Charged bacterial spore uplift and outflow via electric fields

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The questions of "how did life arise?", and "is there life on other planets?", are some of the most profound questions that humanity asks. Although there has been controversial signs of past bacterial life in meteorites (which originated on Mars), and there are current claims of bacterial life high in the atmosphere, the issues of origin by chemical process or contamination make these types of results arguable, and they will likely remain that way until a comprehensive theory is developed to explain why the claims might be true.

This paper proposes a complete theory for the spread of bacterial life throughout the galaxy by combining current knowledge from the fields of bacteriology, stellar evolution, and "space weather". Here we show the possibility that the forces of uplift on a charged bacteria particle are sufficient bring at least some lighter types of bacteria high into the ionosphere, and subsequently move the charged spore onto magnetic field lines. The bacteria spore is then driven down the magnetotail, where, during a solar storm, a structure known as a plasmoid is propelled radially outward into space at velocities exceeding solar system escape velocity. From that point, the plasmoids are capable of reaching Mars, the outer planets, and even others systems, eventually depositing the bacterial spores either via comets or direct interaction with the receiving planet.

The solid observational evidence for the strength of the electric fields, and the speeds that the plasmoids leave the magnetotail during geomagnetic storms provide a firm framework for the theory. The documented measurements of electric charge on bacteria, combined with the capability to form a spore which resists the vacuum and cold of space suggests that some bacteria did evolve that capability over time; even the magnetotatic ability to migrate in the direction of the planet's pole suggests an evolution in bacteria to take advantage of the strong magnetic and electric fields.

Direct and uncontroversial evidence of bacteria on Mars or high in the atmosphere does not exist; however, three hundred years of observations by dedicated astronomers of seasonal changes of the color change on Mars, especially the observations of "blooms" of color change when viewed with specific color filters on Mars *near or at opposition*, provide extensive historic observational support for this theory. The fact that Viking's life experiment initially registered life readings, even though they landed in a ruddy "dessert" areas (i.e.not a green area), and so less likely to find abundant

life, also may be considered as a weak confirmation of the theory. The fact that the initial Viking readings are now considered more seriously as signs of life by at least one scientist who worked closely with the experiment provides a further suggestion that Mars may now - at this moment - harbor life delivered from Earth by the proposed physics.