PROOF OF ALIEN LIFE ON MARS?

By Henry Holden

SOME SCIENTISTS believe alien life on Mars did exist. The evidence is growing stronger that a form of alien life at one time inhabited Mars, and may still be there. The evidence is both subterranean and in atmospheric anomalies.

These scientists believe evidence of alien life on Mars exists but went unnoticed. In 2007, the Spirit rover photographed unusual finger-like rock formations at the Home Plate plateau, a 28 square metre area in the Gusev crater, near the Martian equator.

However, NASA shut the Spirit rover mission down after the robot became stuck in a sand trap in 2011. Consequently, it never had the chance to re-examine the formations or go back to check for signs of life, or take new photos. The current active rovers, Curiosity and Opportunity, are also too far away to take a detour, and NASA's next rover is not due to launch until 2020.

SUBTERRANEAN EVIDENCE

The cold and dry conditions on Mars lead scientists to believe that evidence for life may be below the surface where the dangerous effects of radiation are lessened, in the form of organic molecules known as biomarkers.

Geologists from the University of Arizona discovered nearly identical structures at El Tatio, Chile, which were created by a combination of hot springs and micro-organisms.

El Tatio has conditions much like Mars. Situated at 14 000 feet (4 267 metres) above sea level, summer temperatures often drop below freezing at night. By day huge amounts of ultraviolet light, and cosmic rays from the Sun penetrate the thin atmosphere.

The formations on Mars are like structures on Earth known as stromatolites, formed when microbes form colonies in wet environments and trap sediment on their sticky surface coatings. That sediment eventually reacts to calcium carbonate in the water and forms a build-up of uneven limestone layers.

"We went to El Tatio looking for comparisons with the features found by Spirit at Home Plate," said Dr. Steve Ruff, of the school of Earth and Space Exploration, in Arizona.

"Our results show the conditions at El Tatio produce silica deposits with characteristics that are most Mars-like of any silica deposits on Earth.

"The fact that microbes play a role in producing the distinctive silica structures at El Tatio raises the possibility that the Martian silica structures formed in a comparable manner – in other words with the help of organisms that were alive at the time," said Ruff.

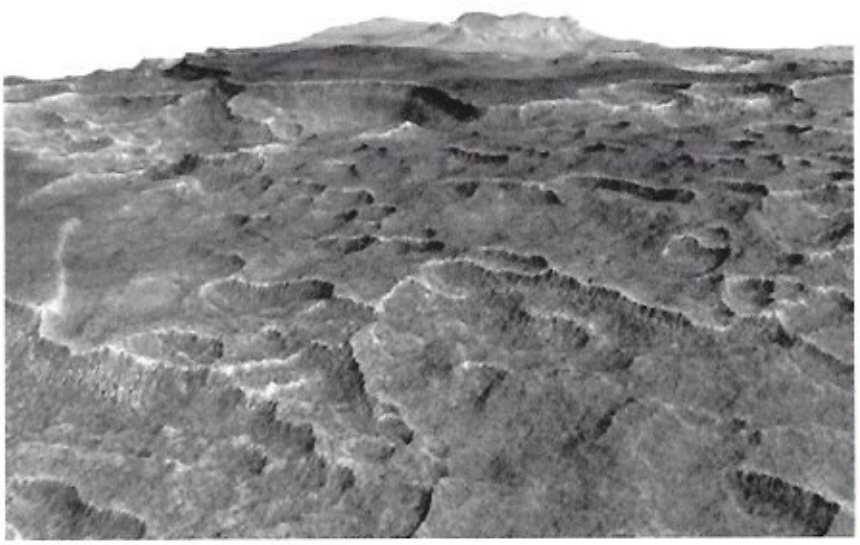
ATMOSPHERIC EVIDENCE

Mars seems to be the best chance of finding evidence of extra-terrestrial life because it once had running water and an atmosphere. The hope of discovering life heightened in December 2014, when NASA's Curiosity rover recorded pockets of methane gas.

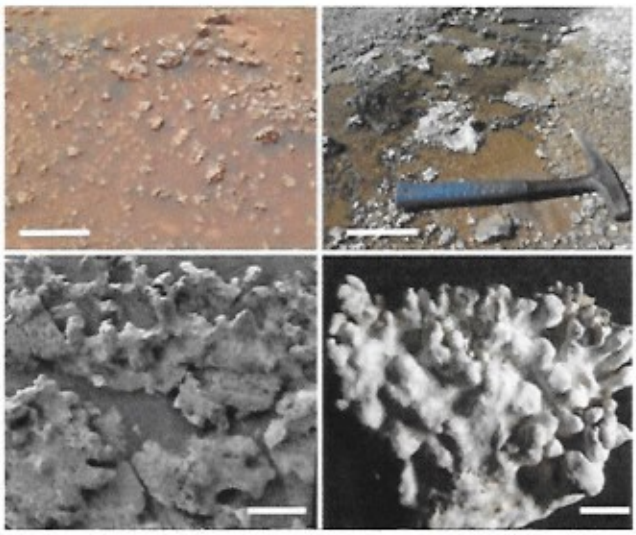
On Earth, around 90 percent of methane gas comes from organisms, so the expectation is that a life-form is also emitting the gas on Mars.

The researchers carefully simulated the atmospheric chemistry of alien worlds devoid of life thousands of times, over a period of more than four years.

"When we ran these calculations, we found that in some cases, there was a significant amount of ozone that built up in the atmosphere, despite there not being any oxygen flowing into the atmosphere," said Shawn



This vertically exaggerated view shows scalloped depressions where such textures prompted researchers to check for buried ice, using ground-penetrating radar aboard NASA's Mars Reconnaissance Orbiter. They found about as much frozen water as the volume of Lake Superior. For comparison, Lake Superior is 82 100 km2 compared with Lake Victoria 68800 km2. (NASA/JPL-Caltech/University of Arizona)



The Columbia Hills as viewed by the Spirit rover (left) compared with the El Tatio hydrothermal field in Chile. (NASA / JPL-Caltech / Cornell / ASU)

Domagal-Goldman, of NASA's Goddard Space Flight Centre. "This has important implications for our future to look for life beyond Earth."

On Earth, methane is produced biologically (flatulent cows and undersea decay are classic examples), but it can also be made inorganically; for example, volcanoes at the bottom of the ocean can release the gas after it is produced by reactions of rocks with seawater.

"However, our research strengthens the argument that methane and oxygen together, or methane and ozone together, are still strong signatures of life," said Domagal-Goldman. "We tried hard to make false-positive signals for life, and we did find some, but only for oxygen, ozone, or methane by themselves."

"Methane and oxygen molecules together are a reliable sign of biological activity. The best way to replenish methane in the presence of oxygen is with life. The opposite is true, as well. To keep the oxygen around in an atmosphere that has a lot of methane, you must replenish the oxygen, and the best way to do that is with life," said Domagal-Goldman.

A review of a study called Viking Labelled Release from the 1970s, which saw two probes land on Mars, has brought exciting claims that soil collected from Mars shows microbial life.

The crafts landed 4 000 miles (6 437kms) from each other and both yielded similarly shocking results following an analysis of Martian soil.

Scientists noted that the samples showed signs of microbial life – and were uncannily like the same tests on soils from California, Alaska, and Antarctica.

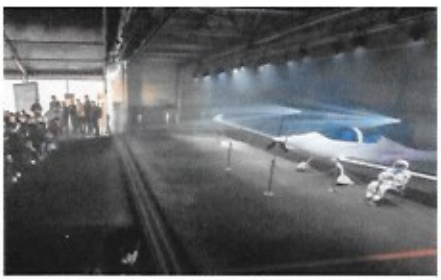
However, Dr. Gilbert V. Levin, from the University of Arizona, and Dr. Patricia Ann Straat, from the National Institute of Health, now claim this was, in fact, proof of life on Mars.

With manned missions to Mars now in the near future, the pair says the results need to be confirmed for health and safety reasons for when humans do make it to Mars.

The two scientists say: "Plans for any Mars sample return mission should also consider that such a sample may contain viable, even if dormant, alien life." →

SOLAR TO THE STRATOSPHERE

By Geoff Jones



AFFORDABLE, "GREEN" research of the earth's stratosphere took a major step forward at Payerne, in Switzerland, recently when Raphaël Domjan's stratospheric solar plane, the SolarStratos was unveiled in front of 300 guests, project partners, government officials, ambassadors and the media.

A tandem, two-seat, 24,8 m span low-wing unpressurised monoplane, weighing 450 kg, it embraces the project's ethic to move beyond fossil fuelled engines using a 32kE solar, electric engine driving a four-blade, 2,2m propeller.

The SolarStratos project was initiated in 2014, Raphaël Domjan stating that "..it will be the first manned solar-powered aeroplane to penetrate the stratosphere. Previous and current research of the stratosphere uses large quantities of energy and helium"

An area of 22 square metres of solar cells cover the composite and carbon fibre airframe and wing structures of the upper wing and horizontal tail surfaces, powering the 20kW/hr Lithium-ion batteries. Pilot Domjan will wear a solar-energy powered space suite to fly to 25 000 m (82 000 ft) describing the research flights as, "an eco adventure by an eco-explorer".

Currently in the final development phase, the roll out and first medium altitude flights are planned for mid-2017, the initial stratospheric flights following in 2018.

The project is backed by SolarXplorers SA Group whose CEO is Roland Loos who said at the launch: "The SolarStratos opens the door to new scientific knowledge, at an affordable price, for the exploration and the peaceful use of our stratosphere" →