UFO UpDates Mailing List

UpDate: Scientists Strengthen Prospects For Life On Mars

From: **Lan Fleming <apollo18@swbell.net>**
Date: Fri, 04 Aug 2000 20:54:17 -0600
Fwd Date: Sat, 05 Aug 2000 20:49:05 -0400
Subject: UpDate: Scientists Strengthen Prospects For Life On Mars

Below is the latest press release from Dr. Gil Levin, who for years has been defending his claim that his Labeled Release experiment on the Viking Mars landers discovered life despite NASA proclamations to the contrary. What's interesting about this release is not only that there is another scientist involved with Viking backing up some of Levin's arguments, but that his press release was actually released at all -- and by JPL's Public Information guy, Ron Baalke, no less. I had assumed that Levin's press release wouldn't get any farther than his own web page, and JPL is the organization I'd least expect to see this coming from. Maybe there's been a shift in the political winds in Pasadena.

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From: Ron Baalke <baalke@zagami.jpl.nasa.gov>
Subject: New Information Supports Claim Viking Discovered Life in 1976
To: astro-l@uwwvax.uww.edu (Astronomy List)
Date: Wed, 2 Aug 2000 08:10:33 -0700 (PDT)

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FOR IMMEDIATE RELEASE: August 1st, 2000

SCIENTISTS STRENGTHEN PROSPECTS FOR LIFE ON MARS

New Information Supports Claim Viking Discovered Life in 1976

SAN DIEGO, CA -- On the heels of NASA's decision to land new rovers on Mars, the debate over the existence of life on the red planet is heating up. Dr. Gilbert V. Levin, a chief proponent, today advanced his claim to finding living microorganisms on the elusive planet 25 years ago. Dr. Levin, one of a trio of scientists, including himself and another who participated in NASA's Viking Mission, was presenting a paper at the Annual Meeting of the International Society for Optical Engineering refuting the mainstay arguments against life on Mars. He contends that those arguments -- the presumed absence of organic matter and of liquid water -- are no longer tenable.

Levin, senior author of the paper and President of Biospherics Incorporated (NASDAQ/BINC), Beltsville, Maryland, was Experimenter on the Viking Labeled Release (LR) life detection instrument that landed on Mars in 1976. His tests produced evidence for life that sparked a continuing controversy. The consensus of interested scientists has been that the Viking LR results on Mars, though positive, were chemical in origin and not biological. However, in a 1997 publication, following two decades of study, Levin finally concluded that Viking had, indeed, detected living microorganisms on Mars. Acknowledging that many scientists may remain unconvinced, he now proposes a new test to settle the issue once and for all, and urges that it be sent on the next lander mission to Mars.

Co-author Dr. Arthur Lafleur, Assistant Director of MIT's Environmental Health Science Center, provided information that refutes the most often cited argument against the LR life detection experiment -- the lack of organic matter, the stuff of life, on Mars, as reported by the Viking organic analysis gas chromatograph mass-spectrometer (GCMS). Lafleur, who helped develop the Viking GCMS instrument, and a co-author of the original report of no organic matter on Mars, revealed unpublished results of pre-mission tests. They showed that the instrument sent to Mars could easily have missed biologically significant amounts of organic matter in the soil, as it had in a number of tests on Earth. Thus, the Mars GCMS results no longer can be considered proof that the LR failed to detect living microorganisms.

[Note: the GCMS failure to detect organic compounds is usually cited as the conclusive evidence that Levin's experiment did not detect life. The support of Levin's position by one of the developers of the GCMS is therefore highly significant -- LF]

Co-author Dr. Lawrence Kuznetz, University of California, Berkeley, Department of Planetary Sciences, has put to rest the second prevailing argument against the possibility of life on Mars, that the atmosphere of the planet is too thin to support the existence of life -- essential liquid water. Results of a laboratory study by a team of researchers led by Kuznetz showed that liquid water does exist under Martian environmental conditions. In addition, Kuznetz found results from 1960's tests of cooling systems of astronaut space suits showed that water exists in liquid form under atmospheric pressure as low as that on Mars. The findings lend credence to a model for Martian water published in 1998 by Levin and his son, Ron, a Ph.D. physicist at MIT Lincoln Laboratory. Based on Viking and Pathfinder data, the model predicted amounts of moisture in the Martian soil equal to that found to nourish microbial life in the sand dunes of Death Valley, California. Corroborated by the new NASA announcement of evidence for recent or current liquid water on Mars, these reports dispel the no-liquid-water issue against the Viking LR results.

The authors support Levin's "chiral LR" experiment and propose that it be sent to Mars at the next opportunity. The experiment would apply the proven LR technology to test Martian soil for a unique characteristic found in all known forms of life, but not in chemical reactions. This characteristic is the biological preference for one of two possible configurations of certain organic molecules. The scientists state that the experiment can return an unambiguous answer to the major scientific question of life on Mars that would be acceptable to virtually all scientists.

Dr. Levin was an Experimenter on NASA's Viking Mission to Mars, a Co-Investigator on NASA's Mariner 9 Mars mission, and was a Team Member of NASA's MOx instrument placed on the ill-fated Russian 1996 Mars Lander. He received NASA's Public Service Award "In recognition of his achievements in designing, perfecting, and conducting the Viking Labeled Release Experiment."

Since his Viking experience, Levin has led the biotechnology efforts at Biospherics, the publicly held Maryland Company he founded in 1967. His developments include a full-bulk, low-calorie sweetener, tagatose, soon to come on the market, and the safe-for-humans, environmentally friendly pesticide, FlyCrackerTM, introduced into the market this year. The Company also provides information services to government agencies and private industry.

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Under its motto, "Technologies for Information and Health," Biospherics' mission is to provide guidance and products to improve the quality of life. Biospherics offers biotechnology innovations, information technology solutions, and information center services.

Biospherics Incorporated's Internet address is: http://www.biospherics.com .

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BACKGROUND

SCIENTISTS STRENGTHEN PROSPECTS FOR LIFE ON MARS

New Information Counters Long-Held Opposition

The 1976 Viking Mission LR results met all the pre-mission criteria established for the experiment by NASA and its scientific review committees for proof of life on Mars. However, the failure of the GCMS to find organic matter in the Martian surface material led to caution. Accordingly, Levin did not claim the LR experiment had detected life, but merely stated that the results were consistent with biology. Other scientists stated that, without organic matter, there could be no life.

They quickly advanced theories attributing the LR response to the putative presence in the soil of the strong oxidant, hydrogen peroxide, or its derivatives. It was also contended that liquid water could not exist on the surface of Mars, because of the low atmospheric pressure, in itself precluding any possibility of life. Levin spent considerable time over the 20 years following Viking poring over the issue of life on Mars, including three years of laboratory efforts vainly seeking a non-biological explanation of the Mars LR results. Over the years since Viking, he followed relevant discoveries such as: the finding of life in many extreme environments on Earth, evidence of microbial fossils in meteorites from Mars (with NASA now explaining that the Viking GCMS may not have been sensitive enough to detect the small amount of organic matter constituting such organisms), the physics of water on Mars, and other physical, chemical and biological findings impinging on the Mars life issue. His continuing analysis finally reached a point where, in 1997, Levin published a paper in which he concluded that his Viking experiment had indeed detected living microorganisms in the soil of Mars.

Despite the fact that the 1997 paper cited recently published work by NASA scientists disproving the presence of hydrogen peroxide on Mars, and made a strong case by Levin confirming NASA's suggestion that the Viking GCMS may overlooked organic matter on Mars, considerable criticism was evoked. It now concentrated on the liquid water issue as the principal remaining argument against the LR results. In 1998, Levin and his physicist son, Ron, published a paper outlining a model for the existence of liquid water on Mars. They claimed that atmospheric physics and thermal conditions on Mars provided moisture to the top layer of soil in amounts sufficient to sustain life.

Dr. Lafleur read Levin's papers on the Viking LR experiment and, impressed by them, in 1999 contacted Levin to tell him of unpublished problems that he found as an engineer in developing the Viking GCMS at MIT. He thought the GCMS results might be explained without impairing the LR results. Dr. Kuznetz, teaching planetary science at UC Berkeley, invited Levin to give a talk about his Viking experiment. Intrigued with the liquid water issue, Kuznetz searched and found evidence for liquid water existing under low-pressure conditions during tests made on cooling systems developed for astronaut space suits. He then

undertook laboratory experiments proving that liquid water exists under Martian pressure and temperature. While the present paper was in preparation, NASA announced the finding of strong evidence for current-era liquid water on Mars, confirming the theory and the experimental data reported by the Levins and Kuznetz.

Levin now believes that the biosphere will soon be acknowledged to include Mars. He thinks that, in a few years, people will wonder at the difficulty that delayed acceptance of the discovery of life on Mars in the face of the accumulating facts. All the links necessary for life on Mars have been forged: terrestrial microorganisms can live under Martian conditions; there is liquid water available to microorganisms on Mars; contrary to the GCMS results, organic matter seems certain to be on Mars (photo-chemically synthesized from the atmospheric gases and also deposited by meteorites); Earth and Mars have traded materials that could readily have contained bacteria; bacteria can be preserved for up to millions of years under the vacuum and low temperature of space travel; bacteria transported in meteorites can survive entry temperatures into the Mars or Earth atmospheres and the thermal and mechanical shock of landing; and freeze-dried bacteria are known to establish full metabolism very shortly upon entering a favorable environment. These facts relieve scientists from the difficulty of accepting separate origins of life on Mars and Earth, an extremely unlikely happenstance. Now, it is possible that life on either planet may have come from the other -- or from a third source.

Levin believes that NASA's one billion dollar Viking Mission to find life on Mars was successful, and that the answer has been staring scientists in the face for nearly a quarter of a century. The simple, relatively low-cost and easiest way to finally settle the issue is to send the chiral LR experiment on the next Mars mission.

NOTE: Additional info is available at

http://www.biospherics.com/Mars/index.html

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