Materiale iconografico per una teoria del Repubblicanesimo Geopolitico, della sua filosofia della prassi e del paradigma dialettico-espressivo-strategico-conflittuale
"endosymbiosis": homage to lynn margulis

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Endosymbiosis: Homage to Lynn

Last November, I read of the sudden death of Lynn Margulis, controversial evolutionary biologist and one of my heroines. Her various books, including *Origin of Eukaryotic Cells, The Five Kingdoms, What Is Life?, Microcosmos,* and *Dazzle Gradually* (some written with her son Dorion Sagan), shaped my understanding of life on Earth and, through their clear and often poetically charged writing, told a story of cooperation, complexity and dazzling beauty. Margulis' endosymbiotic theory posited that evolution at a cellular level occurs primarily through symbiosis rather than random mutations. This means that creatures who might otherwise eat and thus kill each other, end up living one inside the other, creating more complex organisms and cooperating with each other to the advantage of both organisms. In biological terms, Margulis showed that eukaryotic cells (cells with a nucleus, like ours) developed as a merger of less complex cells (prokaryotes, such as bacteria). One of
the most well-known mergers resulted in mitochondria becoming the energy provider of eukaryotic cells.

In my painting are some of the main players of the endosymbiosis drama as described by Margulis. In the upper portion, ancient snake-like bacterial spirochetes are attaching themselves to other single-celled organisms, becoming the tail or undulipodium ('waving foot') that provides locomotion for the host cell. The modern sperm cell is one of Margulis' examples of successful endosymbiosis. At the very top of the painting are portions of three large eukaryotic cells: the two nuclei on the right are filled with red DNA strands; the one on the left is in the process of dividing to form two new daughter cells. In the lower half of the painting, modern single-celled protozoa use their hair-like cilia to swim and to create swirling vortices that pull in their prey. Tiny rod-shaped blue and purple bacteria fill the rest of the dark viscous element. The blue snake-like shape represents the life force, always moving, pulsing with wave-like energy.

After reading of Dr. Margulis' death, I looked at her books on my bookshelf and suddenly felt very sad that there would be no more. Then I started this painting in her honor, immersing myself in what I felt was her world, hoping to create something that would awe people with the beauty of the microbial world to which she dedicated her career, and to introduce her theory of endosymbiosis. As it stands now, the painting will be featured in my solo exhibition entitled "MATTER GONE WILD" at the Thorndike Gallery of Southern Oregon University, from February 27 to March 23. In addition, a six-foot-wide reproduction of "Endosymbiosis" will be displayed at the University of Massachusetts Amherst's symposium, Celebrating a Life of Science: In Memory of Lynn Margulis from March 23-25. Dr. Margulis' lab administrator wrote to me, "Lynn would have been thrilled by this painting." As often happens in life, the compliment was bittersweet. If only I known that, I would have painted it earlier and sent it to Dr. Margulis so she could enjoy it. There's an old lesson to be re-learned here: there is so much in life we cannot know; thus, live life as fully as possible each day, and don’t wait too long to do something good in the world.
Here is a quote from that marvelous paragraph from the 2000 edition of *What Is Life?* (page 55) that inspired and sparked many of my recent paintings: "So, what is life? Life is planetary exuberance, a solar phenomenon. It is the astronomically local transmutation of Earth's air, water, and sun into cells....Life is the single expanding organization connected through Darwinian time to the first bacteria and...to all citizens of the biosphere.....**It is matter gone wild**, capable of choosing its own direction in order to forestall the inevitable moment of thermodynamic equilibrium—death." Meanwhile, to paraphrase T.S. Eliot, "We are the music while the music lasts."

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