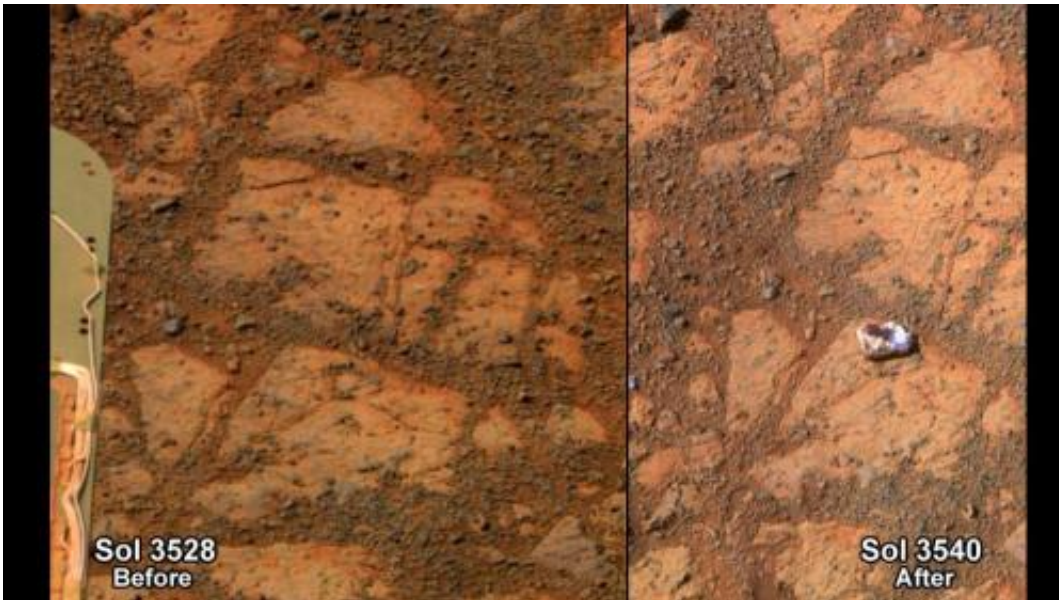


# Some ideas on where the 'Jelly Donut' rock on Mars came from

January 30 2014, by Nancy Atkinson

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This before-and-after pair of images of the same patch of ground in front of NASA's Mars Exploration Rover Opportunity 13 days apart documents the arrival of a bright rock onto the scene. Credit: NASA/JPL-Caltech/Cornell Univ./Arizona State Univ.

Hoo boy. Just mention the word "mystery" in conjunction with the planet Mars and all sorts of folks come out of the woodwork. Some start talking about silicon-based alien life forms or Mars-based reptiles or projectiles being tossed by little green men. The latest is that there's an exotic mushroom on Mars, and this idea has sparked a lawsuit against NASA.

This all started when a strange [rock suddenly appeared in photos from the Opportunity rover](#) in a spot where photos taken just 12 sols (Mars days) earlier showed no rock. Mission principal investigator Steve Squyres talked about it during the recent 10-year anniversary celebration for the rover.

"It appeared," Squyres said during the event. "It just plain appeared and we haven't driven over that spot."

They've named the rock "Pinnacle Island," and Squyres and the Mars Exploration Rover team think the most likely scenario is that the rover actually dislodged the rock with its wheels and flicked it to a new spot as the rover was turning. "We had driven a meter or two away from here and somehow maybe one of the wheels managed spit it out of the ground," Squyres said. "That's the more likely theory."

Another idea is that the rock is a piece of ejecta – a piece of rock which plunked down near the rover after being blasted out of the ground by a nearby meteoroid impact.

An idea favored by our readers here on Universe Today is that it possibly was a meteorite, dropping in from space and landing near the rover. Another thought is that since Opportunity is currently at Solander Point, a mountain of sorts, the rock may have rolled down to its new spot from a higher outcrop.

We checked in with Steve Squyres to see if there any new possibilities and he said the team thoughts on the rock's appearance are the same as they were last week.

"We think the most likely hypothesis is that it was dislodged by the rover wheels from a location that may currently be obscured by the solar arrays," he said via email.

Squyres described the rock as "white around the outside, in the middle there's low spot that is dark red. It looks like a jelly donut," and said it's like nothing they've ever seen before on Mars.

Then things got weird. We received an email this week from neurologist and self-proclaimed astrobiologist Dr. Rhawn Joseph, of the Journal of Cosmology fame who we've previously written about.

He has filed a lawsuit in the US District Court Northern District of California claiming the white rock is biological in nature and is seeking an order forcing NASA, Administrator Charles Bolden, and others including Squyres to "examine a biological specimen on Mars" and that NASA is failing to investigate the rock thoroughly enough.

Joseph is petitioning the Federal Court for a writ of mandamus to "compel and order" NASA to "perform a public, scientific, and statutory duty which is to closely photograph and thoroughly scientifically examine and investigate a putative biological organism which was identified (and thus discovered) by Petitioner."

From the lawsuit:

*"Petitioner immediately recognized that bowl-shaped structure, hereafter referred to as Sol 3540, resembling a mushroom-like fungus, a composite organism consisting of colonies of lichen and cyanobacteria, and which on Earth is known as Apothecium."*

*"When examined by Petitioner the same structure in miniature was clearly visible upon magnification and appears to have just germinated from spores."*

(Yeah, we've [discussed](#) previously the problems with zooming in on rocks on Mars – people start seeing crazy things).

For one thing, this is a rock. A rock. Squyres has said Pinnacle Island is very high in sulfur and magnesium, with twice as much manganese as anything else they've seen on Mars.

Second, the rover team is already throwing everything they've got at this rock.

"We are as we speak situated with the rover, with its instruments, making measurements on this rock. We've taken pictures of both the donut part and the jelly part," Squyres said during the 10-year anniversary event.

Third, Joseph is not the "discoverer" of this rock. The MER team is and they've given full disclosure, talking frequently about the rock and posting all the images they've taken of the rock available for anyone to peruse.

So, where did this rock come from?

Of course, the folks from UnmannedSpaceflight.com have been discussing this rock before anyone else, since December when the images were first downloaded from the rover and put on NASA's rover raw images website.

They've offered a few ideas, but this image from sol 3544 pointed out by "marsophile" on the forum might be the most compelling:

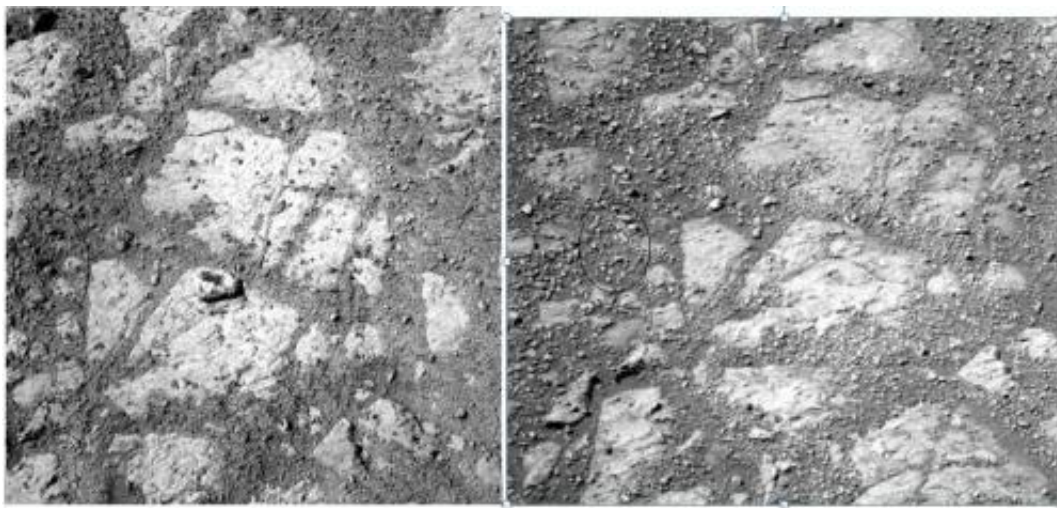


A disturbed area near the Opportunity rover that could be the spot where 'Pinnacle Island' came from. Credit: NASA/JPL.

There appears to be a hole in the ground where a rock may have previously been.

Another set of images submitted by Universe Today reader Yuksel Kenaroglu highlights a possible location where the rock may have come from, but changes in lighting might just be making things look different in the two images:





Two images from the Opportunity rover from Sol 3528 (right) and Sol 3540 showing possible location of where the 'Jelly Donut' rock came from. Image credit: Credit: NASA/JPL-Caltech/Cornell Univ./Arizona State Univ., notation via Yuksel Kenaroglu.

Joseph said he wants "A) 100 high resolution close-up infocus photos of the specimen identified in Sol 3540, at various angles, from all sides, and from above down into the "bowl" of the specimen, and under appropriate lighting conditions which minimize glare. B) Take a minimum of 24 microscopic in-focus images of the exterior, lip, walls, and interior of the specimen under appropriate lighting conditions. C) NASA, and the [rover](#) team must make public and supply Petitioner with all high resolution photos and images of that specimen as demanded in A and B."

Surely, Squyres and the MER team would like nothing better than to solve the mystery of how this rock appeared and just like the Mars flower, and the piece of plastic there's very little likelihood that biology plays any role in this rock an how it suddenly appeared.

If you want to see Joseph's lawsuit, [PopSci has it online](#).

Source: [Universe Today](#)

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