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New NASA close-up images of freshly broken open rocks by the Curiosity rover wheels could incidentally verify that the 1976 Viking Mission found microbial life

A possible new test for extant life on Mars has been implemented by NASA on May 16th 2016 largely based on an idea put forth by a rejected proposal submitted last year by Buckingham Centre for Astrobiology (BCAB) researchers Barry DiGregorio as Principal Investigator along with co-investigator Gilbert V. Levin, an Honorary Professor of Astrobiology there. Levin is a former biology experimenter on the twin NASA Viking Landers in 1976 who designed and built a life detection instrument on both Viking Landers and for the last 30 years has claimed his biology experiment on Viking detected living microbes. The Buckingham Centre for Astrobiology (BCAB) proposal titled, "A search for extant endolithic and hypolithic microbial communities in broken and overturned rocks by the MSL rover wheels using MAHLI" (NASA ROSES AO 2015: NNH15ZDA001N-MSLPSP, was submitted to NASA's ROSES 2015 Mars Science Laboratory Participating Scientist program on June 3rd 2015. Other co-investigators on the proposal were Ronald I. Dorn from Arizona State University, Robert Lodder from the University of Kentucky and Giorgio Bianciardi from Siena University (Italy).

<http://www.buckingham.ac.uk/wp-content/uploads/2011/09/University-of-Buckingham-Astrobiologists-Endorsed-by-UK-Space-Agency-to-Look-for-Life-on-Mars.pdf>

Although the UK Space Agency reviewed and endorsed the BCAB proposal concept and recommended to NASA that it become part of Curiosity's extended mission, offering to fund it, the offer was declined by NASA in February 2016. Under the four -year plan outlined by the BCAB team, the NASA rover, currently still active on Mars, would for the first time since the mission began, take close-up, high-resolution images using the rovers MAHLI camera of newly exposed surfaces of rocks split open by Curiosity's wheels as it drives over them. Then chemical analyses by the rover along with multi spectral scans using wavelength frequencies associated with photosynthetic pigments, would then be studied for features similar to those of endolithic microorganisms commonly found about a centimeter or so beneath the surface of rocks in the Antarctic and other cold regions of Earth.

Although NASA declined to accept the offer of the UK Space Agency, it announced on Friday May 13th 2016 that the Curiosity rover would carry out a similar plan similar to that as suggested by DiGregorio's team.

Read NASA's Mars Mission update for Sols 1341-1343: A change of plans for Fri, 13 May 2016 at this link

<http://mars.jpl.nasa.gov/msl/mission/mars-rover-curiosity-mission-updates/>



Fig. 1 One of the newly returned images from the Curiosity rover MAHLI camera showing freshly exposed interior of a rock cracked open by the rover wheels – credit NASA/JPL

DiGregorio says he is not concerned about who gets credit for the experiment as long as it gets done, and says he and his team are delighted that is happening. “Despite the NASA rover’s lack of a dedicated life detection experiment, to think it is still possible to elucidate on whether or not Mars rocks harbor extant life inside them is exciting, this is because the photosynthetic pigments and textures of such endolithic and hypolithic microbial communities can easily be seen by the naked eye examining the newly broken rock surfaces with the MAHLI camera.”

To see the new MAHLI images of freshly broken rocks by the rover wheels posted earlier this week go to the following links:

<http://mars.jpl.nasa.gov/msl/multimedia/raw/?s=1344&camera=MAHLI>

<http://mars.jpl.nasa.gov/msl/multimedia/raw/?s=1345&camera=MAHLI>

Even though the rover wheels have broken open dozens of such rocks on Mars since the mission landed in August 2012, none of them were given a close-up scrutiny until now. The new NASA MAHLI close-up images of the freshly broken rocks from May 13th and 16th, 2016 are the first close-ups of their kind. Although no apparent biological features were seen, DiGregorio points out that the search is only beginning. His team anxiously awaits new images and data.