

Slime mold as method. Ethnography of scientific practice

Slime molds (Myxomycetes) are single-celled organisms classified in the kingdom Protista. According to estimates slime molds evolved 0,5-1 billion years ago and were originally classified as fungi for their similar outer appearance, habitat and reproductive cycle. However, in the mid-20th century it was discovered that they exhibit some animal behaviors: they can move in search for food sources and their main food source are bacteria and fungal spores. At the stage of their reproductive cycle called plasmodium they form a single cell with millions of nuclei, that is visible with naked eye.

Physarum polycephalum is the slime mold that has attracted the most attention not only from biologists, but also from philosophers, sociologists, informatics and robotics scholars as well as artists. Despite being a one-celled organism, it displays behaviours that have been interpreted as primary forms of memory, intelligence and learning ability. Due to the relative easiness of culturing the plasmodium, *Physarum polycephalum* is popular among DIY biologists and biohackers and is a staple organism in the increasingly popular open wetlabs run by non-governmental organizations.

Since the organism became famous for finding a way out of a maze, re-creating the Tokyo subway system, and controlling a robot, it has been employed to solve countless tasks and puzzles by amateurs and professional biologists alike. It can be used as a model for human behaviour, which the artist Heather Barnett applies in her projects investigating analogies between human and animal behaviour. Its remarkable problem-solving abilities inspired the artist and philosopher Jonathon Keats to initiate the project Plasmodium Consortium (2017-2108), during which *Physarum polycephalum* was employed as Visiting Professor in Hampshire College, Amherst, USA, and was tasked with providing solutions to a number of social problems, such as the opioid crisis or immigration policy.

Despite the large number of scientific and artistic projects involving *Physarum polycephalum*, there is no empirical social research exploring the socio-cultural aspects of this phenomenon. However, it can be assumed, that the popular interest in slime mold is connected with the development of bio-art, biohacking and DIY biology. These in turn are a reaction to and a result of the rapid development of biological sciences and biotechnology, and the new questions that they pose regarding the place of humans among other living being, relations between individuals and their environment, shifting definitions of the individual, mechanisms of evolution etc. They also afford new opportunities for doing biology in home-made labs by persons without academic biological education.

This project asks why *Physarum polycephalum* may have something to say about humans and their social behaviors. Within what scientific practices do humans and slime mold become similar? What are humans and what is slime mold within this relation? What theories, procedures and research methods allow to treat slime mold as a tool for research on social systems?

The answers to these questions will be delivered by a multi-sited ethnographic research at three localizations: a university, an open wetlab run by a non-governmental organization and with an informal biohacking collective. Such choice of research participants will allow to describe new social phenomena connected with the development of biotechnology and the democratization of access to it, and pinpoint possible differences in approaches to slime mold in different social contexts.