill," SW. of Pagua Bay, elev. ca. 700 ft., on underside of rotting log in banana plantation, 3004; sporangia single and discoid, or fused in groups of 2–4, with stalks remaining distinct. ST. DAVID: 8, on underside of wet, rotten log, 2546 (sporangia widely scattered). ST. PAUL: 7, on bark of rotting log, 2832.

*Didymium comatum* (List.) Nann.-Bremek. Proc. Nederl. Akad. Wetens. Ser. C, 69:361. 1966.

DISTRIBUTION: North America (Pa., Que.), Great Britain, Japan, Dominica.

ST. PAUL: 7, on dead leaf in litter pile, 2830; a well-developed collection consisting of sporangia and plasmodiocarps and exhibiting the characteristic elastic capillitium and spore markings described by Nannenga-Bremekamp.

*Didymium crustaceum* Fr. Syst. Mycol. 3:124. 1829.

DISTRIBUTION: North and South America, Europe, Antilles, Hawaii, Japan.

ST. JOSEPH: 2, in wet roadside litter pile, 2777, associated with *Lamproderma scintillans* (2778). Spores dark brown, densely and prominently spinulose, 10–14 $\mu$  in diameter; outer peridial crust almost completely disappeared, perhaps because of the wet environment; inner peridium loosely covered with yellowish lime crystals; columellae large, whitish or yellow, apparently formed by the strongly invaginated sporangial bases.

*Didymium difforme* (Pers.) Gray, Nat. Arr. British Pl. 1:571. 1821.

DISTRIBUTION: North and South America, Europe, Antilles, Japan.

ST. JOSEPH: 3, on leaf litter and rotting banana debris on ground, 2665b, associated with *D. squamulosum* (2665a).



*Didymium intermedium* Schroet. in P. Henn. Hedwigia 35:209. 1896.

DISTRIBUTION: USA (Mo.), Central and South America, Antilles, Japan.

ST. ANDREW: 13, on very wet, rotting log in rain forest, 2999; sporangia white, fascicled; stalks straw-colored.

*Didymium iridis* (Ditm.) Fr. Syst. Mycol. 3:120. 1829.

DISTRIBUTION: Cosmopolitan.

ST. JOSEPH: 1, on living and dead leaves and stems lying among decaying cacao fruit on ground, 2763 (see comments under *D. nigripes*); slightly E. of Coulibistri, on outer surface of cacao fruit and on large pebble inside, 2097 (a poorly developed fruiting with prominent, globose, whitish columellae). ST. PETER (border of ST. JOHN): 12, on dead leaf buried in litter, 2373 (poor). ST. PAUL: 10, on bark of *Cecropia peltata* L. in moist chamber, 2769; fruited on bark, filter paper, and glass.

*Didymium minus* (List.) Morg. Journ. Cincinnati Soc. Nat. Hist. 16:145. 1894.

DISTRIBUTION: Cosmopolitan.

ST. DAVID: 8, on living banana plant, 2801a (sporangia stipitate to sessile).

*Didymium nigripes* (Lk.) Fr. Syst. Mycol. 3:119. 1829.

DISTRIBUTION: Cosmopolitan.

ST. JOSEPH: 1, on living and dead leaves and stems among decaying cacao fruits on ground, 2761. ST. ANDREW: 13, on dead leaf in litter pile at edge of rain forest, 2997; sporangia nearly limeless; spores very unevenly warted, as in *Fig. 102g* of Lister (19). ST. DAVID: 8, on dead leaf sheath, 2154; on living and decaying banana sheaths on ground, 2291b, abundant; on dead moss and leaves, 2425 (poor); on dead leaf, 2471; on underside of basidiocarp of *Hymenochaete* (2532; probably *H. berkeleyana* [Mont.] Cke., fide P. L. Lentz), 2541 (very poor); on living leaves of *Carludovica plumieri* Kth., 2653; on living petiole of *Colocasia* sp., 2744; on living banana plant, 2801b; on rotting leaf litter, 2928 (spores 10 $\mu$  in diameter). ST. GEORGE: 9, on living leaves of small, shaded herb, 2193. ST. PAUL: 7, on dead leaf on ground, 2704, on dead grass leaf in debris pile, 2707. Nos. 2763 (*D. iridis*) and 2761 were growing together; they are similar in microscopic structure and macroscopically as well, except that the former specimen has pale stalks and white columellae; the latter collection exhibits dark columellae and stalks darker than those of 2763, but sometimes becoming translucent in the upper portion. Dr. Martin, who examined and discussed (personal correspondence) 2763, 2761, and 2801b, believes that these stalk variations may be governed by different maturation rates. He also found the spores of 2 adjacent sporangia of no. 2801b to differ in color and size, those of 1 sporangium

being 8–9 $\mu$  and dark, and those of the other, 10–11 $\mu$  and much paler.

The relationship between *D. iridis* and *D. nigripes* is still controversial. Laboratory culture work tends to support the existence of 2 distinct species (C. J. Alexopoulos, G. W. Martin, personal communications), but field collections provide numerous connecting forms. These may represent another example of 2 strongly hybridizing species.

**Didymium squamulosum** (Alb. & Schw.) Fr. Symb. Gast. 19. 1818.

DISTRIBUTION: Cosmopolitan.

ST. JOSEPH: 1, on wet, dead leaves piled by roadside, 2883, 2885, 2887, 2889; 2 (Cocoa Centre), on wet, decaying coconut leaflet on ground, 2550 (sparse); on dead banana leaf, 2774; on wet, dead leaves by roadside, 2775, associated with *Physarum melleum* (2776), and 2779; 3, on leaf litter and rotting banana debris on ground, 2665a, associated with *Didymium difforme* (2665b); on dead leaf, 2894. ST. ANDREW: 5, on rotting banana leaf on ground, 2617 (malformed). ST. DAVID: 8, on decaying twig and dead banana leaf, 2651; on rotting banana debris, 2796; in rain forest leaf litter, 2932. ST. PAUL: 7, on rotting banana leaves on ground, 2705, 2706, 2712, associated with *Lamproderma scintillans* (2713); on leaf litter, 2828; in piles of decaying banana leaves, 2874. This species occurs in two distinct phases. Nos. 2828, 2883, 2887–2889, 2550, 2775, and 2932 are characterized by globose sporangia covered by a powdery lime coating, and globose or somewhat depressed columellae; the remaining specimens exhibit discoid sporangia with strongly rugose peridia, and flat white columellae. No. 2894 has globose sporangia, but with strongly rugulose peridial lime; the columellae are formed by the deeply umbilicate sporangium bases. This exceedingly variable species appears to be much more common on this island than in Jamaica.

**Fuligo cinerea** (Schw.) Morg. Journ. Cincinnati Soc. Nat. Hist. 19:33. 1896.

DISTRIBUTION: Cosmopolitan.

ST. JOSEPH: Slightly E. of Coulibistri, on rind and inside of decaying cacao fruit, 2096. ST. GEORGE: Chapara Est. (near road junction), S. corner of parish, elev. ca. 1,550 ft., on rotting fruit of *Artocarpus* sp. (*A. ?communis*) on ground, in moist chamber, 2767; the plasmodium turned from tan through pinkish to white before fruiting.

**Fuligo septica** (L.) G. H. Weber in Wiggers, Prim. Fl. Holsat., 112. 1780.

DISTRIBUTION: Cosmopolitan.

ST. JOSEPH: 2, on decaying coconut logs, 2493–2496; 2493 with more or less cream-colored cortex, others with rust-colored cortex and yellow capillitial lime; 2 (Cocoa Centre), on side of rotting log, 2548, brown and largely moldy. ST. JOHN: 4, on top of rotting log, 2969; aethalium salmon-colored with darker or yellow margin. ST. ANDREW: 5, around thin herbaceous stems and roots hanging from underside

of rotten log, 2588 (reported from rootlets of higher plants also by Duss, 8); aethalia pale tan or orange. ST. DAVID: 8, on roots and on very rotten wood and debris in open, hollow stump, 2655, with bright yellow, thick, rugose but fragile cortex and abundant, somewhat elastic, yellow capillitium; on wet, rotting log in disturbed rain forest, in somewhat open spot near trail, 2804, resembling 2655 and associated with *Physarum pulcherripes* (2803); on top of rotting log, 2933; a large fructification (ca. 3.5×2.5 inches) with cortex salmon-colored above, yellow below. ST. GEORGE: Roseau Botanic Gardens, on decaying hardwood log, 2634; Chapara Est., S. corner of parish, near road junction, elev. ca. 1,550 ft., in banana plantation by creek, girdling decaying stem of *Bambusa vulgaris* Schrad. 3-5 inches above root crown, and on stem of woody vine, 2444; a poorly developed, whitish specimen covered with a nectriaceous fungus. ST. PAUL: 1.5 miles E. of Pont Cassé, elev. ca. 1,800 ft., on top of rotten log in rain forest, 2111; cortex hard, light brown. The brilliant yellow color and, especially, the more or less strongly elastic capillitium, of nos. 2655 and 2804, bring to mind *Erionema aureum* Penz. Lister (17) reports 1 yellow aethalium of *F. septica*.

*Physarella oblonga* (Berk. & Curt.) Morg. Journ. Cincinnati Soc. Nat. Hist. 19: 7. 1896.

DISTRIBUTION: Cosmopolitan.

ST. JOSEPH: 1, near underside of decaying coconut log among moss and living leaves, 2759 (possibly polyploid, since the sporangia are almost twice the normal size with correspondingly thick stipes; microscopic features are typical in size and appearance); 2 (Cocoa Centre), on underside of rotten logs, collected as yellow plasmodium, fruited 16 days later, 2765; 3, on underside of rotting log, 2615. ST. PETER: 11, on underside of wet, rotten, shaded log, 2080. ST. DAVID: 8, on underside of wet, rotting log, 2146, *teste* G. W. Martin, 2512 (a freshly formed fruiting in excellent condition). ST. PAUL: 7, on underside of wet, rotting logs, collected as yellow plasmodium, fruited in moist chamber, 2865 (a beautiful, abundant collection).

*Physarum aeneum* (List.) R. E. Fr. Ark. Bot. 1: 62. 1903.

DISTRIBUTION: USA (Eastern and Midwestern), South America, Antilles, Hawaii, Asia.

ST. DAVID: 8, near base of living banana plant, 2416; plasmodiocarps brown, with iridescent inner peridium; capillitium whitish. ST. PAUL: 7, on dead leaves in litter pile, 2836, 2877, 2945, 2946.

*Physarum auriscalpium* Cke. Ann. Lyc. N.Y. 11: 384. 1877.

DISTRIBUTION: USA, South America, Antilles.

ST. JOSEPH: Macoucheri Est., ca. ½ mile inland from W. coast, on bark of *Mangifera indica* in moist chamber, 2483; spores 11-14 $\mu$  in diameter, densely spinulose. ST. DAVID: 8, on decaying banana

sheath, 2469. ST. LUKE: Pointe Guignard, on wood from exposed log near beach, in moist chamber, 2861 (fruiting abundantly on wood, filter paper, and glass).

**Physarum bogoriense** Racib. Hedwigia 37: 52. Feb. 18, 1898.

DISTRIBUTION: Probably cosmopolitan; pantropical.

ST. DAVID: 8, on decaying twigs and leaf sheaths, 2283; on decaying leaf, 2291a, associated with *Didymium nigripes* (2291b); 2426 (with *Didymium nigripes* sporangia growing on some plasmodiocarps); on base of living banana plant, 2660; on dead banana leaf, 2743; on dead leaf in rain forest, 2794. ST. PAUL: 7, on dead banana leaf, 2709; on dead leaf, 2820; in pile of wet, dead leaves, 3011. All collections appear typical for the species, but Lister (17) reports sporangial color variations from reddish brown to buff, bright yellow, or nearly white.

**Physarum bubalinum** Farr (see p. 412).

**Physarum cinereum** (Batsch) Pers. Neues Mag. Bot. 1: 89. 1794.

DISTRIBUTION: Cosmopolitan.

ST. JOSEPH: 2, on living and dead leaves and stems buried in debris pile in cacao-banana plantation, 2786; N. side of Brook Hill Est., behind Clarke Hall, on living *Paspalum conjugatum* Berg. leaves, collected by J. L. Cunningham 66-393-D, det. M. L. Farr. ST. DAVID: 8, on living banana plant, 2795. ST. PAUL: 7, in pile of decaying leaves, 2824.

**Physarum compressum** Alb. & Schw. Consp. Fungi, 97. 1805.

DISTRIBUTION: Cosmopolitan.

ST. JOSEPH: 1, inside decaying cacao fruit, 2030; on and in decaying cacao fruits and on dead leaf, 2102; 2126 (sporangia liquid when collected, ripened in collecting basket); 2760; the last 3 collections represent the convolute form. 2, on dead leaf in debris pile, 2787; 3, on decaying leaf on rotten log, 2666; on moss on moist, rotting log, 2671 (sporangia fused in fascicles of 2 or 3); slightly E. of Coulibistri, in and on moist, shaded, decayed cacao fruits and on dead leaf, collected C. and B. Evans and M. L. Farr, 2098, 2099; spores of the latter specimen, cultured in the laboratory by C. J. Alexopoulos, yielded clustered, sessile, contorted and lobed (sometimes partly immature) fructifications which, upon subculture by Charles Mims, produced a crop of individual sporangia typical for *P. compressum*. ST. ANDREW: 13, on dead leaf in rain forest, 2993 (a depauperate voucher specimen). ST. DAVID: 8, on decaying plant fibers, 2418; on wet, dead leaf and twig, 2543 (convoluted form similar to 2126); on dead banana leaf, 2748; 6, on stalk of decaying banana inflorescence, 2727; 15, on dead leaf and rotting twig, 2733 (both 2727 and 2733 contain more or less typical sporangia mixed with fascicled and

convoluted fruit bodies); ca. 1 mile N. of St. Sauveur, on decaying leaf debris by rotting roadside log, 2167. ST. PAUL: 10, on decaying plant debris, 2279 (considered by Dr. Martin as an "excellent example of the species"). An early collection of this species reported by Lister (17) consisted of "compressed simple or lobed sporangia on gray stalks."

*Physarum didermoides* (Pers.) Rost. Monog. Sluzowce (Mycetozoa), 97. 1874.

DISTRIBUTION: Cosmopolitan.

ST. DAVID: 8, on decaying filmy fern debris on rotting log, 2420; on living filmy fern and associated leaf litter on rotting log, 2467, 2468; on tree fern roots and debris on wet, rotting log, 2662.

*Physarum echinosporum* List. Journ. Bot. 37:147. 1899.

DISTRIBUTION: Antilles, Indonesia.

ST. JOSEPH: 1, on dead leaves in wet litter pile along road, 2882, 2949.

*Physarum galbeum* Wing. ex Macbr. No. Amer. Slime-Moulds, 53. 1899.

DISTRIBUTION: North and South America, Europe, Antilles.

ST. DAVID: 8, near underside of moist, very rotten log, 2652; a good, fairly typical specimen with bright yellow, globose sporangia, floriform dehiscence, and capillitium containing numerous elongated and branching yellow lime knots. Two additional fruitings observed—a bright yellow one from St. DAVID and one with orange stalks from ST. PETER—were too dilapidated to retain.

*Physarum lateritium* (Berk. & Rav.) Morg. Journ. Cincinnati Soc. Nat. Hist. 19:23. 1896.

DISTRIBUTION: North and South America, Europe, Antilles, Asia, Hawaii.

ST. PAUL: 7, on dead leaf in litter pile, 2947; a rather battered fructification containing mostly sessile sporangia with limeless, iridescent peridia enclosing capillitium fading from bright orange to pale yellowish, and spores 9–10 $\mu$  in diameter, finely warted, with clusters of more prominent warts.

*Physarum leucophaeum* Fr. Symb. Gast., 24. 1818.

DISTRIBUTION: North and South America, Europe, Antilles, New Zealand.

ST. JOSEPH: 1, on bark of *Inga* sp. in moist chamber, 2859a, associated with *Licea operculata* (2859b) (stalks dingy-yellowish). ST. MARK: Summit of Scotts Head, elev. ca. 100 ft., on bark of *Tabebuia pallida* (Lindl.) Miers in moist chamber, 2862 (somewhat abnormal). ST. LUKE: South Chiltern House, elev. ca. 1,200 ft., on bark of *Mangifera indica* in moist chamber, 2723 (spores slightly atypical, 10–14 $\mu$ , spinulose).

**Physarum ?leucopus** Lk. Ges. Nat. Freunde Berlin Mag. 3: 27. 1809.

DISTRIBUTION: Cosmopolitan.

ST. PETER: Summit of Morne Diablotins (end of 2d ridge), elev. ca. 4,700 ft., on stem of *Lobelia stricta* in moist chamber, 3033a; fruited somewhat abnormally on glass, destroyed during transit. This species is known from the Blue Mountains and Port Royal Mountains in Jamaica and apparently prefers the more temperate environments. The Dominica record must be regarded as uncertain for the present.

**Physarum melleum** (Berk. & Br.) Mass. Monog. Myxogastres, 278. 1892.

DISTRIBUTION: Cosmopolitan.

ST. JOSEPH: 1, on decaying twigs among rotting cacao fruits, 2762; on dead leaves, 2886 (a depauperate fruiting partly associated with *Didymium iridis*); 2, on dead leaves, 2776, associated with *Didymium squamulosum* (2775); 3, on dead leaf, 2896, teste G. W. Martin (stalks tawny to dark yellow, peridia dark yellow); 2897, (stalks white). ST. ANDREW: 13, on dead leaf on rain forest floor, 2995. ST. DAVID: 8, on decaying, wet banana leaf after 4 days of continuous rain, 2509; on decaying log, 2798 (resembling 3026); among moss on side of rotting log, 2929; near north branch of Ravine Deux Dleaus, S. of Bois Diable Ridge, elev. ca. 1,100-1,200 ft., on dead leaf in litter pile in banana plantation, 3026, 3027; both with whitish, slightly turbinate sporangia and strongly developed, white columellae. ST. PATRICK: Laronde, on bark of indeterminate tree in moist chamber, 3034 (fruited on glass). ST. PAUL: 7, on dead leaves in litter pile, 2837, teste G. W. Martin (a specimen with well-developed columellae and, often, additional lime aggregations in the center of the sporangia); in piles of decaying banana litter, 2875, 2876. This species displayed considerable variation in sporangial color and shape and in development of columella, as also noted by Lister (17) for Antiguan material.

**Physarum notabile** Macbr. No. Amer. Slime-Moulds ed. 2, 80. 1922.

DISTRIBUTION: North and South America, Europe, Antilles.

ST. LUKE: South Chiltern House, elev. ca. 1,200 ft., on bark of indeterminate tree in moist chamber, 2722a.

**Physarum nucleatum** Rex, Proc. Acad. Phila. 1891:389. 1891.

DISTRIBUTION: Pantropical; probably cosmopolitan.

ST. JOSEPH: 3, near underside of wet, decorticate, rotten log, 2612; 2670; on underside of wet rotting log and on adjacent living weeds, 3021, very abundant. ST. PETER (bordering St. JOHN): 12, on underside of rotting logs, 2375, 2377; on decaying small roots, 2376. ST. ANDREW: 5, 2587, (a very moldy voucher specimen). ST. DAVID: 8, on upper side of wet, decaying log, 2149; on decaying twig, 2157; on inner bark near top of decaying log, 2472; on loose inner bark of decaying twig, 2544; on rotting plant debris on decayed log, 2746; on wet, rotting log, 2917, 2931. ST. PAUL: 7, on living leaf and adja-

cent debris and on part of rotting log, 2943; 10, on wood of decaying twig, 2274; on decorticate, rotten log, 2429, 2430. This species occurred on the island in 2 forms: (a) typical delicate sporangia with globose, white pseudocolumellae which, however, readily fell out of the dehisced sporangia; (b) a robust (?polyploid) variant, represented by specimens 2149, 2274, 2376, 2429, 2430, and 2746. Although of the same structure and color as typical material, the robust fruitings were much larger, lacked pseudocolumellae, but exhibited an abundant capillitium with numerous, large, rounded, white lime nodes.

*Physarum nutans* Pers. Ann. Bot. Usteri 15:6. 1795.

DISTRIBUTION: Cosmopolitan.

ST. JOSEPH: Mero, on bark of *Lagenaria siceraria* in moist chamber, 2596, associated with *Cribraria violacea* (2595); spores 9–12 $\mu$  in diameter. ST. DAVID: 8, on underside of decaying log, 2423, abundant but more or less moldy; after 4 days of continuous rain, 2511 (limeless); on bark of rotting log, 2799; 6, near underside of moist, decaying log, 2134. ST. PAUL: 10, on rotting twig, 2276 (battered).

*Physarum oblatum* Macbr. Bull. Nat. Hist. Univ. Iowa 2:384. 1893.

DISTRIBUTION: Cosmopolitan.

ST. JOSEPH: 2, on decaying coconut log, 2491 (faded).

*Physarum penetrale* Rex, Proc. Acad. Phila. 1891:389. 1891.

DISTRIBUTION: North America, Europe, Antilles, Asia, Africa.

ST. DAVID: 6, on rotting log, 2205; sporangia subovoid, yellow, with very delicate, orange stalks.

*Physarum polycephalum* Schw. Schr. Natur. Ges. Leipzig 1:63. 1822.

DISTRIBUTION: Cosmopolitan.

ST. ANDREW: 5, on underside of rotting log in roadside banana plantation, 2618; Porte-La-Fin, on bark near underside of rotting log, 2349, an abundant fruiting. ST. PAUL: 7, on dead leaf on ground 2834; on dead leaves, stems, etc. in litter pile, 2838, 2839 (abundant). The capillitium of 2834 strongly suggests *P. rigidum* (G. List.) G. List. Nos. 2349, 2834, and 2839 consist of unfused sporangia and represent "var. *obrusseum* (Berk. & Curt.) List."; no. 2838, as noted by Dr. Martin, contains fused as well as simple sporangia. Dr. Alexopoulos obtained typical *P. polycephalum* fruitings from laboratory cultures of 2349 (private communication). This evidence obviously refutes previous recognition by several investigators (including me) of the variety *obrusseum*.

*Physarum psittacinum* Ditm. in Sturm, Deuts. Fl. Pilze 1:125. 1817.

DISTRIBUTION: USA, Europe, Japan, Dominica.

ST. JOSEPH: 3, near underside of rotting log, 2895b (1 sporangium, associated with *Stemonitis axifera* [2895a]). ST. DAVID: 8, on underside of decaying, moist log, 2147, 2148; on end of wet, rotting log in

somewhat open spot in rain forest, 2803, associated with *Fuligo septica* (2804). The sporangia of 2147 are globose, rusty orange, sometimes limeless and iridescent near the base; the stalks are limeless, red or orange brown; the peridial lime scales are orange and the capillitial lime, orange to whitish; 2148 is a moldy specimen having yellowish inner capillitial lime nodes, dark brown stalks, and brownish-iridescent peridia with red lime scales. No. 2803 is a collection intermediate between *P. psittacinum* and *P. pulcherripes*. Dr. Martin favors the latter identification, but, after restudying the BPI specimen (which is more plentiful and in better condition than the IA duplicate), I am inclined to place it tentatively in *P. psittacinum* because of the red stipes which are not calcareous throughout, but often partly covered with a thin layer of lime, and because of the rather large, angular lime nodes of the capillitium. Columellae, furthermore, appear to be lacking, but this is true also of Dominica collections considered to be *P. pulcherripes*. The yellow lime of this specimen imparts an atypically pale aspect to the sporangia, but this may be due to fading.

**Physarum pulcherripes** Pk. Bull. Buffalo Soc. Nat. Sci. 1: 64. July 1873.

DISTRIBUTION: North America, Panama, Ireland, Dominica.

ST. JOSEPH: 3, on decaying, decorticate log and dead leaf, 2901, partly associated with *Stemonitis fusca* (2900); an abundant, well developed fruiting with yellow, calcareous stalks and deep golden- or rust-colored peridia. ST. DAVID: 6, on rotting log, 2204. ST. PAUL: 7, on underside of wet, rotting log, collected as big, yellow, "knotty" plasmodium, 2772. This species appears to be closely allied to *P. psittacinum*, differing from the latter (according to the standard monographs) by having calcareous stalks slightly prolonged inside the sporangial bases into short columellae, and small, rounded (rather than large, angular) capillitial nodes. Both species appear to be capable of considerable color variation, as judged from material examined. Since the spores of the 2 species are similar and since no columellae were found in any Dominica collections cited, stalk and capillitium traits were the diagnostic features most strongly relied on. A comparison with part of the type of *P. pulcherripes* revealed that the capillitia of the latter collection and of all Dominica gatherings are identical, but also that all contain numerous angular nodes of various sizes. The stalks of the type are strongly rugulose, bright orange, and calcareous in the upper half, but smoother, brown, and limeless in the lower; those of nos. 2772 and 2901 have strongly rugulose, yellow or whitish, calcareous portions, and slightly slimmer, smoother, brown, limeless sections; the latter may be apical, basal, or both. No. 2204, a rather battered collection, has nearly limeless stalks. In all specimens the calcareous and noncalcareous sections of most stalks are sharply delimited.



**Physarum pusillum** (B. & C.) G. List. in Lister, Monog. Mycetozoa ed. 2, 64. 1911.

DISTRIBUTION: Cosmopolitan.

ST. JOSEPH: 1, on bark of *Delonix regia* (Boj.) Raf. in front of Clarke Hall annex, in moist chamber, 2235; on bark of *Juniperus* sp. next to Clarke Hall (main bldg.), in moist chamber, 2721 (capillitium scanty); 2771, an improperly matured field collection. ST. GEORGE: 9, on bark of *Clusia plukenetii* in moist chamber, 2983b, associated with *Lamproderma arcyronema* (2983a).

**Physarum roseum** Berk. & Br. Journ. Linn. Soc. 14: 84. 1873.

DISTRIBUTION: Florida, Brazil, Antilles, Africa, Asia, Oceanica.

ST. DAVID: 1-1.5 miles E. of north branch of Ravine Deux Dleaus, S. of Bois Diable Ridge, elev. 1,100-1,200 ft., among moss on side of rotting stump at edge of partly cleared rain forest, 3029 (a very poor, moldy, but distinctly recognizable specimen).

**Physarum rubiginosum** Fr. Symb. Gast., 21. 1817.

DISTRIBUTION: USA, Europe, Antilles.

ST. PETER: 11, on bark of fallen branch, 2076; a very small fructification consisting of short-stipitate sporangia and a small plasmodiocarp with deep orange lime scales on the peridium and white capillitial lime; tentatively identified by C. J. Alexopoulos and also by T. Brooks.

**Physarum stellatum** (Mass.) Martin, Mycologia 39: 461. 1947.

DISTRIBUTION: North and South America, Antilles, Africa, Asia; probably pantropical.

ST. PETER: 12, on rotting log in rain forest, collected by G. Brooks, 2383 (moldy). ST. DAVID: 6, on underside of decaying, wet log, 2206 (good, abundant material). ST. PAUL: 7, on underside of mossy, rotten log, 2699 (with large pseudocolumellae); on decaying roots and other plant debris on ground, 2710; 10, on underside of moist, decaying log, 2268a (a large fruiting).

**Physarum tenerum** Rex, Proc. Acad. Phila. 1890: 192. 1890.

DISTRIBUTION: Cosmopolitan.

ST. ANDREW: 14, on rotting log in swamp-woodland, 2249, collected as yellow plasmodium. ST. DAVID: 8, on very rotten log, 2445; collected as yellow "knotty" plasmodium, ripened overnight in moist chamber. ST. PAUL: 7, on side of wet, rotting log, 2703; stalks bright orange in 2445 and 2703. Nos. 2249, 2703, (and 2170, a depauperate collection from ST. DAVID, which was later discarded) are of doubtful affinity. Although these collections fit *P. tenerum* in every other respect, their stalks are limeless; 2703, furthermore, has globose pseudocolumellae similar to those of *P. stellatum*, but yellow; 2249, while lacking pseudocolumellae, shows enlarged or massive lime nodes in the center of the sporangia. The presence or absence of lime in the stalk has generally

been considered a reliable diagnostic character and is often used to separate species in this genus; a number of authentic collections examined (including the type) of *P. tenerum* all had calcareous stipes. Since, in general appearance, debiscence, capillitium, and spores, the Dominica specimens are indistinguishable from typical members of this species, they are filed here until more is known about the significance and stability of lime content in the stalks.

**Physarum viride** (Bull.) Pers. Ann. Bot. Usteri 15: 6. 1795.

DISTRIBUTION: Cosmopolitan.

ST. JOSEPH: 2 (Cocoa Centre), near underside of rotting log, 2598, *teste* G. W. Martin (sporangia deep yellow). ST. PETER (bordering ST. JOHN): 12, on bark of *Dacryodes excelsa* in moist chamber, 2845. ST. ANDREW: 5, on bark of *Dacryodes excelsa* in moist chamber, 2856 (largely moldy). ST. DAVID: 8, on bark near underside of wet, rotting log, 2159 (a beautiful, deep orange fructification with concolorous stalks); 2161, collected as yellow plasmodium, which produced, by the next day, ripe, globose, nodding, yellow-orange sporangia with small, limeless basal discs and orange stalks; 2542 and 2545, with same coloration as 2161, collected in slightly immature state. ST. GEORGE: 9, in moist chamber from plasmodium in rotten wood, 2764a.

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