# Slime Molds: Is this a First?

By Christopher Dahle BU 1269

When I first saw the stamps I thought for sure it was first. Belarus issued a set of three stamps on April 6, 2020 of colorful globules on a slim stalk with a dark background (Scott #1173-1175a). But I was wrong. Previously, the Comoro Islands had issued a stamp with a Slime Mold, Scott #811 in 1994 (Figure 1). The miniature sheet of 9 included flowers, fruit fungi and *Lycogala epidendrum*, Wolf's Milk Slime, a slime mold.

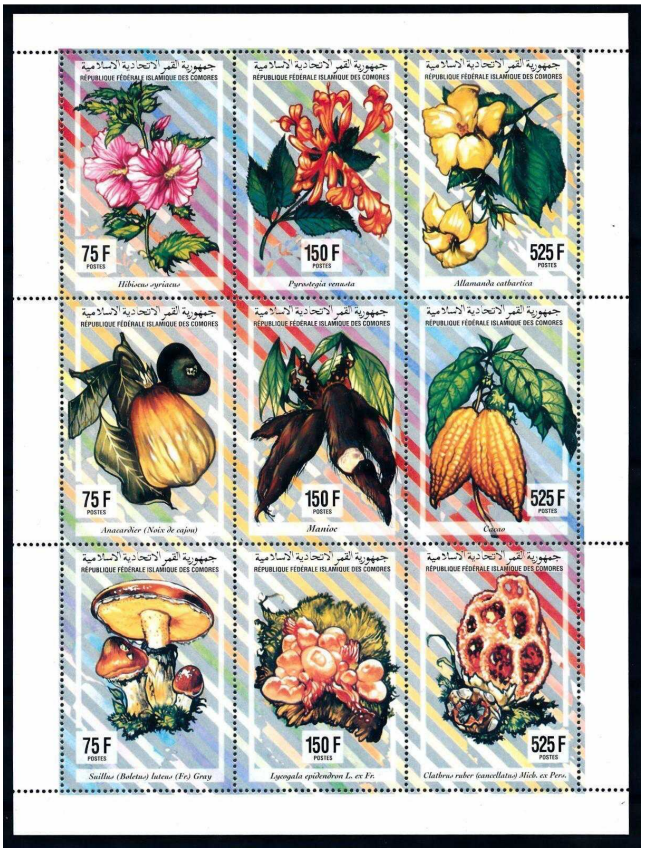


Figure 1: *Lycogala epidendrum* on Comoro Islands Scott #811. The 150 F stamp is at the bottom of the center column of the minisheet.

Slim molds are strange organisms. They are classified in the kingdom Protista because they have characteristics that do not fit the animal or plant kingdoms. They are eukaryotes because they have a cell membrane, nucleus and organelles. There are three kinds of slime molds. The plasmodium form, Myxomycetes, has acellular cytoplasm with thousands of nuclei which are haploid. Plasmodia move, slowly, at 1.35 mm per second, and can become quite large, up to 30 cm in diameter and 3-5 cm thick. There are 888 known species. A second group, Dictyostelids, is cellular, amoeboid in nature with a single nucleus, that aggregates with chemical stimuli. This is a much smaller group with only 89 species. The Protostelids are also amoeboid with only 45 species known.. All three types engulf bacteria for food and form fruiting bodies called sporocarps. Sporocarps are only millimeters in diameter and the stalks, or stipes have millimeter dimensions. Fruiting bodies can be globular, plumed or other shapes. They can be solitary or clustered. The spores produced contain cellulose, unlike fungi which produce similar spore producing bodies. Spores from different mating strains germinate and fuse creating a diploid zygote, which undergoes nuclear division to form a multinucleate plasmodium. Under adverse conditions they form macrocysts in a structure called a sclerotium.


Figure 2: *Lycogala epidendrum* Scott #811f

Slime molds are generally cosmopolitan though some are restricted to tropical, subtropical or temperate areas. They are found in rotting vegetation and dung. Identification is usually made by collecting in the field and growing them on agar plates in a lab.

*Lycogala epidendrum* is also know by the common names of wolf's milk slime and toothpaste slime. It is a myxomycete in the Retulariaceae. The plasmodium is pinkish and has a paste-like consistency. The fruiting bodies are 3-15 mm in diameter, variable or bright red in color and sessile. As the sporocarp matures it turns yellow-brown and the spores are pinkish-gray (Figure 2: Scott # 811f).

*Arcyria globosa* is a myxomycete in the family Arcyriaceae. Sporangia globose, 0.36-0.40 mm in diameter, beige. Stalk dark, yellowish by transmitted light, up to 0.32 mm long. Found on bark of trees or dead leaves. South and North America, Europe, Africa and Asia. (Figure 3 Scott # 1173)


Figure 3: *Arcyria globosa* on Belarus Scott #1173.


Figure 4: *Cribraria purpurea* on Belarus Scott #1174.

*Cribraria purpurea* is a myxomycete in the family Cribrariaceae. Plasmodium red-purple, becoming scarlet before sporulation. Sporocarp 0.6-1 mm diameter, erect with stalk 1.5-2.5 mm purple-red, reddish-purple to purplish-pink. Found on rotten wood. In Japan restricted to sub-alpine forests. (Figure 4 Scott #1174).

*Physarum album* is a myxomycete in the family Physaraceae. Common name is many-headed slime. Plasmodium is white or gray. White sporangia are gregarious 1-1.5 mm, erect or nodding, globose or lenticular, contain lime deposits. Stalk yellow, olivaceous or black, tapering, wrinkled. Found on decayed logs and dead trees. Cosmopolitan. (Figure 5 Scott #1175).


Figure 5: *Physarum album* on Belarus Scott #1175.


Figure 6: Souvenir sheet of 3, Comoro Islands Scott #811l, with *Lycogala epidendrum* in the center.

Comoro Islands Scott #811f was issued in a miniature sheet of 9 (Figure 1) and a souvenir sheet of three Scott # 811l (fFtigure 6). Scott 811 was overprinted and surcharged to 200 fr (Scott #826Fi) in 1997-98 Figure 7. Detail of the overprint is shown in figure 8. There are two sizes of F on overprints on the 525 fr (Scott #811h-j). Most of the overprints were used locally and few mint copies are available.


Figure 8: Overprint on Comoro Islands Scott# 826F.

Varieties such as inverted or doubled overprints exist on some of the stamps overprinted at this time, but none have been described for Scott # 826Fi.


Figure 9: First Day Cover of Belarus Scott #1173-75.

Belarus Scott#1173-75 (Figure 9) were designed by Marina Yurchik from photographs by Yevgeniy Moroz. They are printed on chalk-surfaced gummed paper in sheets of 6 stamps. 36,000 of each duty were printed by multicolor offset by Republican Unitary Enterprise "Bobruisk Integrated Printing House named after A.T.Nepogodin". The stamps have an invisible security mark (Figure 10).


Figure 10: Security marks shown in white are present on the stamps from Belarus.

The cachet for the FDC was designed by Marina Yurchik, as was the cancel, which was applied at Post Office No.1 in Minsk (Figure 11).


Figure 11: FDC cancel on Belarus Scott #1173-75.

According to Bulletin #10 (861) from Belpochta, “Photos for the project were made by a research associate of the laboratory of mycology of the V. F. Kuprevich Institute of Experimental Botany of the NAS of Belarus Ye. iL. Moroz at the Centre for the collective use of scientific equipment "Cellular and molecular technologies for the study of plants and fungi" of the V. L. Komarov Botanical Institute of RAS with the support of Professor Yu. K.Novozhilov, Doctor of Biological Sciences.”


Figure 12: Souvenir sheet Belarus Scott # 1175a.

The souvenir sheet of 6 (Scott #1175a, Figure 12) is 123 x 90 mm and was printed in a quantity of 8,000. The face value of the non-denominated A stamps is 54k on the date of issue and is valid for domestic letters to 20 grams. The value for the N stamp is 1.32r and is valid on postcards sent abroad by surface mail. The H stamp is valued at 1.64r for surface letters to 20 g sent abroad.

Slime mold research has resulted in their use for modeling other biological and non-biological processes. Slime molds have been tested for “memory”. In an experiment by Broussard et al published in 2019, slime molds were habituated to sodium, which is a repellent. Allowed to go dormant, the slime mold retained the habituation after being revived. This is a type of non-neurological memory. In the search for food, slime molds reach out with a network of plasmodium. NASA is looking at slime mold networks as a model for the universe where dark matter ties parts of the universe together. Slime molds are being used to inspire soft bodied robots which mimic how slime molds move. Because they are somewhat like a large cell with many nuclei, they are being used to study biological processes like phagocytosis, cell division, intercellular communication, cell differentiation and morphogenesis.

And if you would like to see some great photos, go to this web site:

http://www.myxomycetes.net/Myxomycete_Beauty/

**References**: Accessed January16-17, 2021

**General**

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**Stamps**
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https://belpost.by/en/philately/infolists/3054

**Research**
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**Species Descriptions**
***Lycogala***
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***Cribraria***
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https://www.mycoquebec.org/bas.php?trie=C&l=l&nom=Cribraria%20purpurea%20/%20Cribaire%20pourprée&tag=cribraria%20purpurea&gro=73
***Physarum***
http://www.hiddenforest.co.nz/slime/family/physaraceae/physa06.htm